1977

Summary of Labor Impacts During Construction : Dickey-Lincoln School Lakes Project

Edward C. Jordan Company, Inc.

SUMMARY OF LABOR IMPACTS

DURING CONSTRUCTION

DICKEY-LINCOLN SCHOOL LAKES PROJECT

MAY 1977

PREPARED FOR THE

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS

NEW ENGLAND DIVISION

WALTHAM, MASSACHUSETTS

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SECTION 1
INTRODUCTION

1.1 STUDY OBJECTIVES

One objective of this study is to assess the effects or impacts of construction and operation of the Dickey-Lincoln hydroelectric project upon the people in the St. John Valley, Maine, and New England.

Having determined the effects of the project, a second objective is to discuss mitigation of defined adverse impacts. More specifically, this study attempts to identify adverse impacts and deal with how to minimize such impacts if at all possible.

A third objective, assessment of the conditions without the project, has also been defined by the Corps of Engineers. In general, EIS procedures should include a range of alternatives to the proposed action; however, the scope of this report is limited to assessment of this one alternative.

These three objectives provide for the analysis of the effects of the Dickey-Lincoln project and how to deal with them. However, this structure provides little opportunity for evaluating the project within the framework of accomplishing what it is supposed to do.

Therefore, the final objective of this study will be to assess Dickey-Lincoln in terms of its attainment of project objectives. How will this be done?

The Water Resources Council in "Water and Related Land Resources - Establishment of Principles and Standards for Planning"[1] states that:

> "...The overall purpose of water and land resource planning is to promote the quality of life, by reflecting society's preferences for attainment of the objectives defined below:
>
> A. To enhance national economic development by increasing the value of the Nation's output of goods and services and improving national economic efficiency.
>
> B. To enhance the quality of the enviornment by the management, conservation, preservation, creation, restoration or improvement of the quality of certain natural and cultural resources and ecological systems."[2]

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[1] Federal Register, Vol. 38, No. 174, September 10, 1973.

[2] Ibid, p.6.

Furthermore, the effect of a water and land resource-related project upon these objectives should be delineated into expressing the:

- Beneficial and adverse effects in National Economic Development
- Beneficial and adverse effects on Environmental Quality
- Beneficial and adverse effects in Regional Development.
- Beneficial and adverse effects on Social Well-Being

For Dickey-Lincoln, then, all beneficial and adverse impacts will be put into this context.[1]

1.2 METHODOLOGY

The existing labor force in Aroostook County has been analyzed by contacting local union halls, the most recent data available from the Maine Employment Security System, and a selection of Maine contractors. Along with other secondary data, the size and categories of the Aroostook County labor force have been assessed, as well as skilled unionized labor throughout Maine. This procedure provides the basis for predicting the future labor force supply. This analysis is especially important because the construction of the Dickey-Lincoln dam could have significant impacts upon the skilled labor force in Maine.

1.3 DEFINITION OF STUDY AREA

The study area for assessing the Labor Profile includes all of Aroostook County. This area was chosen because the economic effects of the Dickey-Lincoln dam would be relatively widespread and the measurement of these effects required a study area larger in size than the social profile.

It has been assumed that the primary impact area is within the United States. However, due to its proximity to Canada, the Dickey-Lincoln dam will have some impacts upon Canada as well. The question is how significant a barrier will the border be in estimating where and what impacts will occur. Politics may play a large role in determining this. Impacts upon the Canadian side of the border are, therefore, considered but are not elaborated upon within the scope of this study.

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[1] Ideally one would want to take a wide range of water/land resource projects and use this procedure to obtain the most suitable. However, as indicated earlier this study is limited to "with" and "without" conditions.

1.4 STUDY CONSTRAINTS

The assessment of the Dickey-Lincoln project has been constrained by the following:

1. Due to the desires of the Corps of Engineers, primary data gathering did not take place in Canada, and inclusion of Canadian interest has been limited to an overview level.

2. A complete evaluation of economic effects, as well as other environmental effects, cannot be put into proper perspective unless a complete range of reasonable alternatives to Dickey-Lincoln has been simultaneously examined. As was mentioned earlier, this study considers only one alternative to project implementation - no dam at all.

3. The economic assessment of any project should include input from the involved or concerned citizenry. Except for interviews conducted during the course of data gathering, this has not been done at this time. It is understood that at some time in the future, either through the Governor of Maine's review committee or some other medium, the public's input will become a part of this study.

4. Manpower requirements and length of construction period were provided by the Corps of Engineers. No attempt was made to question their validity.

SECTION 2
LABOR SUPPLY

Available labor supply for the Dickey-Lincoln project was reviewed by first interviewing five major Maine contractors. In general, these contractors expressed the following views:

(a) Workers would be hired according to experience (those with more experience would be hired first). Contractors felt that skilled labor would migrate to the area, and because of the experience factor would be hired first. Most of the unskilled labor, on the other hand, would come from both the Fort Kent-Allagash area and Aroostook County.

(b) The Davis-Bacon Act requires that wages paid workers on the Dickey-Lincoln project be equal to wages paid on other Federal projects in Aroostook County. Contractors felt that these relatively high wages will attract workers from all over Maine and New England.

(c) During the winter months all idle labor would be laid off. Several contractors suggested that, should the winter be milder than normal, it is likely that many would remain in the area since the period of layoff might be shorter.

(d) Most contractors suggested that since the project area was isolated with little housing vacancy, most construction workers moving into the area would bring their own trailers and mobile homes.

(e) Contractors suggested that an average of 16 percent of workers coming from outside the area would bring their families. This would depend upon the age of the work force, since many of the more skilled workers are older with children who have completed their schooling.

(f) Of those contractors interviewed, 60 percent of their work force averaged over 30 years of age.

The Maine Employment Security Commission gathered data on employment by occupation and county for March of 1975 through their Occupational Statistics Program. This survey profiles the various labor skills of Aroostook County and combined with information gathered from union officials helps to identify how many workers would be available to work on the Dickey-Lincoln project. Information from the Employment Security Commission biases downward the actual number of workers available since industries not included involve agriculture, forestry and fishing, ordnance manufacturing, regulated industries, health services, educational services, and state and local government.

SECTION 3
LABOR IMPACTS DURING CONSTRUCTION

The construction of Dickey-Lincoln will increase the overall demand for labor in the project area. In the short run the supply of labor will be augmented by a migration of skilled labor into the project area. Over a longer time frame, opportunities for training and secondary jobs opportunities will affect both total labor supply and unemployment characteristics of the area. These effects are analyzed and noted below in the following paragraphs.

3.1 LABOR DEMANDS

The labor skill demands for Dickey-Lincoln are outlined in Table 1 and their respective wage rates detailed in Table 2.

3.2 LABOR MARKET IMPACT OF DICKEY-LINCOLN - GENERAL

Table 3 indicates in summary form the data base used for determining the number of skilled people required during the construction peak of Dickey-Lincoln. The Army Corps of Engineers provided the total number of manhours necessary for each skill as identified in the table. Combining these figures, seasonal manpower loading figures and the actual tasks to be completed during construction, the number of men needed during each year and season of construction has been projected. This methodology and assumptions are basically an extension of those used by the Corps of Engineers.[1] The methodology can be summarized as follows:

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[1] Labor force needed for the Dickey-Lincoln construction period is based upon the following methodology and assumptions:

Methodology - The update estimates prepared by Stone & Webster Engineering dated January, 1975 was used as the basis for manhour requirements. The crew mannings established by S&W allocated the labor trades for the various work operations. Using these crew manning schedules, the manhours and trades were allocated to project work features. The project construction network analysis showing the sequence and duration of the construction activities was then used to distribute the manhours necessary to accomplish the various project features over the total project construction period. The summation of labor force requirements occurring simultaneously determined the periodic total on-site labor force.

Assumptions - During Construction Season (May-October)
10 hours/day - 6 days/week
2 shifts/day for Dickey Dam Embankment
During Off-Season (November - April)
8 hours/day - 5 days/week

TABLE 1

ALLOCATION OF TOTAL MANHOURS TO TRADES

Trades	Manhours (1,000)	% of Total	Est. Cost*
Asbestos Workers	12	0.1	$ 160,000
Carpenters	463	4.5	4,650,000
Cement Finishers	50	0.5	550,000
Electricians	550	5.3	5,320,000
Iron Workers	448	4.3	4,650,000
Laborers	2,216	21.4	14,190,000
Millwrights & Riggers	120	1.2	1,280,000
Operating Engineers	3,481	33.6	42,950,000
Teamsters	1,833	17.7	13,950,000
Pipefitters	152	1.5	1,880,000
Plumbers	20	0.2	200,000
Painters	40	0.4	280,000
Sheet Metal Workers	12	0.1	100,000
Welders	43	0.4	450,000
**Misc. Non-Manual	910	8.8	8,840,000
	10,350	100.0%	$99,450,000

*Based on October 1975 Price Levels
Assumed 25% at overtime (premium) rates

**Gen. Foreman, Assistant Foreman, Timekeepers, Clerical & Admin.

Source: Corps of Engineers

TABLE 2

WAGE RATES*

Trade	Reg. Time Hourly Rate	Prem. Time Hourly Rate	Wages Winter Season 6 mos. 1040 hours 8 hrs/day-5 days/wk	Wages Constr. Season 6 mos. 1560 hours 10 hrs/day-6 days/wk
Asbestos Workers	10.25	20.50	10,660	21,320
Carpenters	8.05	16.10	8,372	16,744
Cement Finishers	8.65	17.30	8,996	17,992
Electricians	8.60	12.90	8,944	15,652
Iron Workers	8.30	16.60	8,632	17,264
Millwrights & Riggers	8.50	17.00	8,840	17,680
Operating Engineers	9.85 Ave	19.70 Ave	10,244	20,488
Teamsters	6.10	12.20	6,344	12,688
Pipefitters	8.25	16.50	8,580	17,160
Plumbers	8.25	16.50	8,580	17,160
Painters	6.20	9.30	6,448	11,284
Sheet Metal Workers	7.20	10.80	7,488	13,104
Welders	8.25	16.50	8,580	17,160
Laborers	5.70	8.55	5,928	10,374
Misc. Non-Manual	8.00 Ave*	14.20 Ave	8,320	15,704

*Based on October 1975 Price Levels

Source: Corps of Engineers

TABLE 3

NUMBER OF SKILLED WORKERS NEEDED
DURING CONSTRUCTION OF DICKEY-LINCOLN

	Total Manhours (000's)	Summer Men	Winter Men	Years on Job	Summer Season	Winter Season	Total Summer + Winter Men	Years 4-7 86%	Years 1-3 + 8	Ave. Years 4-7	Ave. Years 1-3 + 8
Asbestos Workers	12	7	2	3	2	1	9	8	1	2	1
Carpenters	463	273	72	5	55	14	345	297	42	74	11
Millwrights & Riggers	120	71	19	5	14	4	90	77	13	19	3
Cement Finishers	50	30	8	4	10	---	38	33	5	8	1
Electricians	550	325	86	4	81	22	411	353	58	88	15
Iron Workers	448	264	70	5	53	14	334	287	47	72	12
Operating Engineers	3,481	2,055	545	6	343	91	2,600	2,236	364	559	91
Teamsters	1,833	1,082	286	6	180	48	1,368	1,176	192	294	48
Pipefitters	152	90	24	4	23	6	114	98	16	25	4
Plumbers	20	12	3	4	3	1	15	13	2	3	1
Painters	40	24	6	3	8	2	30	26	4	7	1
Sheetmetal	12	7	2	2	4	1	9	8	1	2	0
Welders	43	25	7	5	5	1	32	28	4	7	1
Laborers	2,216	1,308	346	6	218	58	1,654	1,422	232	356	58
Misc. - Nonmanual	910	743	142	5	149	28	885	761	124	190	31
				AVE.	1,146	293				1,706	278

Source: U.S. Army Corps of Engineers, Table prepared by E.C. Jordan Co., Inc.

From the number of hours allocated to each skill we determined the number of man-years needed for the job. Next by examining the allocation of the labor force according to task we determined the number of years required to complete the necessary construction. These results allowed us to determine the number of men needed each year in the various skill categories. The Corps of Engineers figures suggest that approximately 85 percent of the total annual work done would be completed during the summer season. In general, we assumed that 85 percent of the labor employed in each skill would be employed during the summer season and 15 percent for the winter season. Finally, the average summer and winter season work force were aggregated.

The supply of labor available in the Immediate Impact Area and Aroostook County has been obtained from a survey of labor union representatives and contractors. Results of the labor market analysis (comparing available supply and demand) are outlined in Table 4.

Column 2 and 3 indicates the number of persons in each skill classification in Aroostook County and Maine, respectively, as identified by the Employment Security Commission's 1975 survey mentioned in preceding paragraphs.

Columns 4 and 5 indicates the labor demands of Dickey-Lincoln as a percent of the total Aroostook County and Maine labor available for each skill.

Columns 6 and 7 indicate the number of unionized workers in Aroostook County and in Maine. This information came from data gathered during the interviews with the various unions that would be involved in the project.

Columns 8-11 are based upon the following major assumptions:

(a) Dickey-Lincoln is being built today and there are no large competing projects (e.g. mill expansion, power plants, or oil refineries). Further, it was assumed that the general level of contract construction will remain high in Maine, but will not increase as rapidly as it did during the early and mid-1970's.

(b) Major skilled opportunities will be filled by experienced, unionized personnel unless otherwise specified.

(c) The number of workers available in each skill classification will be equal to the number unemployed and looking for work. For skills where this information is either unquantifiable or nonexistent, the historical level of unemployment for Aroostook County and Maine will be used. Unemployment for Aroostook County averaged 9.5 percent between 1970-1976, whereas that for the state averaged 7.3 percent. These rates are biased upward since skilled workers tend to have lower unemployment rates than the rest of the population.

TABLE 4

LABOR MARKET IMPACT OF DICKEY-LINCOLN

	Needed for Dickey-Lincoln Peak	Available in Aroostook Cty DOT Code	Available in Maine DOT Code	Labor Demands of Dickey-Lincoln as a % of Total Aroostook and Maine Aroostook	Maine	Unionized Aroostook	Unionized in Maine	From Local Area-Ft. Kent 10 Mi. Radius	From Aroostook County	From Rest of State of Maine	From Outside of Maine
Asbestos Workers	2	3	61	67%	3.3%	0	40	0	1	1	
Carpenters	74	264	3509 bricklayers (480)	28%	2.0%	45	375 include bricklayers	0	17	57	
Cement Finishers	8	8	141	100%	5.7%	12	450	0	1	6	1
Electricians	88	116	1706	76%	5.2%	23	240 local	0	8	77	3
Iron Workers	72	9	225	800%	32.0%	22	250	2	1	69	
Millwrights & Riggers	19	66	1022	29%	1.9%	Under Carpenters		0	4	15	
Operating Engineers	559	91	1177	614%	47.5%	70	450	0	4	27	526
Teamsters	294	342	3640	85%	8.1%	12 Ft. Kent	1700	1	22	164	107
Pipefitters 25 Plumbers 3		124	1756	23%	1.6%	12	600	0	8	20	
Painters	7	74	679	9%	1.0%	15	300	0	5	2	
Sheet Metal Workers	2	21	877	9.5%	.2%	0	95	0	1	1	
Welders	7	28	1368	25%	.5%	Included union workers Ft. Kent	estimate 350 on Local	0	2	5	
Laborers	356	1016	12185	35%	2.9%	0		97	259		
Misc. Nonmanual	190							12	41	57	80
Column Number (see textual reference)	1	2	3	4	5	6	7	8	9	10	11

Source: Union Survey, E.C. Jordan Company, and Army Corps of Engineers

This is partially mitigated by the fact that in more recent years unemployment has been high and structurally may remain so thereby biasing downward the most realistic predictions.

Based upon the foregoing assumptions, the following paragraphs summarize information on labor market conditions as identified in columns 8-11.

(a) Twenty-five percent of both unionized and nonunionized asbestos workers are presently looking for work. As a result one worker would come from Aroostook County and one from elsewhere in the state, thereby satisfying the needs of Dickey-Lincoln.

(b) Present unemployment level of carpenters in Aroostook County stands at 9.5 percent, which is 6.5 percent above the equilibrium level of 3.0 percent. Thus 17 persons will likely be employed from Aroostook County and 57 from the rest of the state (figures derived by multiplying 6.5 percent time number of carpenters available).

(c) Based upon general levels of unemployment one cement finisher would be hired from Aroostook County, six from other parts of Maine, and one from outside the state.

(d) Unemployment levels of electricians are assumed to be the same as the general levels. As a result eight electricians would be employed from Aroostook County, seven from the rest of the state, and three from outside the state.

(e) Assuming iron workers suffer the same employment levels as the rest of the population, two would be employed from Fort Kent, one from Aroostook County and 60 from the remainder of the state.

(f) Millwrights and riggers are assumed to suffer the same unemployment levels as other workers on the state level. Four would likely be employed from Aroostook County and the rest from elsewhere in Maine.

(g) Unemployment of operating engineers is assumed to be two percent lower than the overall average, based on discussion with union officials. As a result only four would be employed from Aroostook County, and 19 from the rest of the state. A total of 526 men would be employed from out-of-state.

(h) Unemployment of teamsters is assumed to be the same as the general levels for Aroostook County and Maine. As a result one person would be employed from Fort Kent, 22 from Aroostook County, 164 from other parts of Maine, and 107 from outside the state.

(i) Unemployment of plumbers and pipefitters is assumed to be at the general levels. As a result eight men would be employed in this skill from Aroostook County and 20 men from the rest of the state.

(j) Unemployment of painters is assumed to be at the general level for all workers. As a result five painters will be hired from Aroostook County and two from other regions of Maine.

(k) Unemployment of sheetmetal workers is assumed to be the same as those on the state level. As a result, at the peak of construction one worker would be hired from Aroostook County and one from elsewhere in Maine.

(l) Welders are assumed to suffer the same unemployment levels as individuals in the rest of the state. As a result, two persons would be hired from Aroostook County and five from the rest of the state.

(m) In January, 1976, there were 255 unemployed in the Fort Kent area. Thirty-eight percent of these were unskilled and available for work. Thus, 97 workers in the unskilled labor category would come from the Fort Kent area.

(i.e. Labor Force for Fort Kent = 3930x.065 = 255
75/203 = 38 percent unskilled according to
survey by Employment Security .38 x 255 = 97)

The remaining unskilled workers will come from Aroostook County, since those classified as unskilled and unemployed comprise a larger number of people than jobs available.

Thus, all unskilled workers would come from Fort Kent and Aroostook County area.

In sum, at the peak of construction 6 percent of the total labor force (112 workers) is expected to be hired from the Fort Kent area. This is 3 percent of the town's labor force. Three hundred and seventy-four workers or 22 percent of the total project labor force are expected to be hired from Aroostook County (representing 1 percent of the total county labor force). Another 29 percent of the required labor force would come from the rest of Maine, and 42 percent from out-of-state. As a result, the wage levels and incomes of the residents of the Immediate Impact Area are not expected to rise significantly during the construction period. Area wage levels would obviously rise dramatically.

3.3 OPPORTUNITIES FOR TRAINING

Unionization and training varies most significantly across skills. In general, the largest differences are noted for the skilled vs unskilled occupations.

Approximately 21 percent of the work done on the project during the construction phase will be accomplished by unskilled labor. Much of the training for these occupations occurs on the job and requires little in the way of a formalized program. Contractors will incur few costs related to training this skill compared to others. Unskilled workers who spend at least 7 days on the job will have the opportunity to join the Hod Carriers Union, which represents the majority of unskilled labor.

The remaining 79 percent of the manual jobs involve skilled work for which both the levels of training and levels of unionization are much greater. The largest percentage of these jobs will be filled by people from outside Aroostook County. Table 5 outlines the level of unionization in each skill category and the length of the training period or apprenticeship program. For many skills the training period and work experience requirements with associated costs are not offset by the short-term benefits of a possible job related to the construction of Dickey-Lincoln. Thirty percent of the skilled jobs involving carpentry, truck driving, painting, and a variety of miscellaneous activities can be learned through some type of on-the-job training. The remainder will involve lengthy apprenticeship programs, openings which depend upon overall economic and market forces of which the promise of Dickey-Lincoln opportunities is only a small part. As a result, those who presently have the required skills will receive the largest percentage of this work on Dickey-Lincoln.

TABLE 5
LEVEL OF UNIONIZATION BY SKILL CATEGORY

	% of Unionization in Maine	Length of Training Program
Asbestos Workers	66	5 yr. apprenticeship progra
Carpenters-Millwrights and Riggers	11	.25 years
Cement Finishers	31	3 yr. apprenticeship progra
Electricians	41	4 yr. apprenticeship progra
Iron Workers & Welders	16	5 yr. apprenticeship progra
Operating Engineers	38	4 yr. apprenticeship progra
Teamsters (Truck Drivers)	47	.19 years
Plumbers & Pipefitters	34	5 yr. apprenticeship progra
Painters	44	.02 years
Sheet Metal Workers	11	5 years
Laborers	6	.12 years

3.4 UNEMPLOYMENT

Interaction between unemployment levels in Aroostook County and Dickey-Lincoln will be limited by results of previous analyses and conclusions. Skilled construction workers are temporarily unemployed, thus the impact of Dickey-Lincoln will, like other projects, help to reduce transitory unemployment. Since this represents only 2-3 percent out of a 6± percent unemployment rate, its impact will be relatively insignificant.

Unskilled workers who are unemployed will certainly have an opportunity to compete for and secure some of these jobs. Since competition will be stiff, as these jobs will pay relatively high wages, those most experienced (and presently employed) will have the best edge in securing them. Unemployed workers may be hired to fill the slots of those who are currently employed but seek Dickey-Lincoln jobs. These jobs could, in some instances, be more permanent in nature than those offered by the project. A limited number of unemployed workers may migrate to Aroostook County in search of a job on Dickey-Lincoln. This number is apt to be small since the project area is remote and there are many intervening opportunities for jobs toward which those unemployed might gravitate before seeking work in the target area.

The 1700 jobs offered at the peak of Dickey-Lincoln represent 5 percent of the total Aroostook County labor market opportunity as represented by those presently employed (approximately 35,000 persons). Since 30 percent of these will likely be filled by people in the county, the unemployment level might be reduced by at the most 2 percent; this will occur only at the peak years of construction. In the Fort Kent-Allagash area the impact upon those who are presently unemployed will likely be more significant. This is because 30 percent of the total jobs offered at the peak of construction represents 14 percent of the total labor market opportunity of the area. Were those presently employed in structural and miscellaneous work in the Fort Kent area to be employed on Dickey-Lincoln, unemployment would be reduced from 12 percent to 9 percent, a reduction of between 20-25 percent.[1]

Secondary jobs created may also reduce unemployment levels. However, it is difficult to assess where these jobs will be created. These jobs may help to reduce unemployment in the area during peak years of construction.

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[1]Fort Kent-Allagash Labor Market Facts Feb. 1976-

Labor Force	- 3930
Unemployment	-12% (470 persons)
Unemployed Unskilled Workers	- 107 (misc. structural work)

ex. $\frac{107}{407}$ persons = 23% labor force

Source: Employment Security Commission, Presque Isle. Calculations by Consultant, E. C. Jordan.

The total effect of Dickey-Lincoln upon unemployment levels will increase with increasing proximity to the project site (e.g. Maine - Aroostook County - Fort Kent-Allagash). But its impact will be limited in magnitude even in Allagash. It will not, as some might speculate, solve the unemployment problems of the area. In fact, results indicate that in similar economic situations unemployment has usually not declined and in some cases actually rose in the target area.[1] This may occur if people come into the area anticipating work but do not secure a job immediately. Also the seasonality of construction may at times increase the unemployment rate.

3.5 SECONDARY JOBS

There are a variety of employment and income multipliers that might be calculated from the data related to the construction of Dickey-Lincoln. Since the focus of this section is the labor market, employment multipliers are the most appropriate for this discussion. These multipliers generally help to describe a relationship between export based or export income jobs and secondary jobs created by the former. For example, a construction worker is paid with income (federal dollars) from outside the impact area - a direct import. He buys goods and services (e.g. automobiles and haircuts) in the area, thereby inducing secondary job expansion.

We have identified a basic: non-basic employment ration of 10:5.5 (or a multiplier of 1.55). Thus, for every ten direct construction jobs (regardless of who secures them) there will be a 5.5 secondary or tertiary jobs created in the local economy. These multipliers are related to average, rather than peak employment levels. Thus, Dickey-Lincoln might be expected to create an additional 500-600 jobs in secondary markets.[2]

These jobs may be temporary in nature but can certainly be expected to have an influence upon the labor market. The composition of the demands generated by these secondary workers will determine where and what kind of secondary jobs are created. Major items such as automobiles and appliances may be purchased elsewhere, while eating and drinking establishments may thrive in the impact area.

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[1] Job Impact of Corps Construction, American Rivers, February, 1975.

[2] Seasonal peak in labor force 1700 persons, averaging over the 8-year period - 900-1100, multiplier - 1.6, secondary jobs created - 500-600.

Secondary employment effects acted upon the various multipliers will certainly generate substantial short-run job opportunities in the various retail sales and service sectors. Developments such as this will lower unemployment in Aroostook County and the Immediate Impact Area and encourage entrepreneurship in the affected sectors.[1] Certain activities that offer a quality product during this period might, in their own way, attract a market to fill the gap created by completion of construction of Dickey-Lincoln.

In sum, secondary jobs will be created in sizeable numbers. To the extent they are seasonal, they may magnify problems of labor market tightness during the various peaks and increase unemployment on the other side of the scale.

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[1] Because of the unemployment levels for Aroostook County and the Madawaska-Ft. Kent areas, many of the secondary jobs could come from these areas.

SECTION 4
MITIGATION OF ADVERSE IMPACTS WHICH CANNOT BE AVOIDED

Construction of Dickey-Lincoln will result in negative impacts affecting labor market tightness, induced magnification of seasonal patterns and increased wage differentials. These are analyzed in the following paragraphs. Suggestions for mitigation of these influences are introduced where possible.

4.1 LABOR SKILL IN-MIGRATION AND LABOR MARKET TIGHTNESS

Labor skill in-migration into Aroostook County will likely be significant. As noted earlier, 28 percent of all manual labor, skilled and unskilled, will come from the area. The remaining 72 percent will come from other parts of Maine and outside the state. The influx of skilled labor into this labor market for a 5 to 8-year period will have both positive and negative economic effects. On the positive side, a temporary increase in skill level of work done in the area will likely induce new skilled activity in the service industry. In addition, it may induce the learning of ancillary skills which could ultimately be used to attract new long-term economic activity once Dickey-Lincoln construction is completed. On the negative side, the dollar magnitude representing this influx of workers is clearly a significant opportunity cost - a real economic cost - to all those Maine workers who aspire to high-paying skilled jobs and cannot secure them. In addition, the influx of workers and the associated labor mobility will likely induce higher turnover rates given the same labor market tightness (or overall unemployment levels). Should the labor market actually tighten in certain skill classifications (e.g. general unskilled manual labor), this will provide additional fuel for labor market imbalance.

4.2 SEASONAL PATTERNS

The Aroostook County labor market has historically suffered significant seasonal shifts. Over the short term, the seasonal impacts generated by Dickey-LIncoln will likely magnify many of the present fluctuations. Since construction activity will begin building up in May (at the same time the food processing industry begins seasonally laying people off), it appears on the surface that the two might help smooth seasonal fluctuation. However, the staffing and skills required for each activity are not at all similar.

Although the construction of Dickey-Lincoln will magnify seasonal fluctuation in the labor market of Aroostook County over the short term, it is not anticipated to have any lasting long-term impact.

4.3 WAGE DIFFERENTIALS

Finally, and potentially the most significant labor market impact of the construction of Dickey-Lincoln, concerns wage level impacts.

The wages paid to labor working on the project will be considerably higher than typical wages for comparable skilled work in the immediate impact area. As a result there is likely to be increased labor turnover, and induced job shifts. The average Aroostook County wage paid for skills comparable to those offered in connection with the construction of Dickey-Lincoln was $3.39 per hour in April 1976, as reported by the Employment Security Commission. The magnitude of the general level of wages was confirmed by primary research and interviews conducted during this study. Construction wages paid for Dickey-Lincoln work will average $8.00 per hour in current dollars - a 136 percent increase over the existing general wage level. Wages paid on a federally funded project such as Dickey-Lincoln must equal federal wages paid in the area like in occupations and jobs according to the various provisions of the Davis-Bacon Act 1965. Not only does the level of wages in Aroostook County differ from the average wage paid on Dickey-Lincoln, but wages for specific skills may also suffer significant disparities. Plumbers, for example, average $3.15 per hour in the Aroostook County area, while wages paid on the project will be $8.25 per hour - an increase of 163 percent. For carpenters and truck drivers the difference is closer to the average. Also the unskilled wage for Dickey is projected to be $5.00 per hour which is significantly above Aroostook's average wage and wages paid for other skills in the county.

This wage differential will have a significatn influence upon job mobility in the area. At present the area labor markets undergo seasonal turnover patterns; however, there is limited movement due to wage differentials. Studies have indicated[1] that some workers will shift to alternative jobs offering as little an increase as 25¢ per hour, or 10 to 15 percent of total wage. Assuming monetary difference as the sole motivator, this suggests that turnover levels might increase by several times their present levels. The impact on job miblity is further enhanced by the observation that approximately 24 percent of the local area people expressed interest in obtaining a job on the Dickey-Lincoln project.

Increases in turnover levels in the Fort Kent-Allagash area will have significant impact upon present economic activity and upon the labor market more generally. Firms that presently employ large numbers of unskilled male workers will find it necessary to raise their wage levels in order to compete in the labor market during the construction season. Some firms, particularly those in the lumber and woods products industries whose technology is labor-intensive, will find it necessary to raise the prices of their products to meet increasing costs. It is likely that marginal firms (firms maintaining minimal levels of profits) will be forced out of business. Although it is difficult to quantify this number, it is safe to say that few labor-intensive activities can afford to double their wage levels over a 1 to 2-year period and remain in business.

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[1] Dynamics of the Machine Tool and Bank Industry - A Computer Simulation, Robert K. Jordan, Clark University, 1972.