ECONOMIC ANALYSIS

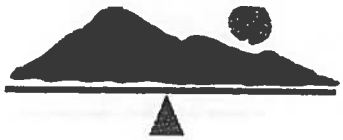
as
Prepared for:

WASHINGTON STATE DEPARTMENT OF
Natural Resources
Jennifer M. Belcher - Commissioner of Public Lands
Kaleen Cottingham - Supervisor

June 1996

Deloitte & Touche LLP

Contract ASP-003



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INTRODUCTION

This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

INTRODUCTION

This Economic Analysis provides a variety of information and analyses of land, natural resources, administrative and monetary assets managed by the Washington State Department of Natural Resources (DNR) and the Washington State Investment Board. This Economic Analysis has been prepared as part of DNR's ongoing development of its Asset Stewardship Plan, a program that will assist DNR in making decisions about management and investment of state assets and lands. The DNR Asset Stewardship Plan is intended to achieve the most substantial and sustainable benefits to current and future trust beneficiaries and the general public.

DNR TRUST LANDS

DNR manages approximately 5 million acres of trust lands in the State of Washington for the benefit of designated public beneficiaries. The ownership by the state of most of these lands is a result of federal land grants to Washington at statehood; the largest share of these lands support public school construction statewide and other designated programs[1]. Other lands were acquired by the state through tax delinquency or purchase, and these lands are managed in trust for timber

1 Asset Stewardship Questions & Answers, January 23, 1996, page 2

production and to generate income for local services in many counties to support the state general fund.

DNR TRUST BENEFICIARIES

The Upland Trust holds approximately 3 million acres of uplands for the benefit of public Common Schools (K-12), Washington State University, University of Washington, various state institutions, the state capitol campus, Western, Central and Eastern Washington Universities, The Evergreen State College, community colleges and county governments, collectively referred to as the ***"Beneficiaries."***

The Aquatic Trust holds the approximately 2 million acres of aquatic (submerged) lands for the benefit of all citizens of the state, referred to herein as ***"beneficiaries."*** DNR also manages approximately 70,000 acres of Natural Area Preserves (NAPs) and Natural Resource Conservation Areas (NRCAs). These lands were acquired with funds appropriated by the state legislature to protect outstanding examples of unique or typical natural features of Washington, native ecosystems, habitat for endangered, threatened and sensitive plants and animals, and scenic landscapes. The NAPs generally serve as "living museums" of Washington's natural heritage and are used for education and research purposes.

THE DNR ASSET STEWARDSHIP PLAN

The DNR Asset Stewardship Plan will guide the DNR in managing the portfolio to produce income and associated benefits for Upland Trust Beneficiaries and Aquatic Trust beneficiaries in a changing environment. As DNR-managed lands are primarily natural resource lands, they make a significant contribution to water quality, fish and wildlife habitat, open space, and recreation. These lands contribute to the state's economy and natural heritage. The management of these lands is set forth in a number of constitutional, statutory and court-imposed requirements. The DNR Asset Stewardship Plan will be framed by these issues and requirements. The DNR Asset Stewardship Plan will include an economic assessment of the current asset portfolio. In fulfillment of that requirement, this Economic Analysis has been prepared in accordance with criteria specified by the DNR.

GENERAL ANALYSIS METHODOLOGY

Deloitte & Touche LLP (D&T) developed a project methodology and work plan that addresses each of the objectives of the Economic Analysis in a reliable and cost-effective manner. Because of the very large scale of the land ownership and the complexity of the portfolio of assets, an overview or "high level" analysis was requested by DNR and agreed upon by D&T. This resulted in a project that could be completed within the time and budgetary objectives of the DNR Asset Stewardship Plan process.

The analytical portion of the project was essentially divided into five primary components:

- Data collection and organization;
- Market values of land and resource assets;
- "Non-market" values of land and resource assets;
- Direct and indirect economic impacts from activities on DNR-managed lands; and
- Portfolio management issues.

Segregation into these five components allows the Economic Analysis to address the economic (market), social and ecological (non-market), and economic impact benefits which accrue to trust Beneficiaries and the residents/beneficiaries of Washington from these lands and resources, in a manner that is consistent with objectives of the DNR Asset Stewardship Plan process.

It is important to note that both the DNR Asset Stewardship Plan and the Economic Analysis are innovative processes for which there are few, if any, comparisons. The Economic Analysis has brought traditional property and natural resource valuation techniques together with newer techniques, among which are contingent valuation methods, used in the valuation of the social, cultural and environmental values of DNR-managed lands.

Both the DNR and D&T view this Economic Analysis as an innovative and evolutionary process which will be enhanced from the experience of all participants through the passage of time. This study is truly a first step towards a practical and functional means of incorporating relevant value and benefit information about DNR-managed lands for use by portfolio managers and trust Beneficiaries.

The following is a summary of the Scope of Services of the D&T contract set forth by the DNR. Explanatory additions are noted in *italics.*

ECONOMIC ANALYSIS CONTRACT SCOPE OF SERVICES

Task 1. Assessment of Current Assets

Asset Classification: *With the participation and review of the DNR,* classify, for portfolio analysis, all assets managed by DNR including, but not limited to, land and associated resources (categorized by groupings of similar economic characteristics), data and information technology, contract rights, infrastructure, commodities, other marketable goods and services, social and environmental resources and attributes and monetary assets.

Asset Class Narrative Descriptions: Provide a narrative description of each asset class.

Asset Class Estimated Market Value: *Consistent with the sco services, provide an* estimate of the present and potential future market value of each Asset Class through a single appropriate *valuation* technique.

Direct and Indirect Economic Impacts: Identify and estimate the value of the direct and indirect economic impacts within the State of Washington of these assets, as indicated by current policy.

Asset Class Returns: Identify and describe the various ways *and methods* of measuring the *financial* returns for each Asset Class, if applicable, and prepare estimates of those returns.

DNR Management Strategies: Summarize the management strategies, by asset class *employed by the DNR, as reflected in current DNR policy statements.*

Portfolio Analysis: Analyze the asset portfolio *at an overview level*, within current legal limits *imposed upon DNR lands*, in terms of revenue producing potential, capital requirements, financial risk, degree of diversification and other significant considerations relating to an assessment of asset mix.

Return on State Permanent Funds Investment: Identify the present and probable future returns on the investment of state permanent *funds in the context of current management practices.*

Selected State and Local Tax Revenue Potential: *Conduct a brief analysis to* identify potential state and local tax revenue from private development of low income-producing lands.

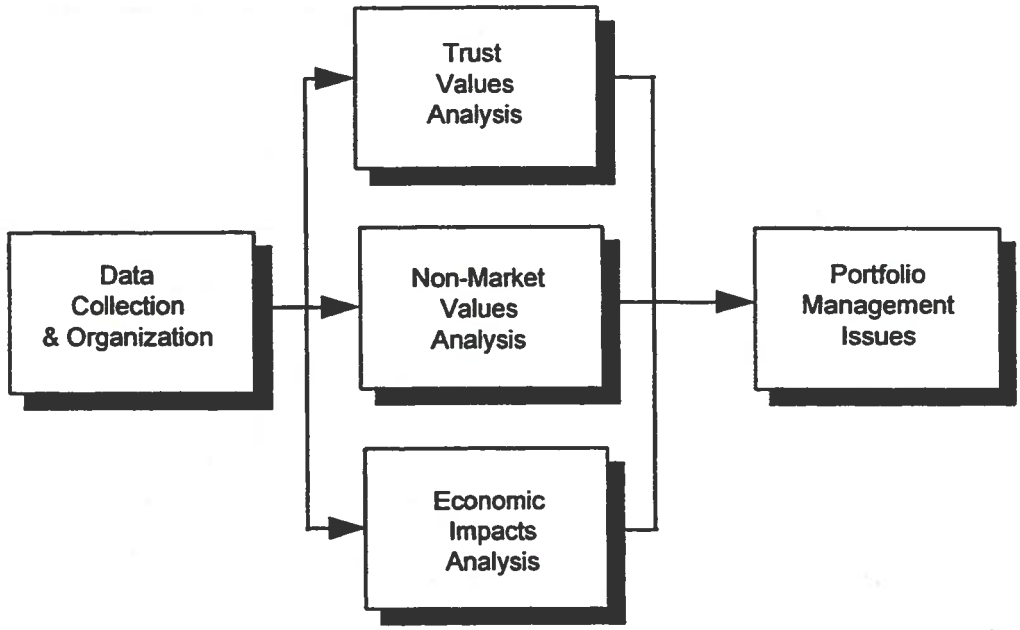
Task 2. Economic Trend Analysis

Identify and discuss the major local, regional, national and international economic and related trends representing opportunities and challenges *for portfolio assets.*

STUDY METHODOLOGY

Our primary study methodology consisted of the steps depicted in the flowchart shown below. Our analysis was segregated into five components, as shown. In addition to the primary activity areas shown, we also completed an economic trends analysis, which reviewed broad economic trends and issues that may impact the asset portfolio and are of interest to the DNR.

Exhibit 1-1
Study Methodology Flowchart



Source: Deloitte & Touche LLP

Data Collection & Organization

Because of the size and complexity of the assets under review, the collection and organization of information about the assets was a significant part of the study. In this initial phase of the project, assets were classified into ten asset classes and analyzed, forming the basis for the analysis that followed. Among other forms of information, the DNR's existing database of geographic information (GIS) was an important part of our data collection process. Using this data, D&T was able to differentiate among important asset characteristics for valuation and analysis purposes.

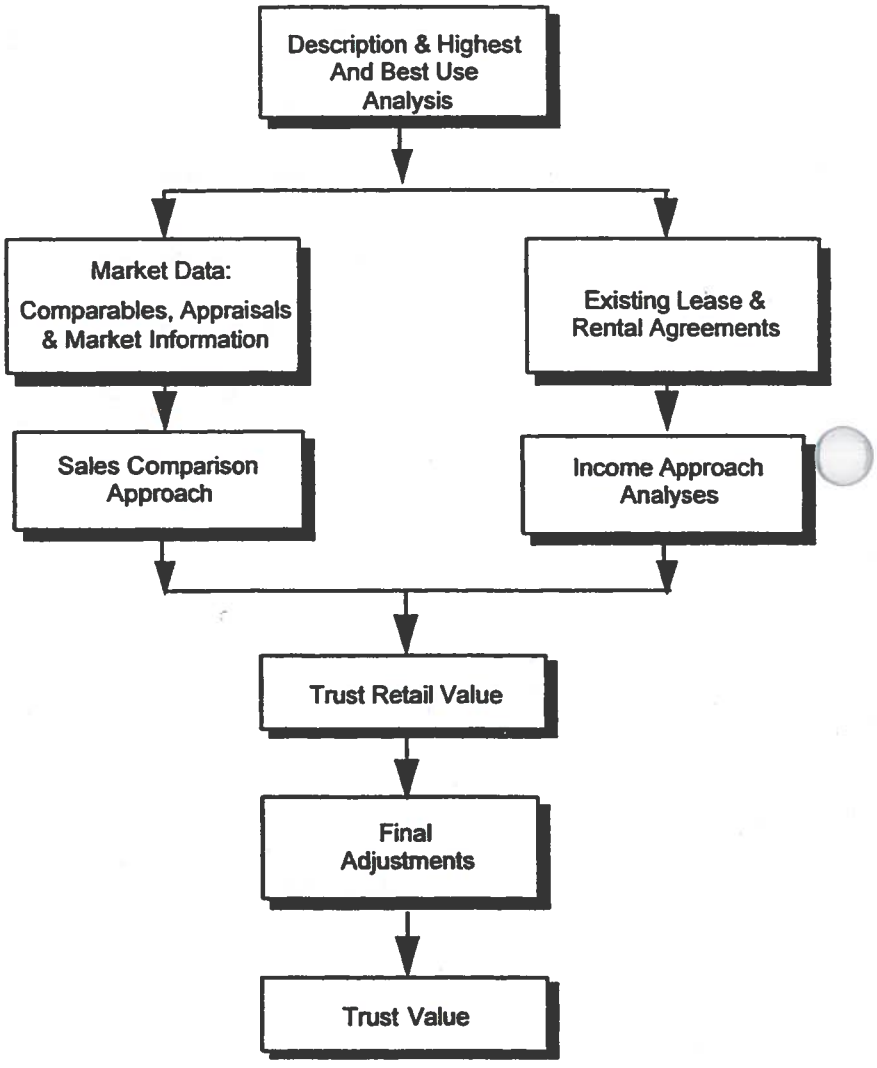
Market Value Analysis

The market value analysis of asset classes considered the "conventional" market values and the unique values associated with the State ownership of these Trust assets, referred to as "Trust" value for each asset class. The "conventional" value is the property or asset value most people think of; the value of a property or group of properties in a transaction, between a willing buyer and seller. Our market value analysis relied primarily upon reported sales and value estimates of like properties maintained by the DNR. Sales of similar properties were reviewed and compared with the typical characteristics of the asset class in order to indicate an estimate of value. In a similar manner, timber was valued based upon recent timber sales conducted by the DNR. This valuation analysis results in asset class values which are called "Trust Retail Values" in this study to denote that these values are based upon sales prices to "end users" and sales in the most common commercial increment of size or volume, and that additional deductions or adjustments may be necessary.

Utilizing customary valuation methods, our analysis has recognized, where appropriate, the very large size of the Trust asset holdings relative to the size of similar assets more usually held or transferred. We considered the implications on Market Value and/or Trust Value that the size of these holdings has upon value. Accordingly, our analysis considers the costs of sale, implied time to sell, uncertainty (risk) and seller profit or return

deductions that are necessary. These costs, referred to as "Final Adjustments," are deducted from Trust Retail Value, to indicate Trust Value. This Trust value analysis process is illustrated in the following flowchart.

Exhibit 1-2
Trust Value Analysis Flowchart

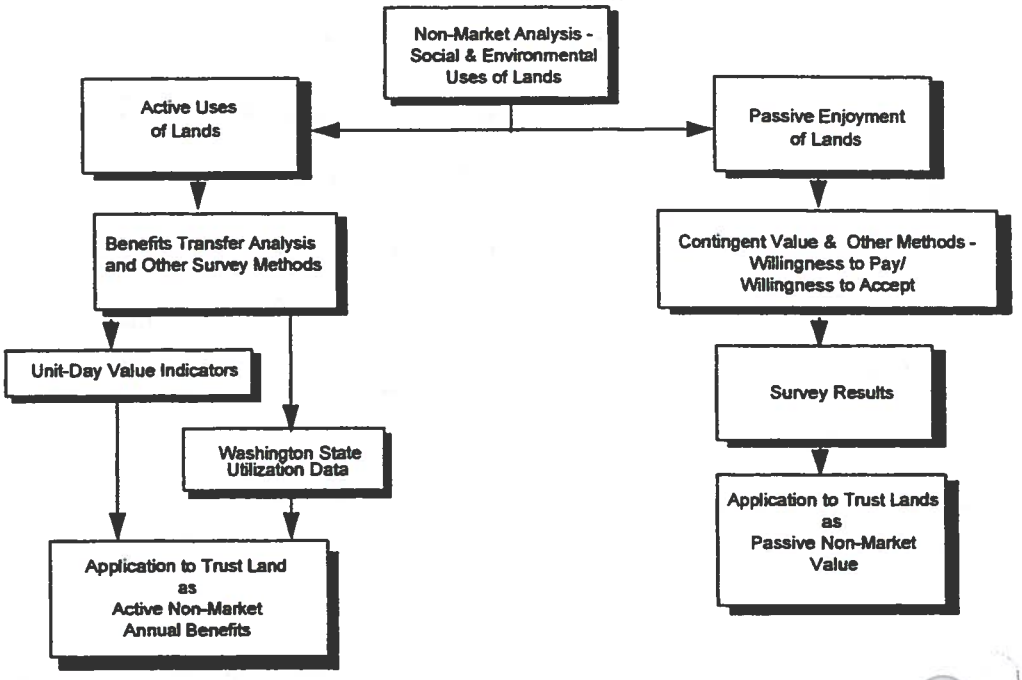


Source: Deloitte & Touche LLP

Non-Market Value Analysis

Our study considered the "non-market" values of DNR-managed lands, including social, cultural and environmental values, based upon established methods of valuing "non-monetary" assets. These assets might include an enjoyable recreational experience, or the knowledge that a forest or tract will be preserved - i.e., "existence value." Methods for determining these values include a "contingent valuation" analysis involving surveys of area residents and users of public lands (hikers, boaters, etc.) to determine the worth or value of the experience. This estimate of worth may be extrapolated into an estimate of value for these social, cultural, environmental, and other attributes of the asset classes. Our analysis has made a distinction between those non-market values that result from *active* use of public lands (recreation, hunting, fishing, etc.) and those non-market values that result from *passive* enjoyment, i.e., an awareness or recognition of the benefit of preservation and education that results from public land ownership.

Exhibit 1-3
Non-Market Analysis Flowchart



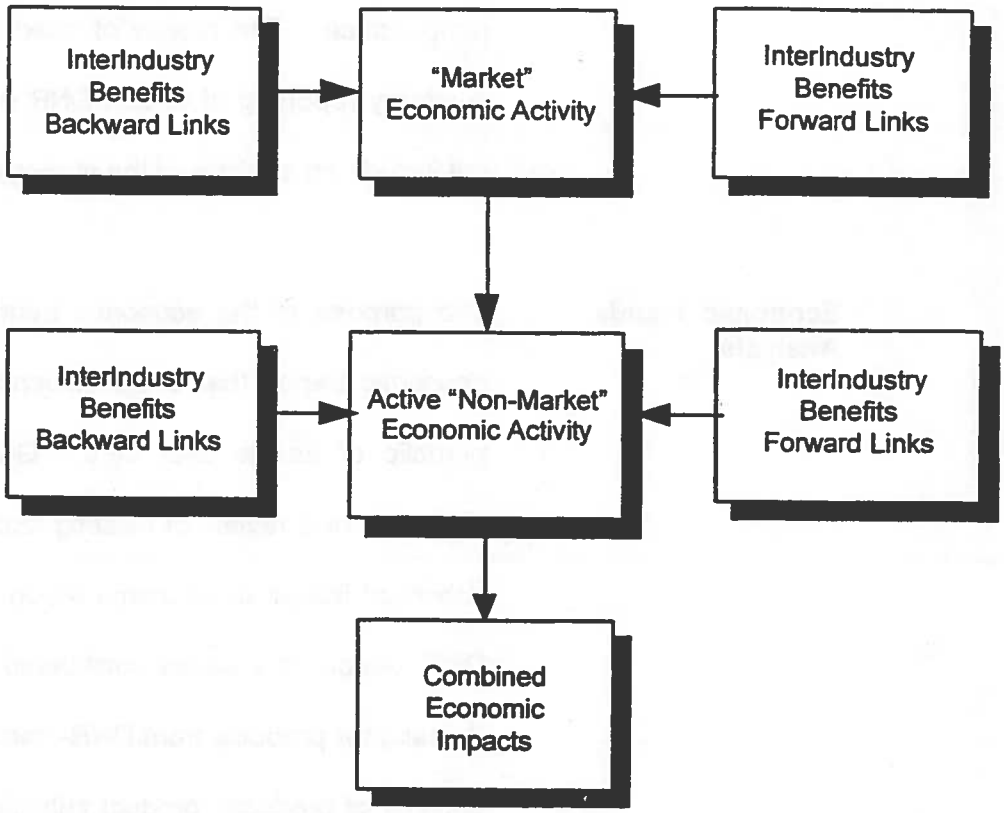
Source: Deloitte & Touche LLP

Economic Impacts Analysis

Our study has considered the jobs created, incomes earned and resulting state and local taxes from activities on DNR-managed lands. This analysis has separated these employment, income and tax benefits between 1) "market" impacts and 2) "non-market" impacts. Market impacts are those economic activities resulting from the conventional revenue-generating uses of public lands such as timber sales, agricultural leases and commercial land leases (and the business activities and employment thereon). Active non-market impacts are the employment, incomes and taxes resulting from active recreational activities related to social, cultural and environmental activities occurring on DNR-managed lands.

Our study has examined the direct or "first round" economic impacts and interindustry economic impacts from activities on DNR-managed lands. First round indirect benefits are the result of activity taking place on DNR-managed lands. Interindustry indirect benefits are the activities that support (backward links) or result from (forward links) the first round benefits.

Exhibit 1-4
Economic Impact Analysis Flowchart



Source: Deloitte & Touche LLP

Portfolio Management Issues Analysis

Following completion of the valuation and economic impacts analyses, a review of several portfolio management issues was completed, including a review of asset class management strategies, returns on state permanent funds, the potential state and local tax revenue from the private development of low income-producing lands and a preliminary portfolio analysis. The methodologies employed for these analyses include review of the possible application of benchmarks for investment portfolio performance. The review of asset class management strategies was a summary reporting of written DNR management strategies only, which did not include an analysis of the strategies identified.

Economic Trends Analysis

The purpose of the economic trends analysis was to identify long economic trends that could influence the investment performance of the portfolio of assets over time. Given limitations of scope, this activity consisted of a review of existing studies about the economic impact of ten important issues or concerns which were jointly selected by the DNR and D&T. Among the issues considered were the impact of population growth, demand for products from DNR-managed lands, the presence of competing sources of products, product substitution such as the growing use of steel and synthetics for dimensional lumber, and the potential impact of environmental regulation and trade laws. The process employed for this portion of the analysis was to identify those sources of data and the findings and conclusions of others, and to summarize and present these findings by

issue area. D&T did not complete any original research in this portion of the project, nor do we make any forecasts. Only forecasts and estimates of others are presented.

LIMITING CONDITIONS AND ASSUMPTIONS

Because of the complex and unique nature of this analysis, as well as the size and diversity of the portfolio of assets that have been evaluated, it is important that the reader understand the following objectives, limiting conditions and assumptions, and the limited scope of this study:

- Not Property-Specific. This Economic Analysis is general in nature and constitutes a broad overview and evaluation of ten classes of assets and of the portfolio taken as a whole. It does not evaluate specific or individual assets managed by DNR. Nor does it consider or value the beneficial interest or "ownership" of any of the specific Beneficiaries receiving funds from DNR-managed lands or assets. The evaluation presented is specific to the ten classes of assets (determined jointly by D&T and the DNR). The values or benefits associated with any one class or sub-category may not be representative if taken out of context.

- Not an Appraisal, Financial Analysis or Audit. This Economic Analysis is not an appraisal and this report should not be considered or characterized as an appraisal report. The evaluation of market value that is contained herein does not meet the Uniform Standards of Professional Appraisal Practice as promulgated by the Appraisal Foundation. This study may not be characterized as an economic forecast, investment advice or prediction of actual events. Further, we have not performed any audit, review or compilation or other accounting

procedures in connection with the Economic Analysis. While we have read financial information provided by the DNR, we have not, and do not, express any opinion as to their accuracy or suitability for this or any other purpose.

- Rounded Estimates and Approximations. Because of the size of the portfolio (i.e., 5 million acres) and the overview scope of analysis, D&T has considered, and used where appropriate, rounded estimates, approximations and other estimates and industry standards which are believed reliable and suitable for use. Where information has come from multiple sources, we have made attempts to resolve any differences and to make reasonable assumptions where confirmation of data was not possible.

- For DNR Management Decision-Making Only. This Economic Analysis has been completed in the context of the DNR's role as a designated land manager on behalf of the State of Washington as Trustee. The analysis has been completed for the primary purpose of assisting the DNR in its management activities and in association with its development of an Asset Stewardship Plan. This Economic Analysis may not be used in conjunction with any offering for sale or lease, or securitization of rights therein, of any property within a class, or any class of asset which is discussed herein.

- D&T Independent Contractor. Deloitte & Touche LLP and its contractors and consultants have conducted an independent analysis. No assurances of a consulting conclusion or recommendation have been given or are a condition of this project.

- Summary Document. This Economic Analysis report is a summary document only, providing general description and information about our investigation, analysis and conclusions.

- D&T Has Relied on DNR Information. D&T has relied upon information supplied by the DNR and others; this information is presumed reliable and accurate.

- Limited Original Research. D&T and its sub-contractors have conducted only limited original research in the completion of this Economic Analysis. In a manner consistent with our contractual commitments, we have relied upon academic studies, published information and other data, including the opinions of experts, in forming our conclusions.

- "Trust Value" - Not "Market Value". This evaluation has resulted in value estimates which in some cases may be significantly influenced by various statutes and regulatory restrictions affecting DNR-managed

lands and DNR asset management strategies which are not applicable to similar privately owned property. As such, estimates in this study are applicable only to DNR-managed lands and should be characterized as "Trust Value" estimates and not as "Market Value" estimates. The definition of Trust Value follows in this chapter.

- Use in Entirety. This report must be used in its entirety. Any use of any portion or subset of this Economic Analysis document is not authorized.

- Mutually Agreed Scope. The scope of work included in this Economic Analysis has been mutually agreed-upon. DNR has determined this scope as suitable for its purposes. D&T has not warranted the suitability of this analysis for any statutory, regulatory, administrative or public purpose.

- No DNR Management Review. This Economic Analysis does not constitute an evaluation of DNR policies, procedures or operating processes. No opinion has been requested or is expressed in this evaluation as to the suitability or appropriateness of asset or property management decisions made or now pending by the DNR.

- No Legal Interpretations Completed or Expressed. We have relied upon the DNR for all information about, citation of and/or interpretations of

existing statutes, regulations or case law where it pertains r analysis. D&T has not performed any legal review, interpreted any laws, or formed any legal opinions in conjunction with this engagement.

DEFINITIONS

Throughout this report, a number of specific terms are used; the following are definitions that are used for the purposes of this report only:

Annual Benefits/Income

Because both income and non-market benefits are and can be received on a periodic basis (and therefore analyzed on a periodic basis), they are referred to in common as annual income or benefits when referring to benefits from market and non-market attributes, respectively, of the asset classes.

Appreciation or Capital Appreciation

For purposes of this study, appreciation or capital appreciation is defined as the change in value of assets or asset classes over a given period, usually annual.

Asset Class

A logical grouping of DNR assets based upon physical, legal, financial or management similarity, for the purposes of evaluation.

Distribution Factor

A numerical amount which is specified by law, regulation or policy that apportions Trust revenue among a variety of funds for asset management purposes and trust Beneficiaries. The Distribution Factor is expressed as a percentage of Trust Revenue, e.g. "75%."

Economic Impacts

Economic impacts are defined as economic activity, such as the creation of jobs or payment of wages, and taxes resulting from commercial, recreational, cultural and environmental activities occurring on DNR-managed lands. Economic impacts are segregated between those resulting from commercial or "market" activities, and those which result from recreational, social, cultural or environmental activities, or "non-market" activities. This study characterizes these impacts and benefits as "indirect," to distinguish them from the "direct" benefits that flow from the assets in the form of revenue, market values, active non-market benefits and passive non-market values.

FDA - Forest Development Account

The Forest Development Account is a fund which includes revenues collected from state Forest Board Lands and allocated to the management of these lands. The Forest Development Account disperses funds for a variety of purposes, including forest resource activities, resource planning

and asset management, administration, agency support, investment, engineering services and other related activities.

Market Value

The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably and for self-interest, and assuming that neither is under duress.[2]

Non-Market Value

An expression of the worth or utility of those attributes of asset class for which no established value or net revenue stream can be estimated or otherwise determined by conventional property valuation techniques. These attributes might include social, cultural, environmental and ecological values. The absence of a functional marketplace or exchange in which to complete a "willing-buyer/willing-seller" transaction for the rights or benefits under analysis is common to property or asset class attributes which have "non-market" values.

2 The Dictionary of Real Estate Appraisal, The Appraisal Institute, c 1993, page 222

Active Non-Market Benefit

Benefits realized annually from DNR-managed lands, generally relating to "social" or cultural interaction and physical enjoyment of land and resource assets (e.g. hiking trails, recreational areas).

Passive Non-Market Value

Value, expressed as a capital or "lump-sum" amount, from DNR-managed lands generally relating to "preservation," "ecological" or simple "existence." The value or worth of preservation or non-disturbance.

Return on Investment (ROI)

Return on investment is the mathematical relationship at a point in time expressed between periodic income *and/or* value change (appreciation) attributed to an asset class and the Trust Value of that asset class.

Appreciation Return on Investment (Appreciation ROI)

Appreciation Return on Investment is defined as the mathematical relationship at a point in time between the change in Trust Value of an asset class over a defined period of time and the Trust Value of an asset class at the beginning of that defined period of time.

Income Return on Investment (Income ROI)

For purposes of this study, Income Return on Investment is the mathematical relationship at a point in time expressed between periodic income (only) as reported by the DNR and the Trust Value of the asset class at the beginning of that defined period of time.

Total Return on Investment (Total ROI)

Total Return on Investment is the mathematical relationship at a point in time between combined periodic income and appreciation (value change) and the Trust Value of the asset class at the beginning of that defined period of time.

RMCA - Resource Management Cost Account

The Resource Management Cost Account is a fund which includes revenues collected from federally-granted Upland Trust lands and allocated to the management of these lands. Resource Management Cost Account disperses funds for a variety of purposes, including forest resource activities, resource planning and asset management, agricultural and grazing lands management, administration, agency support, capital investment, engineering services and other related activities.

Sales Comparison Approach

A common method for the estimation of market value of real property in which the value of a property is estimated through comparison with other similar properties that have sold or been offered for sale in the recent past.

Timber

Commercially valuable standing trees, regardless of age or condition. Also called "stumpage." In this study, references to timber or timber value are not intended to include the value of land on which the timber is situated.

Timberland

The land upon which timber or stumpage sits. Also referred to as bare land. In this study, references to timberland or timberland value are not intended to include the value, if any, of timber located on the land.

Trust Appreciation

The capital appreciation experienced by Trust assets, reflecting any effects of special conditions associated with Trust assets.

Total Trust Income

Trust Distribution Income plus Trust Appreciation.

Trust Distribution Income

Trust Revenue multiplied by the *Distribution Factor.* This represents that portion of annual Trust Revenue that is distributed to the Beneficiaries.

Trust Retail Value

The value of lands, properties, timber or other assets that is realized upon sale to an end user, or sale in the most common commercial increment of size or volume. Trust Retail Value does not necessarily reflect costs of sale, uncertainty (risk) or seller profit deductions that are considered in a "Trust Value" estimate.

Trust Revenue

Revenue from the sale of natural resources, rents, leases or licenses that is received by the DNR (on behalf of its Beneficiaries) from its managed lands portfolio.

Trust Value

The value of classes of assets owned or managed by the DNR that are subject to specific laws, regulations or management policies which restrict the use, marketability or sale of these asset classes. *Trust Value* is different from "Market Value."

PROFILE OF DELOITTE & TOUCHE LLP

Deloitte & Touche LLP was selected to complete the Economic Analysis for the Washington Department of Natural Resources through a competitive process. A request for proposals was issued in Fall 1995, and a consulting services contract was finalized in early December 1995.

Deloitte & Touche LLP in the United States is a $2 billion organization that provides services in all areas of accounting and auditing, management consulting, tax consulting, tax compliance, valuation and realty consulting, and benefits and compensation consulting. In addition, our Washington Service Center, located in the nation's capital, provides our firm and its clients with expert assistance in virtually all matters relating to the Federal government. We also have Financial Services Centers, on Wall Street in New York and in San Francisco, to assist clients in many areas, including mergers and acquisitions, access to capital markets, and regulatory developments affecting financial industries. Deloitte Touche Tohmatsu International professionals across Europe, Asia, the Pacific and the Americas serve numerous real estate clients, including some of the largest in the world.

Deloitte & Touche LLP at a Glance - Our International Organization

- 56,000 people
- Operates in over 100 countries
- 650 offices
- Worldwide revenue of $5 billion
- Serves more than 600 companies with sales/assets greater than $1 billion

Real Estate Services

Deloitte & Touche LLP is recognized as a preeminent provider of real estate audit, tax and consulting services, with over 300 partners, directors and senior managers nationwide dedicated to our real estate practice. leadership is evident in the clients we serve, the depth of expertise we offer and our high visibility in industry affairs. We serve more than 2,000 clients in real estate and related industries nationwide. We are recognized as a leading provider of real estate services, serving three of the world's largest insurers, six of the top ten development firms and over 20% of the REIT market.

Our firm is rated as one of the top five reengineering firms in the nation by Gartner Group, a market research firm. We have an unrivaled position in the real estate investment management arena: our client list includes 13 of the 25 largest equity real estate managers, eight of the 25 largest insurance

companies, seven of the 25 largest managers of mortgage backed securities, and seven of the 25 largest managers of mortgage assets.

Our industry experts are involved participants in government policy and industry standards development. In addition to our in-house technical briefings and reports, we publish "Real Estate Strategies," a quarterly newsletter on topics of importance to the real estate professional. Members of our Real Estate Services Group serve on the Editorial Boards of Real Estate Accounting and Taxation, Real Estate Finance, *The Journal of Real Estate Development, The Appraisal Journal* and *The Journal of Real Estate Workouts.*

Our professionals are active and have leadership roles in organizations and trade groups ranging from the Urban Land Institute, Pension Real Estate Association, National Association of Real Estate Investment Managers, National Association of Corporate Real Estate Executives, Building Industries Association, National Council of Real Estate Investment Fiduciaries, the International Council of Shopping Centers, National Association of Industrial and Office Parks, National Realty Committee, Commercial Women in Real Estate and National Association of Real Estate Investment Trusts.

Our Real Estate Information Center is the data source for a host of industry publications, research and market data. Data pertaining to most major metropolitan, regional and state areas is assembled, analyzed and inventoried. Data -- including economic, demographic, legal, geographic and financial -- is also collected on a property-specific basis for the United States, as well as many foreign countries. We continuously refine and modify methods and strategic models to be responsive to the needs of our clients coping with a changing real estate environment.

A unique asset of our Real Estate Services organization is the Realty Consulting Group, which offers a variety of comprehensive services in real estate investment, development, management, ownership and usage. This specialized group, a body of experienced real estate consultants, provides real estate and management counseling, valuation, property tax consulting, real estate and corporate finance, and acquisition, transaction and negotiation support services.

For more than 20 years, the Realty Consulting Group has advised corporations, businesses, institutions and government agencies on significant real estate decisions. The Realty Consulting Group consists of highly trained, experienced real estate consultants who bring specialized expertise to increasingly complex real estate issues. Because our clients

prefer to be served by specialists familiar with the unique concerns of the markets in which they work, we focus our service through a network of dedicated regional centers.

Deloitte & Touche LLP real estate professionals serve capital providers, Wall Street firms, corporations, builders, developers, public sector clients, law firms, commercial and residential brokers, management and leasing companies, individuals and government agencies with real estate involvements. Our practice is national in scope, and includes all types of property, debt and equity positions, securities, and complex property analysis and valuation interests. This diversity provides the firm with a uniquely balanced perspective on today's marketplace and valuable resources for serving its clients.

PROJECT TEAM

The D&T project team consisted of the following professionals:

Deloitte & Touche LLP

Kim Snyder, CPA
James Shaw, CRE
Keith Eastin, Esq.
Kevin Riley
William P. Lee
Bill Steele, CPA
Timothy Lowe, MAI
Daniel Provencio
John D'Andrea, Ph.D.

Market values, non-market values, portfolio management issues.

Sub Contractors:

Thomas/Lane Associates

Consulting Economists

Cheryl Thomas, Ph.D. Ted Lane, Ph.D.

Direct and indirect economic impacts from DNR-managed lands; economic trends analysis.

Gardner Brown, Ph.D.,

Professor of Economics and Natural Resource Economist, University of Washington, Seattle

Non-market values and benefits attributed to DNR-managed lands.

S. A. Newman, Forest Engineers, Inc.,

Timber Valuation Consultant, Everett, WA

Timothy Newman, MAI

Consulting appraiser, market values of timber and timberlands.

SUMMARY OF FINDINGS

This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

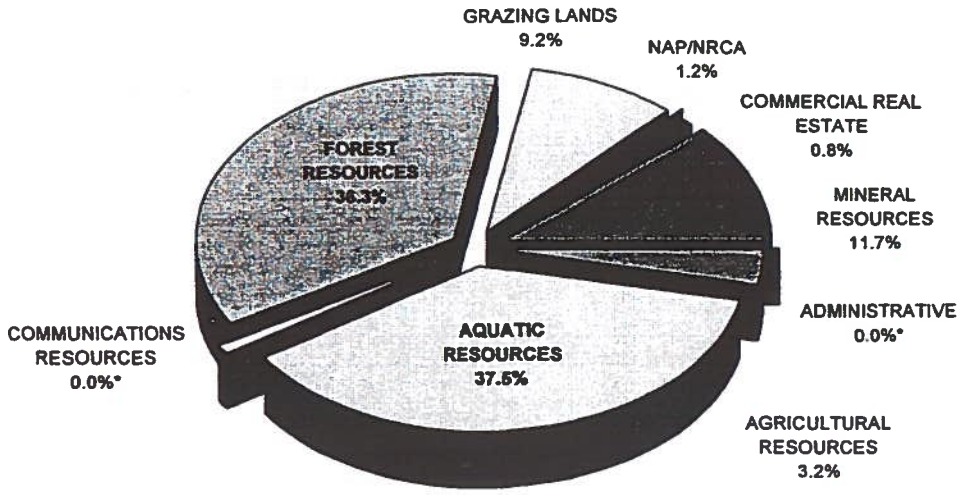
The following is a brief overview of the findings and conclusions of this Economic Analysis. Each of the findings reported is summarized in one of the chapters of this study.

Asset Class Land Area Summarized

In all, the DNR-managed lands we have reviewed encompass over 5.8 million acres located across the State of Washington. Included in this total are almost 2.2 million acres of submerged lands, over 670,000 acres with only mineral rights, and almost 3 million acres of uplands. Of the uplands reviewed, Forest Resources lands represent over 2.1 million acres, or about 70% of all uplands considered in this study. Exhibits 1-5 and 1-6 summarize land areas by asset class. Our discussion of the characteristics of each asset class begins in Chapter Two, Asset Classification & Description.

ASSET CLASS LAND AREA

Exhibit 1-5
Acreage Allocation by Asset Class



Note: * denotes a number less than 0.5%.
Source: DNR

Exhibit 1-6
Land Area Summary

Asset Class	Minerals Only Acreage	Submerged Acreage	Upland Acreage	Total Acreage	% of Total
Agricultural Resources			188,509	188,509	3.2%
Commercial Real Estate			48,100	48,100	0.8%
Communication Resources			106	106	0.0% *
Forest Resources			2,113,760	2,113,760	36.3%
Grazing Lands			532,760	532,760	9.2%
Monetary (Permanent Funds) Assets			NA	NA	NA
Mineral Resources	677,151		5,435	682,586	11.7%
Aquatic Resources		2,179,840		2,179,840	37.5%
Natural Preserve/ Conservation Areas			70,041	70,041	1.2%
Administrative Resources			148	148	0.0% *
Total	677,151	2,179,840	2,958,859	5,815,850	100.0%
% of Total	11.6%	37.5%	50.9%	100.0%	NA

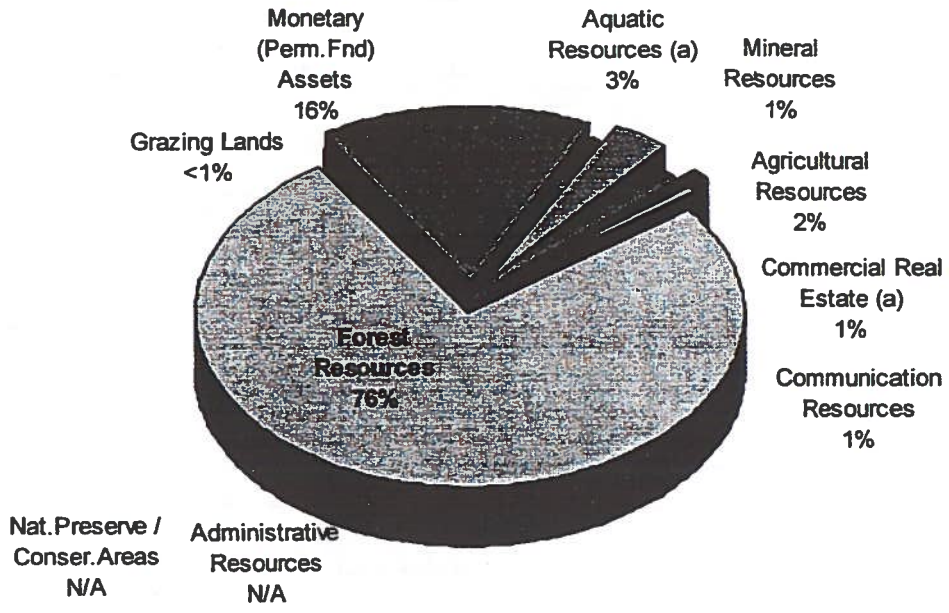
Note: Asterisk (*) denotes a number less than 0.5%.
Source: DNR

ASSET CLASS DISTRIBUTION INCOME

According to the DNR, for the one year period ending June 30, 1995, the asset classes listed below had estimated Trust Distribution Income of $184 million. Trust Distribution Income is Trust Revenue less statutory deductions for DNR operations, reimbursements, and management costs. Incomes associated with asset classes are summarized in Exhibits 1-7 and 1-8. Two of the asset classes we have reviewed do not have income attributed to them; Natural Preserves and Conservation Areas (set aside for conservation and preservation purposes) and Administrative assets (whose income is a function of the other asset classes). Our discussion of the incomes associated with each asset class is contained in Chapter Three, Values, Incomes & Returns.

ASSET CLASS DISTRIBUTION INCOME

Exhibit 1-7
Trust Distribution Income Allocation by Asset Class



Source: DNR

Exhibit 1-8
Distribution Income Summary - Fiscal 1995

Asset Class	Trust Distribution Income (a)
Agricultural Resources	$3,908,000
Commercial Real Estate	$2,261,000
Communication Resources	$1,064,000
Forest Resources	$139,827,000
Grazing Lands	$386,000
Monetary (Permanent Fund) Assets	$29,558,000
Mineral Resources	$1,079,000
Aquatic Resources	$6,290,000
Natural Preserve/ Conservation Areas	N/A
Administrative Resources	N/A
Total	$184,373,000

(a) After DNR Fixed Allocation

DNR Administrative Resources revenue not reported in this schedule.

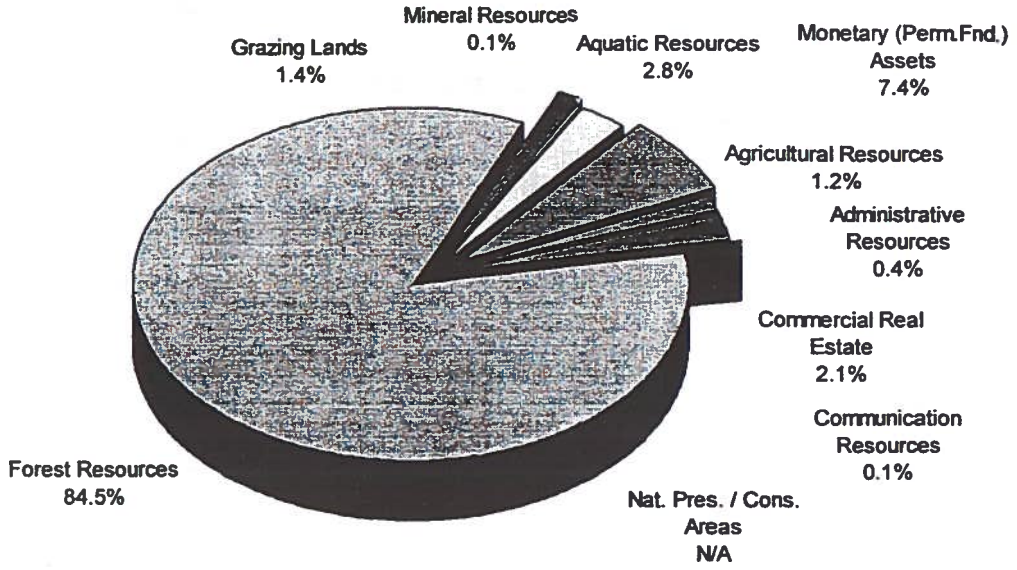
Source: DNR

ESTIMATED TRUST VALUE

As described earlier in this Introduction, this analysis has estimated the Trust Value of each of the asset classes, based on methods which are described in this report. Based upon our investigation and analysis, we have estimated the Trust Value of the ten asset classes studied at a total of $6.97 billion. The Trust Values associated with each of the asset classes are summarized below in Exhibits 1-9 and 1-10. Our discussion of the estimated Trust Value of the ten asset classes is located in Chapter 3, Values, Incomes & Returns.

ESTIMATED TRUST VALUE

Exhibit 1-9
Trust Value Allocation by Asset Class



Source: Deloitte & Touche LLP

Exhibit 1-10
Trust Value Allocation by Asset Class

Asset Class	
Agricultural Resources	$84,000,000
Commercial Real Estate	$146,000,000
Communication Resources	$9,000,000
Forest Resources	$5,883,000,000
Grazing Lands	$100,000,000
Monetary (Perm. Fund) Assets	$513,000,000
Mineral Resources	$10,000,000
Aquatic Resources	$196,000,000
Nat.Preserve / Conser. Areas	N/A
Administrative Resources	$25,000,000
Total Indicated Trust Value	$6,965,000,000

Source: Deloitte & Touche LLP

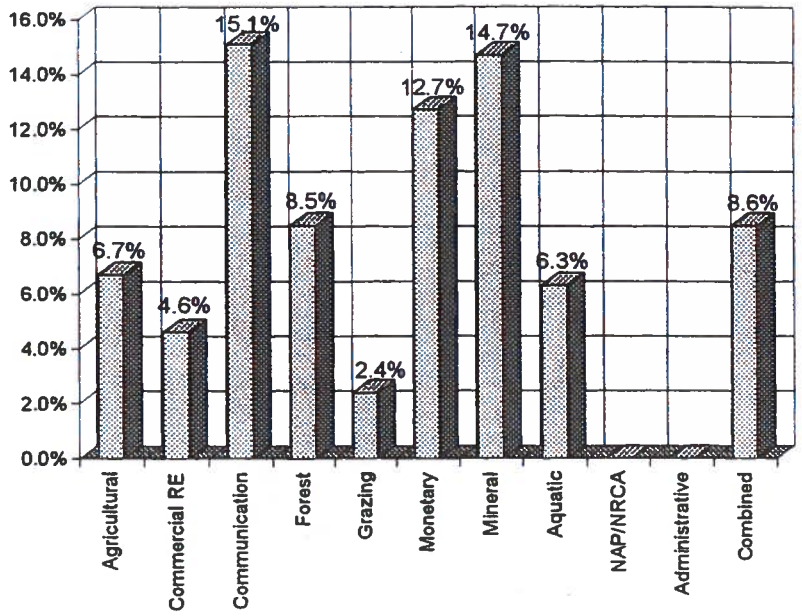
RETURN ON INVESTMENT

Our analysis has examined the relationship between the estimated Trust Value of each asset class and the Trust Distribution Income of each class. Trust Distribution Income represents a significant portion of the return on investment in each asset class. Each asset class, however, also experiences change in value over time, and this change is referred to in this study as " Trust Appreciation" or "Appreciation Return on Investment."[3] The combination of the return on investment from income and from appreciation is called "Total Return on Investment." The total return on investment by asset class is summarized below in Exhibits 1-11 and 1-12. Our discussion of return on investment is contained in Chapter Three, Values, Incomes & Returns.

3 Change in value may also be negative; this would be called "depreciation."

RETURN ON INVESTMENT

Exhibit 1-11
Total Return on Investment by Asset Class[4] - Fiscal Year 1995



Source: Deloitte & Touche LLP

Exhibit 1-12
Total Return on Investment by Asset Class - Fiscal Year 1995

Agricultural Resources	6.7%
Commercial Real Estate*	4.6%
Communication Resources	15.1%
Forest Resources	8.5%
Grazing Lands	2.4%
Monetary (Permanent Fund) Assets	12.7%
Mineral Resources	14.7%
Aquatic Resources*	6.3%
NAP/NCRA	N/A
Administrative Resources	N/A
Combined	8.6%

Source: Deloitte & Touche LLP

4 Note that the Commercial Real Estate and Aquatic Resources (marked with " * " in Exhibit 1-12) asset classes include land areas that are not income producing, and that have a Trust Value greater than 50% of the asset class. This results in the reported Return on Investment for the class not being representative of the income returns associated with only the income-producing lands.

NON-MARKET BENEFITS AND VALUES

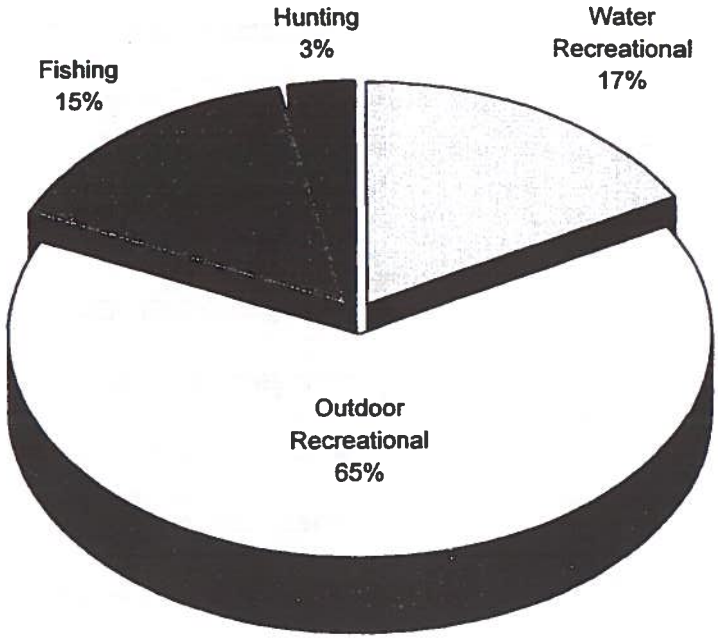
Our study has reviewed the "non-market" or social, cultural and environmental values of DNR-managed lands, based upon established methods of valuing "non-monetary" assets, such as an enjoyable recreational experience, or the knowledge that a forest or tract will be preserved. These non-monetary benefits and values may be divided between those which result from *activities* which occur on DNR-managed lands and those which result from the *knowledge* of the worth of preservation and education which results from public land ownership. DNR-managed land assets provide estimated annual Active Non-Market Benefits[5] of $248 million to Washington residents in the form of "active" recreational opportunities and related activities. In addition, Passive Non-Market Values have been analyzed on a one-time or lump-sum basis. Our analysis indicates that Passive Non-Market values associated with DNR-managed lands are approximately $1.3 billion. In addition to being a lump-sum amount (a value), the methodology that was used to estimate Passive Non-Market Values resulted in a total estimated amount that has not been allocated across the asset classes. Exhibit 1-13 provides a summary of the indicated activities taking place on DNR-managed lands, by activity. Exhibit 1-14 summarizes the "user-days" (unit of Active Non-Market benefits) associated with each of five asset classes, and the estimate of Active Non-Market Benefits. Our discussion of this aspect of each asset class is

5 The study methodology employed has indicated an annual benefit in dollars, which is different from a lump-sum value or amount. Accordingly, we have referred to these as "benefits" and not as "values."

located in Chapter Four, Non-Market Benefits and Values.

NON-MARKET BENEFITS AND VALUES

Exhibit 1-13
Allocation of Annual User Days by Activity



Source: Deloitte & Touche LLP

Exhibit 1-14
Annual Active Non-Market Benefits

Asset Class	User-Days (Rounded)	Active Non-Market Value (Rounded)
Agricultural Resources	118,000	$789,000
Aquatic Resources	3,041,000	$70,875,000
Forest Resources	7,230,000	$158,063,000
Grazing Lands	758,000	$17,810,000
Natural Preserves/Conservation Areas	80,000	$603,000
Total	11,227,000	$248,140,000

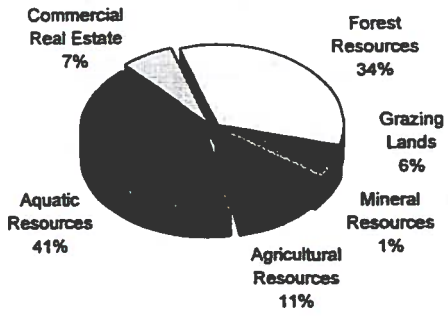
Source: Deloitte & Touche LLP

ECONOMIC IMPACTS ANALYSIS

Economic activity occurring on DNR-managed lands makes a significant contribution to the local, regional and state economy. As shown in Exhibit 1-15 below, our analysis finds that some 41,850 jobs are related to commercial, recreational and other activities on DNR-managed lands. These jobs generate an estimate $826.3 million in wages and salaries (income) and the payment of approximately $111.9 million in state and local taxes. Our analysis has considered the first order impacts of employment, and does not reflect secondary or tertiary economic activity. In the information that follows, only those asset class categories which create jobs, incomes or payment of taxes are listed. Our discussion of the economic impact of DNR-managed lands is contained in Chapter Five, Economic Impacts.

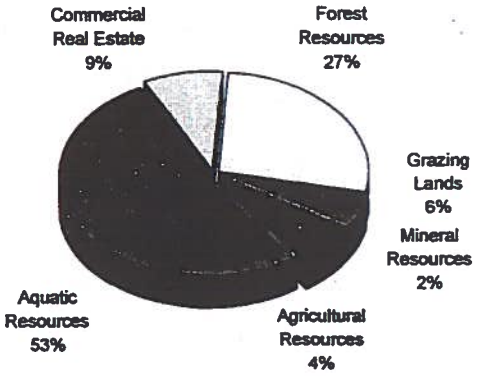
ECONOMIC IMPACTS ANALYSIS

Exhibit 1-15
Economic Impact Summary



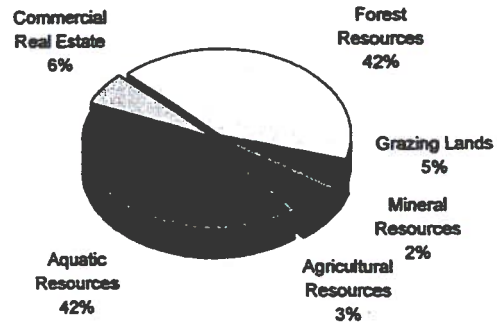
Jobs Generated

ASSET CLASS	TOTAL	NON-MARKET	MARKET
Agricultural Resources	4,570	70	4,500
Commercial Real Estate	2,800	-	2,800
Forest Resources	14,240	6,340	7,900
Grazing Lands	2,510	510	2,000
Mineral Resources	400	-	400
Aquatic Resources	17,280	2,080	15,200
Nat.Preserve / Conser. Areas	50	50	-
Totals	41,850	9,050	32,800



Wage & Salary Income Earned

ASSET CLASS	TOTAL	NON-MARKET	MARKET
Agricultural Resources	$32,398,300	$432,300	$31,966,000
Commercial Real Estate	$70,395,000	$0	$70,3[illegible]
Forest Resources	$224,970,600	$54,597,600	$170,[illegible]00
Grazing Lands	$45,495,600	$5,009,600	$40,486,000
Mineral Resources	$18,312,000	$0	$18,312,000
Aquatic Resources	$434,233,700	$20,245,700	$413,988,000
Nat.Preserve / Conser. Areas	$488,100	$488,100	$0
Totals	$826,293,300	$80,773,300	$745,520,000



Taxes Paid

ASSET CLASS	TOTAL	NON-MARKET	MARKET
Agricultural Resources	$3,300,100	$238,100	$3,062,000
Commercial Real Estate	$6,742,000	$0	$6,742,000
Forest Resources	$47,002,000	$21,638,000	$25,364,000
Grazing Lands	$5,630,600	$1,752,600	$3,878,000
Mineral Resources	$1,754,000	$0	$1,754,000
Aquatic Resources	$47,348,100	$7,099,100	$40,249,000
Nat.Preserve / Conser. Areas	$184,400	$184,400	$0
Totals	$111,961,200	$30,912,200	$81,049,000

Source: Deloitte & Touche LLP

PORTFOLIO ANALYSIS

While much of this study is focused upon individual asset classes, the group of assets may be considered together as a "portfolio." In financial terms, a "portfolio" is a group of assets held together for investment purposes. It is common for investment managers, whether investing in stocks, financial instruments or other assets (e.g., real estate), to attempt to have the most compatible mix of assets within a portfolio. Since different kinds of assets have different investment characteristics (e.g., value growth, income, low risk) the financial performance of the portfolio can vary as the mix of these different assets or investments changes. "Portfolio analysis" evaluates groups of investments or assets and examines the financial and investment return impact of each investment upon the group as a whole.

Our analysis finds that the DNR portfolio of assets is dominated by the value and income of its Forest Resources asset class. As such, while there are nine other asset classes with different investment characteristics, their financial and investment performance is overwhelmed by the values and revenues associated with the Forest Resources asset class.

Exhibit 1-16
Classification of DNR-Managed Assets

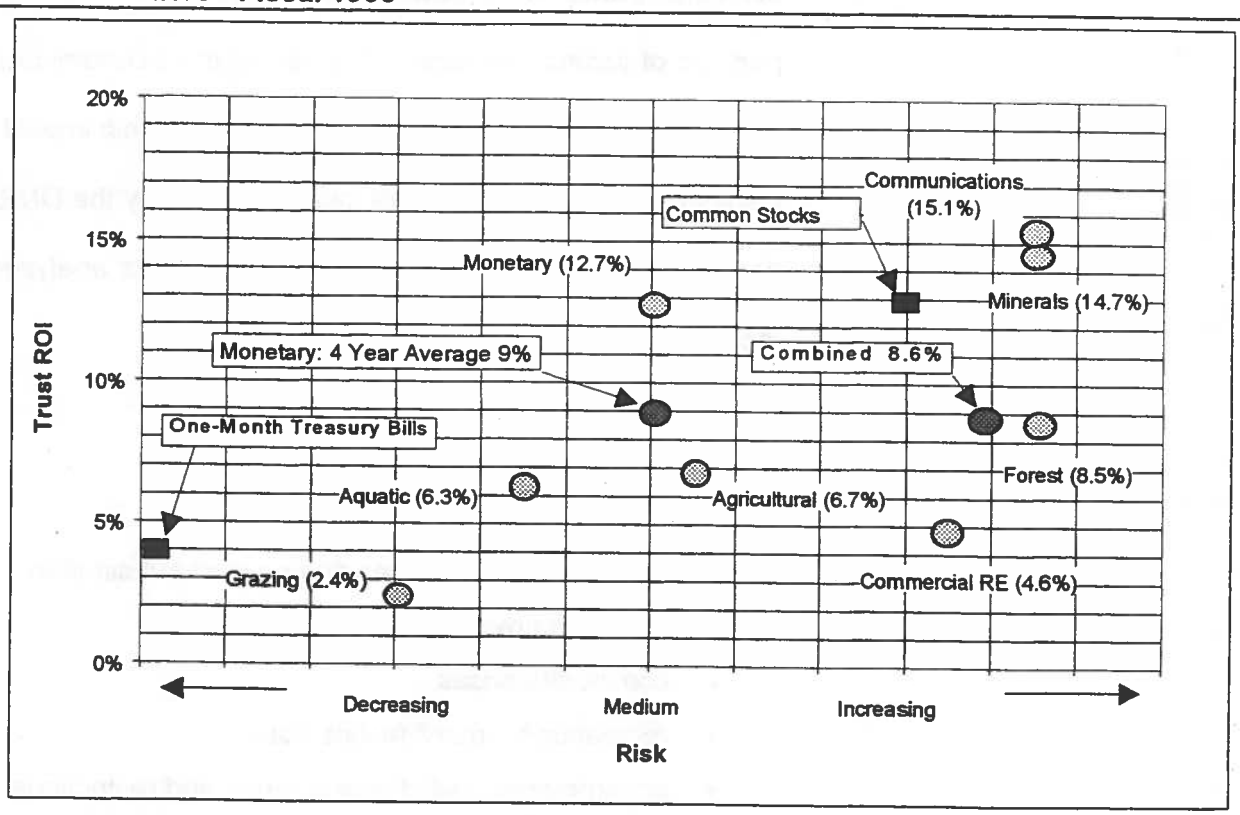
CLASSIFICATION OF DNR-MANAGED ASSETS
$6.97 billion Trust Value = 100%

Commodity-Driven Land Assets	Undeveloped Land Assets	Real Estate Development Assets	Other Assets
$6,177 million Trust Value 88%	$131 million Trust Value 2%	$111 million Trust Value 2%	$547 million Trust Value 8%
Forest Resources $5,883 million Tr. Val. 84.4%			**Communication Resources** $9 million Tr. Val. 0.1%
Agricultural Resources $84 million Tr. Val. 1.2%			**Monetary (Perm. Fund) Assets** $513 million Tr. Val. 7.4%
Grazing Lands $100 million Tr. Val. 1.4%			**Natural Preserve /Conservation Areas** na
Mineral Resources $10 million Tr. Val. 0.1%			**Administrative Resources** $25 million Tr. Val. 0.4%
Unimproved Rural Land (Transition Lands, currently producing resources in above asset classes) 29,176 Acres $82 million Tr. Val. 1.2%	**Commercial Real Estate** Undeveloped Urban Enhanced & Unimproved Land 3,352 Acres $8 million Tr. Val. 0.1%	Leased Land & Leased Land/Buildings 15,672 Acres $56 million Tr. Val. 0.8%	
Commercial Geoduck/Shellfish Beds $19 million Tr. Val. 0.3%	**Aquatic Resources** Unleased Non-Harbor Areas $123 million Tr. Val. 1.8%	Leased Harbor/Non-Harbor Areas, Port. Mgt. Agreements & Unleased Harbor Areas $55 million Tr. Val. 0.8%	

Source: Deloitte & Touche LLP

A comparison of the Total Return on Investment for each asset class is shown in the following Exhibit 1-17, which depicts the relative investment performance of each asset class. The comparison shown below illustrates that as a whole, the portfolio exhibits a positive relationship between risk and return - meaning that where the perceived investment risks associated with an asset class are greater, returns are generally greater.

Exhibit 1-17
Comparison of Trust Total ROI (Yield) and Moody's Risk Rating for Related Industries - Fiscal 1995



Note: Note that the Commercial Real Estate and Aquatic asset classes above include land areas that are not income producing, and that have a Trust Value greater than 50% of the asset class. This results in the reported Return on Investment for the class not being representative of the income returns associated with only the income-producing lands.

Source: Deloitte & Touche LLP

In addition to an evaluation of the composition of the portfolio from an investment perspective, our analysis has also reviewed other portfolio management issues, including a summary of management strategies now in use and the returns on state permanent funds associated with DNR-managed lands. These and other topics are discussed in Chapter Six, Portfolio Management Issues.

ECONOMIC TRENDS ANALYSIS

The purpose of the economic trends analysis was to identify long-term economic trends which could influence the investment performance of the portfolio of assets over time. This part of the Economic Analysis consisted of a review of existing studies about the economic impact of ten important issues or concerns which were jointly selected by the DNR and D&T. After consultation with the DNR, the economic trends analyzed in this chapter include:

- demographics,
- environmental issues,
- product demand,
- technological advances and product substitution,
- competing resource supply,
- commodity prices,
- recreation/tourism/lifestyle issues,
- government/jurisdictional controls and restrictions,
- upgraded land uses, and
- water uses/access.

Following our review, the following trends are considered to be among the most significant to the financial and/or investment management of DNR-managed lands.

- *Demographics*, and more specifically *population growth*, is by far the most important trend affecting management of DNR-managed lands. Washington State's 1995 population of 5.4 million is the result of an average annual growth rate of 1.8% over the past 25 years. According to the Office of Financial Management, population growth is expected to slow to an annual average of 1.2% per year through the year 2020, resulting in an expected population increase of approximately 2 million from 1995 to 2020 (5.4 million people to 7.4 million people).

- *Environmental issues* have been and will continue to be a critical driving force affecting land management in the state of Washington. The listing of the northern spotted owl as a threatened species has had and will continue to have a dramatic impact on harvesting old-growth timber and timber prices. Public concern for the environment is likely to grow and to continue to put pressure on the conservation/preservation of land, water and forest resources.

- Of all the trends affecting *demand for products* produced on managed lands, demand for forest products is most worthy of attention. The demand for harvested forest products is closely tied to the domestic construction industry, which is characterized by short-term cycles. All indications are that these cycles will continue. An underlying cause of more moderate growth in the construction industry will likely be the result of the aging of the baby boom generation, stable or mildly declining family formation rates, and moderate to slow growth of median household income. The full implementation of NAFTA may contribute to increasing foreign demand for Washington agricultural products.

- Trends in *technological advances and product substitution* have the potential to significantly impact demand for products produced on R-managed lands. The technological advances in the development of substitute wood products such as steel 2x4s, I-beams and oriented strand board have a very real potential to displace demand for conventional wood building materials, especially if higher forest product prices and continued price volatility make these products more economically attractive.

- Significant *competing resource supply* trends for forest products include the potential delivery of Russian timber to market, harvested in Siberia and sold along the Pacific Rim. A second trend with possible long term implications is for large domestic timber companies to acquire lands in eastern Canada for their low-density hardwood forests. Agricultural products are likely to face growing supply competition from South America (for orchard crops) and Asia (for wheat and other grains).

Our discussion of Economic Trends is located in Chapter Seven.

ACKNOWLEDGMENTS We would like to acknowledge the assistance of the many professionals at the DNR who have worked many hours and overcome significant obstacles in assisting us during the course of this study:

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Ron Holtcamp
Patrick Hennessy
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Our very special thanks to Don Vogt, our contract representative, who worked tirelessly with the project team throughout this study in the collection of data and other information that was so critical to the successful completion of our work.

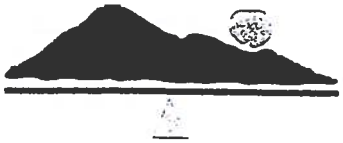
ASSET CLASSIFICATION & DESCRIPTION

This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

INTRODUCTION

Ten DNR-managed asset classes were selected as like-kind assets that require similar asset management activities. The asset class segregations were established in concert with the DNR. These asset classes provide for a logical segregation of assets based on common physical, geographical, legal, financial or other important similarities. Asset classes facilitate the description and valuation of the assets. Usually, these classes consist of assets that are either currently major generators of direct and indirect benefits, or display significant potential for generating future benefits. Further, the breadth of the asset classes facilitate the overall management and conduct of this overview economic analysis.

In this overview perspective, the ten selected asset classes fall into three categories: 1) Upland Trust asset classes, assets wherein the Beneficiaries are specifically identified and defined by statute; 2) Aquatic Trust & Natural Preserve/Conservation Areas asset classes, wherein the beneficiaries include all of the residents of the State of Washington; and 3) the Administrative asset class, that allow the DNR to manage and operate the agency in accordance with statute and legislative mandate. Following is a list of the three categories and the corresponding asset classes:



ASSET CLASSES

The Upland Trust category consists of the following seven (7) asset classes:

- Agricultural Resources
- Commercial Real Estate
- Communication Resources
- Forest Resources
- Grazing Lands
- Monetary (Permanent Fund) Assets
- Mineral Resources

The Aquatic Trust & Natural Preserve/Conservation Area category consists of the following two (2) asset classes:

- Aquatic Resources
- Natural Preserve/Conservation Areas

The Administrative category consists of the following (1) asset class:

- Administrative Resources

Where applicable, the asset classes above include related:

- Property ownership rights;
- Resource ownership rights;
- "Contract Rights," that are proprietary efforts via commodity sales and area leases/easements;

- "Commodities and Marketable Rights," that are assets/goods/services sold or that could be sold;
- "Infrastructure," which is either i) added-value infrastructure to increase value/earning potential or ii) support infrastructure to assist management activities;
- "Human Resources," that are included in the "Administrative" Class, and "Environmental Resources & Attributes" and "Non-Market Services & Attributes"[1] [including Viewsheds, Aesthetics, Open Space, Public Use, Outdoor Recreation, Tourism, Access to Water Bodies, Cultural/Spiritual/Archeological/Historical Sites and Values].

SUB-GROUPS

For the purpose of the analyses in this report, the ten asset classes are further divided into various sub-groups (where appropriate) for analysis at the asset class level. The sub-groups selected are based on either asset management criteria, asset valuation criteria, or the availability of asset data needed for the purpose of the analysis. The segregation of the asset classes into relevant sub-groups was appropriate given the overview scope of this study. A discussion of the sub-groups selected is provided at the asset class level.

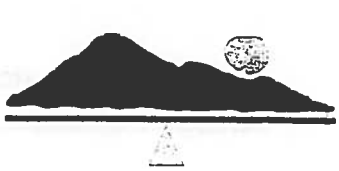
INVESTMENT FACTORS

At the asset class level, an overview of investment factors is discussed. This discussion is limited only to those investment factors that apply to the

[1] Assets not valued by market systems but having intrinsic or existence value to the public.

asset class as a whole and that are significant. Outlined below are some of the investment factors that were considered, some of which are discussed in this report at the asset class level:

- Change in Value (appreciation) - Is the value of the asset class expected to change?
- Change in Income - Is the income stream from the asset class expected to change? Will changes in income be slow and stable or volatile?
- Capital Expenditure and Continuing Investment Requirements - Is additional or continuing capital investment required for the asset class?
- Management Intensive - What is the level and difficulty of management oversight required for the asset class?
- Technology/Knowledge Intensive - Is the asset class highly specialized, and requiring special technology and/or knowledge?
- Liquidity - Is there an established market for the investment in the asset class?
- Cyclical Investment Risk - Are there cyclical fluctuations that raise or lower investment risk for the asset class?
- Established Market - Is the investment in the asset class part of a well-established market?
- Market Monitors/Benchmarks - Are there well-established institutional performance monitors or benchmarks for investments in the asset class?



- End-User Demand - What is the nature of the demand by end-users for the products of the asset class?
- Investor Demand - What is the nature of the demand for the asset class as an investment by other investors?
- Changes in the Asset Class Productivity - Is there potential for investment enhancement through changes in productivity in the asset class?
- Changes in Use of the Asset Class - Is there potential for investment enhancement through changes in land use in the asset class?

In Chapter Six, Portfolio Management Issues, we consider the attributes of the portfolio of assets. Many of the investment factors cited above are also addressed in this discussion as they pertain to the combined group of asset classes.

INDUSTRY FACTORS

At the asset class level, an overview of industry factors was also considered. However, before consideration of industry factors can be given, an asset class (as a whole) should clearly fall into (or align with) one or more industry groups. An industry "group" in this context, is a group of like businesses recognized by third parties (investment banks, industry trade associations, US government etc.) for either: 1) data collection and reporting purposes, 2) capital markets purposes, 3) management and administrative purposes, or 4) any similar characteristic that definitively establishes recognition by a third party. There is a distinct difference

between being part of industry group and being influenced by a single industry or an industry group.

In the cases where an asset class clearly falls within an industry group, consideration is given to the following factors:

- Concentration or desegregation of control and ownership and investment;.
- Size of industry in the number of companies, suppliers, size of labor force and size of capital investment;.
- Extent of industry integration;
- Stage of industry (new, growth, middle-aged, mature); and
- Impact of long-term trends that affect the ability to produce, supply or sell products.

Industry factors are recognized in our description and evaluation of the assets for the purposes of understanding current trends in the use or utilization of the resources and/or products manufactured from resources located on DNR-managed lands. Industry factors may influence current and expected values, incomes and financial returns for the asset classes studied.

GENERAL RESTRICTIONS

In some cases, there are legal restrictions and limitations imposed by statute or policy on i) the DNR in general, ii) on particular asset classes and/or iii) specific assets within an asset class. Applicable restrictions are highlighted within each asset class description. Examples of some of these restrictions include:

Permanent disposition of state land is governed by the Federal Enabling Act and by various state constitutional and statutory provisions. Section 11 of the Enabling Act, requires all lands that are sold to be at "public sale."

Aquatic land may not be sold under Article XV, Sec. 1 of the Washington State Constitution, and under RCW 79.90.150, except for second class shorelands (subsection .210). With respect to federally granted Upland Trust land, "no more than one hundred and sixty (160) acres of any granted lands...shall be offered for sale in one parcel" and in the case of certain lands within or near incorporated cities, not more than five acres may be sold in one parcel (Article XVI, Section 3, Washington State Constitution).

RCW 79.66.010 contains a requirement that "the publicly owned land base will not be depleted and the publicly owned forest land base will not be reduced." RCW 76.12.120 provides that "[a]ll land, acquired or designated by the department as state forest land [forest board transfer and purchase land], shall be forever reserved from sale...." RCW 79.01.224 directs the

department to reserve mineral, oil and gas, and related rights from the sale of any state lands authorized to be sold.

Export restrictions may reduce the revenue potential of the timber in the Forest Resources asset class. The export restriction on state (and federal) timber is imposed by the U.S. government, preventing the export of unprocessed timber logs outside of the United States.

Sustainable yield/even-flow timber harvesting policies affect DNR forest management decisions. These policies require the DNR to match the volume of timber sold to the increases in volume that result from growth over a ten-year period of time.

The following is a general description of each of the ten asset classes reviewed in this analysis. For each asset class, the following attributes are reviewed or summarized:

- General Description - A brief outline of the asset class summarizing the type of land and/or other asset.
- Classification Sub-Groups - A brief description of the sub-classification that has been used in this study for descriptive or analytical purposes.
- Size or Magnitude - A summary of the size of the asset class (usually given in acres) and any relevant locational information. A location map

of lands in the asset class is included if available. In some cases, DNR management "Regions" are utilized for data gathering or discussion.

- Investment Factors - See above discussion.
- Industry Factors - See above discussion.
- Environmental Factors - In this section we briefly summarize the most important or significant environmental attributes of the asset class, *from an economic analysis perspective.* As a public trust lands portfolio, there are many environmental issues affecting or influencing each of the asset classes; detailed discussion of this issue is well outside the scope of this analysis.
- Social Factors - In this section we briefly summarize any significant social attributes of the asset class.
- Special Conditions - Any other notable or economically significant asset class attributes not discussed above are addressed in this section.

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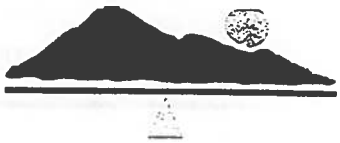

Agricultural Resources Asset Class

GENERAL DESCRIPTION

The Agricultural asset class[2] consists of DNR-managed trust lands leased for the production of agricultural commodities. Agricultural lands are typically located in areas with a soil type, climate condition, precipitation level and irrigation system that are favorable for agricultural production.

In managing the agricultural lands, the DNR has the option to select from a variety of rental arrangements that includes[3]: 1) percentage rent (sharing in the gross receipts from the sale of contracted or pooled commodities); 2) sharecrop rent (receiving a share of the crop-in-kind); 3) cash rent; or 4) any combination of the above three. The current trend is toward cash rent arrangements.

CLASSIFICATION SUB-GROUPS

The agricultural resources have been classified into four sub-groups: irrigated perennials, irrigated annuals, dry lands and non productive lands. Irrigated perennials are irrigated agricultural lands that support orchards and vineyards. Irrigated annuals are irrigated agricultural lands that support row crops. Drylands are agricultural lands (including wheat) that are not irrigated. Non productive lands are areas that do not produce food or fiber and are not being grazed, such as farmsteads, steep hillsides, rocky land and confined feeding operations. Additionally, the non

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2 This class includes Agricultural Leases, Wheat, Sharecropping Agreements, Other Sharecropper Agricultural Products, Irrigation Wells/Systems, Wildlife & Habitat, Animal Corridors, Soils, Surface/ground Waters, Roads (including bridges/gates/fences/signs) and Non-Market Services & Attributes.

3 Agricultural and Grazing Lands Program Policy Plan (1988).

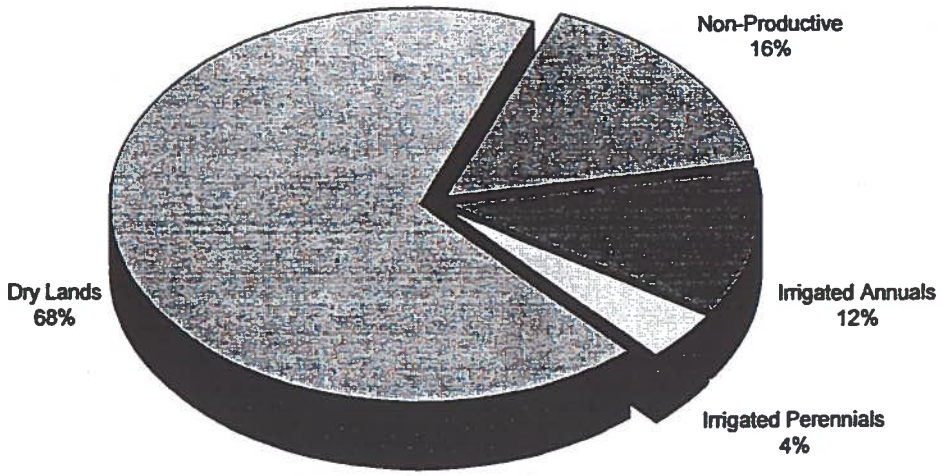
productive land sub-group also includes Conservation Reserve Program (CRP) land. CRP lands are agricultural lands that are intentionally removed from active production for various reasons and for different periods of time[4].

The DNR's management of lands in both the perennial and annual sub-groups resulted from conversion of the state-owned drylands and grazing lands to irrigated agricultural lands. The conversion process started in 1970 with well drilling and acquisition of surface water rights.

SIZE OR MAGNITUDE

The DNR manages approximately 189,000 acres of land for agricultural production, primarily through leasing. The distribution is shown below.

Exhibit 2-1
Distribution of Agricultural Resources Land by Acreage



Source: DNR - GIS

[4] Including those in exchange for federal contributions under the 1990 Farm Bill.

The locations of the non-productive lands are often mingled with the other productive sub-groups. However, for management purposes these non-productive lands are included in the productive agricultural lease agreements, but little or no revenue is generated from them.

GEOGRAPHIC LOCATION

With a few exceptions, nearly all of the DNR-managed agricultural lands are located east of the Cascade Mountain Range in the Southeast Region. See the location map at the end of this section.

INVESTMENT FACTORS

From an investment perspective, agriculture land resides in a mature marketplace with a well-established market and many market participants. Agriculture land (as an investment) is similar to most investment real estate because of its low liquidity; real estate investments are not easily and quickly converted to cash. In the near term, an agriculture land investment is unlikely to experience any significant change in market value or income. Leased fee ownership interests in agriculture land, such as the State's, should not experience the volatility in income and value that producers and suppliers of agriculture products experience due to varying market price and production costs. The supply and demand for agricultural real estate changes slowly, hence, it tends to have low volatility of price or value and land rental income.

INDUSTRY FACTORS

As an industry, the State of Washington agriculture industry contribut about one billion dollars to state exports. The major crops are wheat, apples, sweet cherries, hops, lentils, spearmint oil, dry edible peas, red raspberries, Concord grapes and carrots. The agriculture industry is a mature industry possessing well-established participants of various sizes. The industry as whole, however, appears to be significantly influenced by the activities of a small number of large participants. In the long-term, foreign competition will likely force the domestic industry to adopt available technologies that increase productivity. The need for this continued capital investment may lower industry profitability levels.

ENVIRONMENTAL FACTORS

An ongoing environmental concern has been noxious weed control. Noxious weeds are plants that, if left to grow unabated, will decimate other plant species. Typically, noxious weeds are found on non-productive land areas. The current practice is to control noxious weeds by herbicide spraying; other techniques are also used. There has been, however, and continues to be significant environmental concern over the use of herbicides (and pesticides) on agricultural lands.

A second environmental factor is a topsoil retention. Soil is the basic resource in agriculture, and its loss often has cumulative adverse effects. Besides losing valuable topsoil, the quality of vegetative cover often declines, as does water quality in nearby streams. Thus, the DNR has taken

an active role in soil protection.[5] Lastly, water quality and quantity are important elements in managing agricultural lands. The DNR works with lessees and other agencies to protect and maintain water source, quality, and quantity.

The potential listing of salmon under the Federal Endangered Species Act could significantly affect water rights and activities that occur or affect the riparian habitat.

SOCIAL FACTORS

Other factors affecting the DNR-managed agricultural lands include reductions in global trade barriers such as NAFTA and GATT. These trade agreements open new markets and opportunities for Washington state agricultural commodities. However, due to the continuing development of orchard crop production in South America and wheat and other grains in Asia, new global competitors will also be vying with Washington state producers to sell products into new markets.

SPECIAL CONDITIONS

By statute, all state lands leased for agricultural purposes are open and available to the public for purposes of hunting and fishing. [6] However, these activities are limited to the extent that they impinge on the operations of the lessees.

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[5] Agriculture and Grazing Lands Program Policy Plan (1988), p. 46.

[6] Report to the Washington State Board of Natural Resources from the Independent Review Committee (1995).

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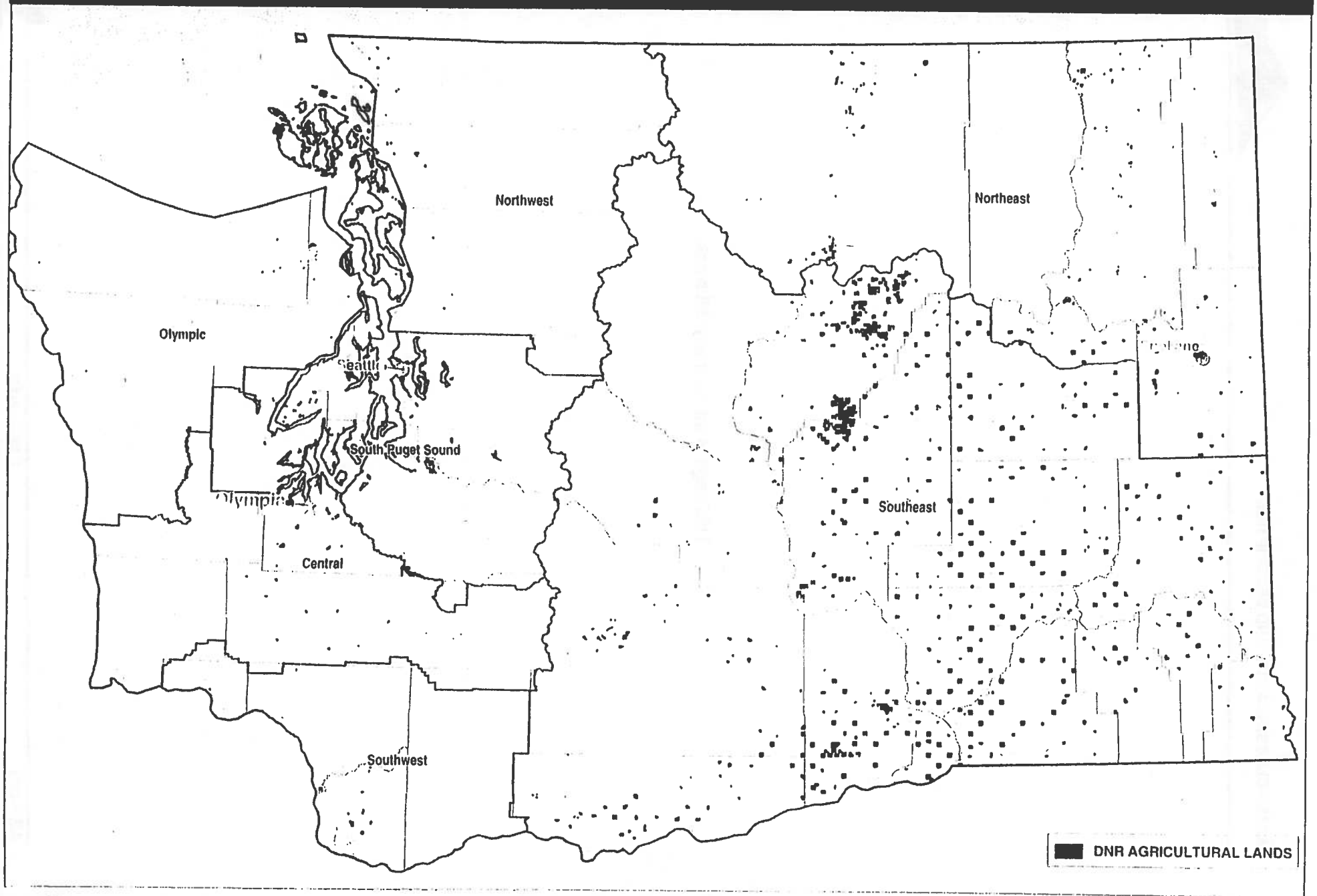
AGRICULTURAL RESOURCES ASSET CLASS



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Commercial Real Estate Asset Class

GENERAL DESCRIPTION

This asset class[7] consists of urban and rural lands that have an existing commercial use or a commercial highest and best use. For purposes of this analysis, both commercial lands and transitional lands[8] are included in this asset class. Commercial uses commonly include: office, hotel, industrial, retail and warehouse uses, and the designation or use of these lands are dependent upon the zoning, demand and market factors in a particular area. Lands suitable for or transitioning to residential use are also included in this asset class. Transitional lands continue to be managed for natural resource production until conversion to a commercial or residential use is warranted.

CLASSIFICATION SUB-GROUPS

Five sub-groups have been selected for this asset class: 1) leased land, 2) leased land and buildings, 3) undeveloped urban enhanced land, 4) undeveloped urban unimproved land and 5) undeveloped rural "transitional" land. *Leased land* is real property with a ground lease wherein building improvements are owned by the tenant. *Leased land and buildings* represent parcels in which land and improvements are owned by the state

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[7] This class includes Commercial, Industrial and Residential Leases, Special Use Leases, Commercial Real Estate Improvements, Roads (including bridges/gates/signs). This Asset Class includes 15,672 acres that are actually leases for real estate and other interim natural resource purposes. The balance has been identified as suitable interim natural resource purposes. The balance has been identified as suitable for potential conversion to other real estate uses, but is currently managed for natural resource purposes such as forestry, agriculture, etc. Under current DNR accounting practices, income from the interim uses plus lease income other than from commercial activities are reported in other asset classes.

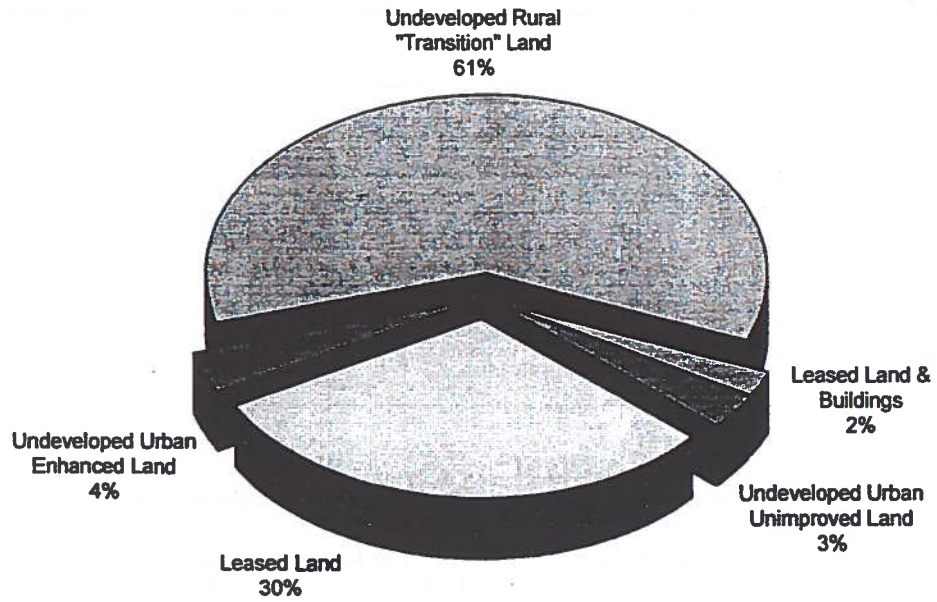
[8] Transitional lands are those lands which lie within the Urban Growth Areas surrounding urban counties. See following discussion.

and both are leased by the DNR to a tenant. *Undeveloped urban enhanced land* is undeveloped land in a location that has infrastructure in place (roads, public utilities) and the ability to be developed within 20 years. *Undeveloped urban unimproved land* is undeveloped land in a location that has no infrastructure in place, but may have the ability to be developed within 20 years. *Undeveloped rural land* is undeveloped real property in a location not designated as "urban" or under any other land classification (i.e., forest, agricultural, pasture).

SIZE OR MAGNITUDE

This asset class contains a total of 48,100 acres. The following exhibit illustrates the distribution of acreage:

Exhibit 2-2
Commercial Real Estate Distribution by Acreage



Source: DNR

GEOGRAPHIC LOCATION

DNR-managed commercial lands are located across the state, although the majority of the lands are located in the South Puget Sound and Southeast Regions. For leased land and leased land and buildings, more than 60% of the acreage is located in the Southeast Region, while approximately 25% of the acreage is located in the Southwest and South Puget Sound Regions. The other four regions contain the remaining acreage, with no real concentration in any one region. See the location map at the end of this section.

INVESTMENT FACTORS

The Growth Management Act (GMA) required urban counties and cities to identify Urban Growth Areas (UGA). UGAs will be required to have infrastructure in place before development. As defined for purposes of this analysis, "urban" land has the capacity and probability of being developed over the next 20 years, while "rural" land lacks these attributes. As a result of this GMA classification, the DNR has removed over 15,000 acres of land from the Forest Resources asset class and the Grazing Land asset class; these lands are now managed in the Commercial Real Estate asset class. From a market perspective, however, land that is currently used for timberland or grazing land and is not expected to transition to urban commercial or residential use for twenty or more years is still considered timberland or grazing land for economic analysis purposes. As a result, the asset class should not be characterized as totally "commercial real estate" when considering investment factors for the class. If the traditional

commercial properties (leased land or leased land and buildings) are examined separately, however, investment industry factors are relevant. Changes in value and income are expected to be moderate to low, depending on the specific property type and the location of the properties, and the existing supply and demand for that particular area. The Commercial Real Estate asset class, because of the presence of the transitional lands, has particularly low liquidity, but sub-groups within the class will vary widely in liquidity. Because of the nature of transitional lands, i.e., their designation as future urban lands, their long-term potential for increased value through community growth is good. Presumably, the transitional designation of these lands will not contribute to their under-utilization for other resource values, such as timber or agricultural production.

INDUSTRY FACTORS

The commercial real estate industry is large and includes office, retail, industrial and hotel properties. It is, however, not traditionally defined as one of the standard industry groups for economic analysis purposes because the land, buildings and developments which constitute the industry are grouped, for economic analysis purposes, with the occupying industry. That portion of the real estate industry that is most relevant here is the investment real estate sector, and some of the larger income properties within the Commercial Real Estate asset class may be influenced by events in this industry.

The investment real estate sector involves numerous participants, including individuals, syndications, joint-ventures, corporations, institutional investors such as insurance companies and pension funds, and other participants. Most observers today consider the investment real estate industry to be a highly fractionalized industry, dominated by local and region economic and business trends. Most recently, however, new sources of real estate capital, including the evolution of commercial mortgage-backed securities (CMBS), are contributing to the development of new infrastructure and industry practices that will tend to cause this sector of the industry to consolidate.

The growth and change in the investment real estate sector is a function of the strength of the local economy, demographic trends and employment. In general, Washington State's economy is growing and as a result, the investment real estate sector should also show positive long-term growth.

ENVIRONMENTAL FACTORS

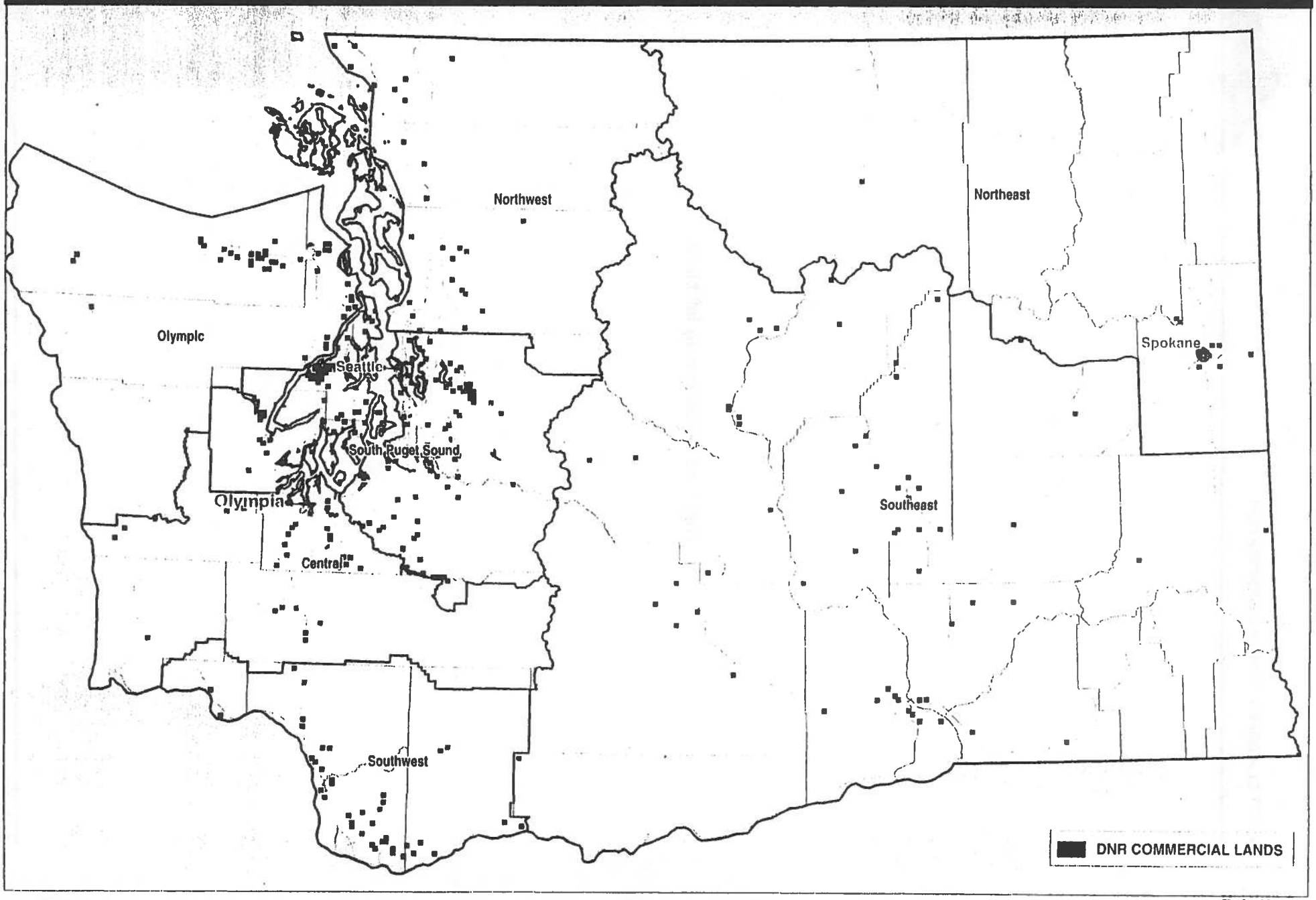
Environmental issues concerning ecosystems, wildlife and habitat areas, wetlands and biodiversity needs have the potential to affect the future use of commercial lands. Those properties with an existing commercial use will more than likely continue. Those properties designated with a highest and best or future use as commercial, but (for the time being) in alternative interim use, may face environmental and regulatory challenges. Although

varying by location and by proximity to a metropolitan area, environmental and regulatory concerns remain important issues for future development of Commercial Real Estate lands of all sub-groups.

SOCIAL FACTORS The social, cultural and environmental values of outdoor recreation and preservation of open space will influence all undeveloped lands in this asset class. Public attitudes toward the urbanization of rural areas will directly shape the political, regulatory and monetary actions affecting transition lands.

SPECIAL CONDITIONS None noted.

COMMERCIAL RESOURCES ASSET CLASS



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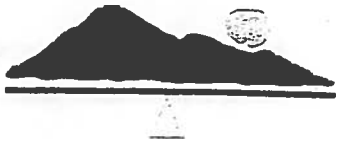


Communication Resources Asset Class

GENERAL DESCRIPTION

The Communication Resources asset class[9] consists of 92 sites on mountain tops, prominent ridges or hills and transportation corridors used as sites for communication antennas. Approximately 26 of these sites have State-owned buildings and towers, and the remainder have improvements constructed and owned by the lessees. In general, these locations are used for cellular communication, microwave, television and FM radio broadcasting.

CLASSIFICATION SUB-GROUPS

In the initial review of the Communication Resources asset class, sites with and without alternative "for profit" potential[10] were researched, but no sites with "for profit" potential were identified. As a result, the Communication Resources asset class has two functional sub-groups; sites without alternative "for profit" potential and having *good* access or *poor* access.

SIZE OR MAGNITUDE

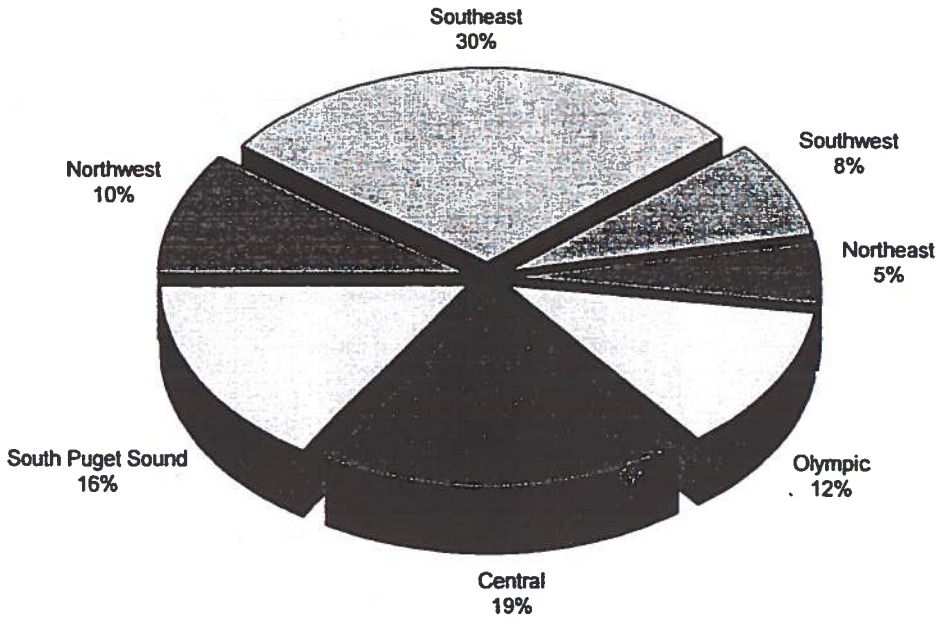
There are approximately 400 leases with 1,500 transmitters or repeaters on these 92 sites. The site sizes are not uniform due to the physical characteristics of each site and its current and prior uses. Gross revenues from the 92 sites are mainly derived from facility (improvements) rents, site (land) rents and various other expense reimbursements or payments such

9 This class includes Sites and Electronic Site Leases, Communication Towers/Buildings, Roads (including bridges/gates/fences/ signs).

10 Alternate for profit potential of the sites is relevant to the future use of the sites, after communications uses terminate through lease expiration or because of changing technology.

as road fees, power fees and other fees. A summary of regional revenues totaling approximately $1.4 million for fiscal 1995, follows:

Exhibit 2-3
Communication Site Revenue by Region



Source: Deloitte & Touche LLP

GEOGRAPHIC LOCATION

Of the 92 sites, 57 are located west of the Cascade Mountain range and the remaining 35 lie east of the Cascade Mountain range. For DNR management purposes, each location is provided with a site rating. Following are descriptions of the five site ratings:

- Class 1 - a site that serves a high population density, that brings communications to a broad geographic area, and/or that has road access with commercial and standby power available. There are 10 Class 1 sites.

- Class 2 - a site that has the same physical attributes as a Class 1 site, except that it does not serve a high population density, or it may have some limitations serving a broad geographic area. There are 23 Class 2 sites.
- Class 3 - a site with road access but serves a population density or geographic area lower than those of a Class 2 site. There are 38 Class 3 sites.
- Class 4 - a remote site with limited road access. There are 21 Class 4 sites.
- Class 5 - a site that does not meet the above conditions. There are -0- Class 5 sites

See the location map at the end of this section depicting the location of communication sites.

INVESTMENT FACTORS

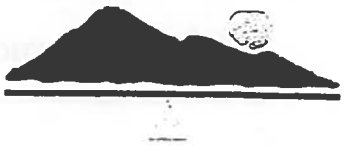
Given the special nature of this asset class, these properties essentially have the investment value of the business contract that underlies the asset. In other words, if the contract did not exist, this asset class would not constitute an investment in the traditional sense, i.e., providing a return on and of investment through the productivity and value of the asset. The contracts now in place have financial value by virtue of the promise to pay rent and the financial capability that underlies each tenant's promise to pay. The probability that this stream of rents will continue into the future is uncertain, however, because of advancing technologies. These changes

suggest that in the relatively near future the need for these antenna sites may diminish.

Low earth orbiting and mid-level earth orbiting satellites offer superior communication to land-based line-of-sight technologies that use DNR-managed communication sites. However, the antenna sites may continue to be in demand as earth stations for satellites. This is highly speculative, however, as the number of earth stations will be far fewer than the number of antenna sites. Fiber optic land lines may also diminish the need for mountain-top antenna sites. For the near term, Communication Resources land (as an investment) is not expected to experience any significant change in income or value because the income and corresponding value is directly related to the lease contracts now in effect and not to the value of the land in exchange.

INDUSTRY FACTORS

The Communication Resources sites play a very small support role to the communications industry. Trends (other than those discussed above) influencing the communications industry do not directly influence the value or productivity of the antenna sites. To the extent that other industries or users use or will use the sites in the future, incidental to their business activities, demand for antenna sites will be affected. Relevant technical changes are discussed above in "Investment Factors."



ENVIRONMENTAL FACTORS

No environmental concerns have been identified that are relevant to an economic analysis of this class.

SOCIAL FACTORS

Increasing community resistance to the location (visual nuisance) of communications sites in residential neighborhoods is developing. Notwithstanding changing technology, this may increase the demand for and value of existing sites.

SPECIAL CONDITIONS

None noted.

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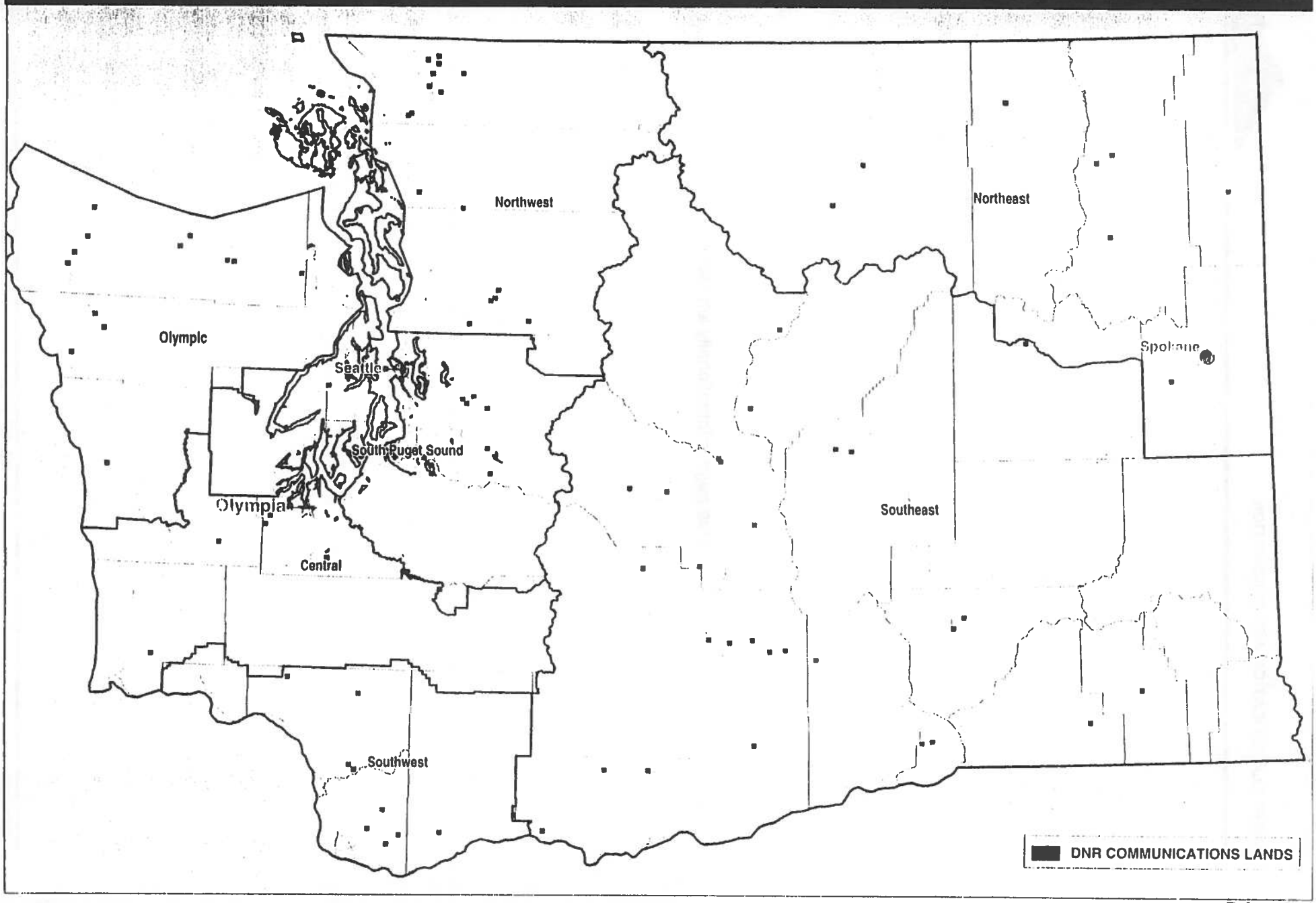
COMMUNICATIONS RESOURCES ASSET CLASS



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Forest Resources Asset Class

GENERAL DESCRIPTION

The Forest Resources asset class[11] consists of lands (timberland) with tree cover (timber) that are managed for their commercially marketable timber resources and other environmental and habitat attributes. The tree cover, or timber, consists of various types of tree species with a wide range of ages. Locationally, "forest lands," including timberland, timber and other attributes, are identified along geological references: west of the Cascade mountain range and east of the Cascade mountain range. The forest lands west of the Cascades are predominately highly productive timber forests containing well-stocked stands of timber; the forest lands east of the Cascades typically are not as productive as the forest land to the west and may also be used for various levels of grazing.

Timber stands vary in age. Stands located west of the Cascades are typically of a uniform or consistent age; while stands located east of the Cascades are less uniform and are called uneven-aged stands. Access to most of the forest lands is provided by nearly 9,000 miles of state-owned roads that vary in quality and age; some stands have no road access.

[11] This class includes Forest Lands and related Timber Sale Contracts, Minor Forest Product Leases, Timber, Special Forest Products (mushrooms, brush, Christmas Trees, etc.), Nursery Stock, Plants/Trees, Old Growth, Ecosystems and Components, Wildlife & Habitat, Animal Corridors, Soils, Wetlands, Surface/ground Waters, Sensitive/Threatened/Endangered Species, Oxygen/Carbon Dioxide Exchange Systems, Forest Research/Inventory Plots, Permit Ranges, Genetic Resources, Potential Medicinal Plants, Roads (including bridges/gates/fences/signs), Recreation Sites, Recreation Trails, and Non-Market Services & Attributes.

CLASSIFICATION SUB-GROUPS

Within the Forest Resources asset classification, seven key sub-groups were selected for analytical purposes. These sub-groups organize the forest lands into groups based mostly on species and location attributes. The seven sub-groups and definitions are as follows:

Douglas Fir/Pine - West
Species: Douglas Fir, White Pine, Red Cedar, Ponderosa Pine and Larch
Location: West of the Cascade Crest

Douglas Fir/Pine - East
Species: Douglas Fir, White Pine, Red Cedar, Ponderosa Pine and Larch
Location: East of the Cascade Crest

Hardwood - West
Species: Red Alder, Oak, Birch, Big Leaf Maple and Black Cotton Wood
Location: West of the Cascade Crest

Hardwood - East
Species: Red Alder, Oak, Birch, Big Leaf Maple and Black Cotton Wood
Location: East of the Cascade Crest

Whitewood - West
Species: White Fir, Western Hemlock, Spruce, Silver Fir, Mountain Hemlock and all true firs
Location: West of the Cascade Crest

Whitewood - East
Species: White Fir, Western Hemlock, Spruce, Silver Fir, Mountain Hemlock and all true firs
Location: East of the Cascade Crest

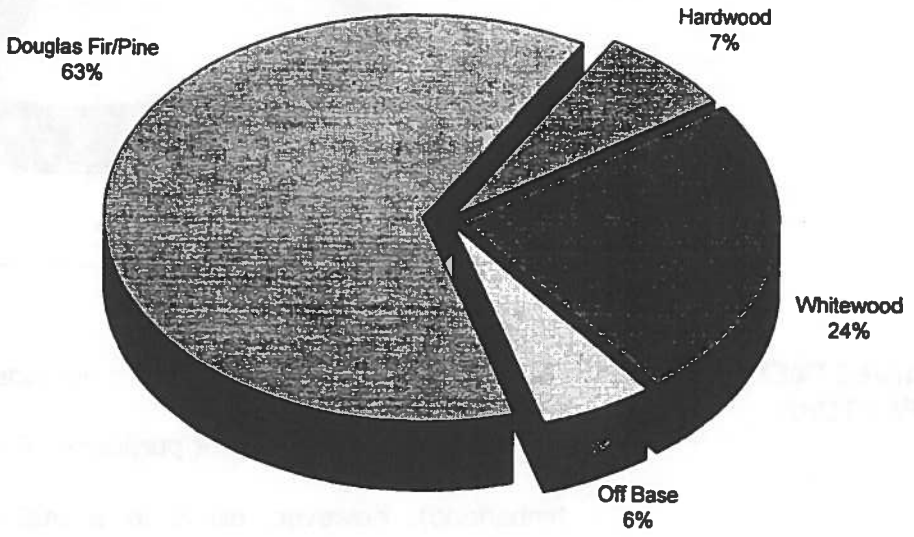
Off-Base — Off-base lands typically include forest locations that will not produce a new timber crop within 80 years and properties on which harvesting has been deferred. Forest stands that are small, isolated, difficult to reach, too costly to log or removed from the harvest base to meet specific management needs or objectives are also classified as off-base.

SIZE OR MAGNITUDE

The total acreage of the Forest Resources asset class is approximately 2,113,800 acres. As discussed in the Introduction of this chapter under "General Restrictions," 566,000 acres in the Forest Resources asset class are Forest Board Lands. As such, these lands are restricted from sale or transfer of ownership, but the timber on these lands can be harvested and sold. Special valuation issues regarding the non-marketability of the Forest Board Lands are discussed in detail in Chapter 3.

The distribution of the Forest Resources asset class by species is as follows:

Exhibit 2-4
Forest Resources Acreage by Species

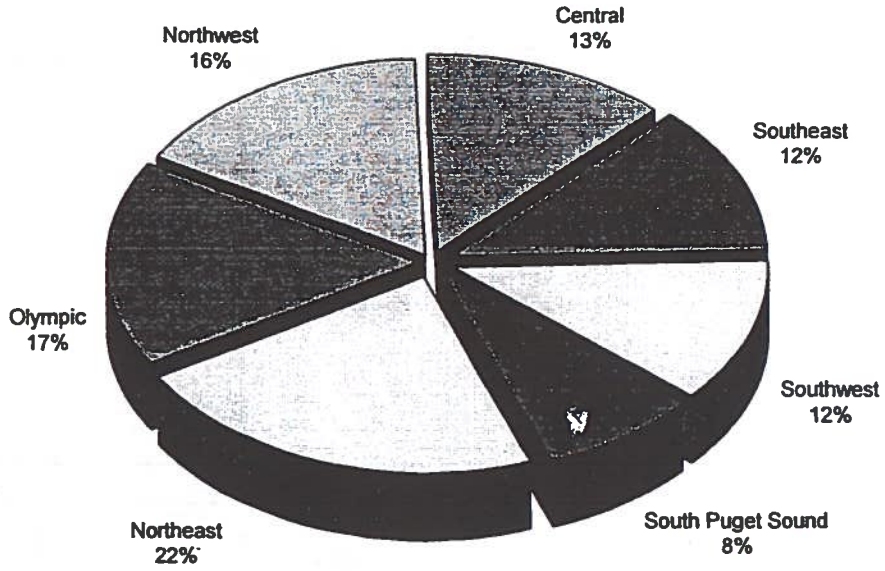


Source: DNR - GIS

GEOGRAPHIC LOCATION

A majority of the Forest Resources acreage (66.6%) is located west of the Cascade mountain range. Eastern Washington's share of the acreage (33.3%) is located mostly along the eastern slopes of the Cascade Mountain Range and in the northeastern portion of the state. See the location map at the end of this section.

Exhibit 2-5
Forest Resources Acreage Distribution by DNR Administrative Region



Source: DNR - GIS

INVESTMENT FACTORS

As an investment, forest lands are not independently identified or classified for investment management purposes. Forest land (comprising timber and timberland), however, exists in a mature marketplace, having a well established process for exchange and many market participants. As a real estate investment, however, forest land represents only a small share of institutional property investment. Forest land is similar to most investment

real estate in its low liquidity; because of its small share of the institutional real estate market, forest land has lower liquidity than other classes of investment real estate.

As an investment, forest land offers unique opportunities and challenges from changes in value and income compared to the other asset classes. Unlike other asset classes, the relative market value of timberland acreage can be flat (or even decrease), yet the forest land investment as a whole can increase through natural timber volume growth and through timber grade changes, which are also achieved through natural forest growth. As a result, investors believe that increases in value that result from natural forest growth can offset negative short-term changes in timberland value or income. Income from timber, however, can be volatile. Over the last few years, timber and timber product prices have experienced significant fluctuations, which diminish the attractiveness of the class as an investment.

Although requiring a high level of specialized knowledge and technical expertise, and given the unique investment characteristics noted above, investor awareness and demand for forest land is apparently increasing. The increased interest has contributed to and is fueled by growing appreciation of the role of forest land as part of a balanced investment real estate portfolio, leading to the development of new market monitors and bench-marks for evaluating forest land investments. As a result,

institutional investors and other investment fund managers have been adding forest land investments in their respective portfolios.

INDUSTRY FACTORS

The forest products industry is a mature industry wherein a large percentage of industry activity and ownership is held by a relatively few companies and landowners. Among the large landowners are the federal government, state and local entities and large corporate entities.

There are various levels of integration depending on the sub-sector of the industry. Integration is generally high among corporate participants where business operations include timberland ownership, timber production and processing, distribution and, in some cases, direct retail sales of forest products. Among public entities, the industry role is usually limited to land ownership and timber management. Public timberland owners typically sell timber to private industry and do not process the timber themselves.

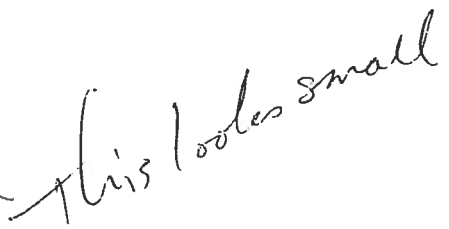
ENVIRONMENTAL FACTORS

Significant environmental issues affecting the forest resource asset class include: threatened and endangered species, clear-cutting, deforestation and old growth timber habitat preservation. Because of various laws and regulations, the endangered species often have habitat requirements that

limit timber harvest and other activities.[12] The DNR has del harvest about 2,000 acres with timber stands of at least 160 years ...

SOCIAL FACTORS Numerous recreational, cultural, historical, archeological and other issues are actively involved in the management of Forest Resources assets.

SPECIAL CONDITIONS The Forest Resources Conservation and Shortage Relief Act of 1990 (Sixteen U.S.C. 620-620) restricts the export of unprocessed timber originating from state and other public land. This act does not apply to timber harvested from privately owned lands. Generally, the Act requires each agency managing public lands to designate timber sales to be sold as "export-restricted" and as "exportable." The act prohibits the export of unprocessed timber from "export-restricted" sale but permits the export of unprocessed timber from "exportable" sales, as well as from privately owned lands.



[12] DNR Forest Resource Plan (1992).
13 ibid.

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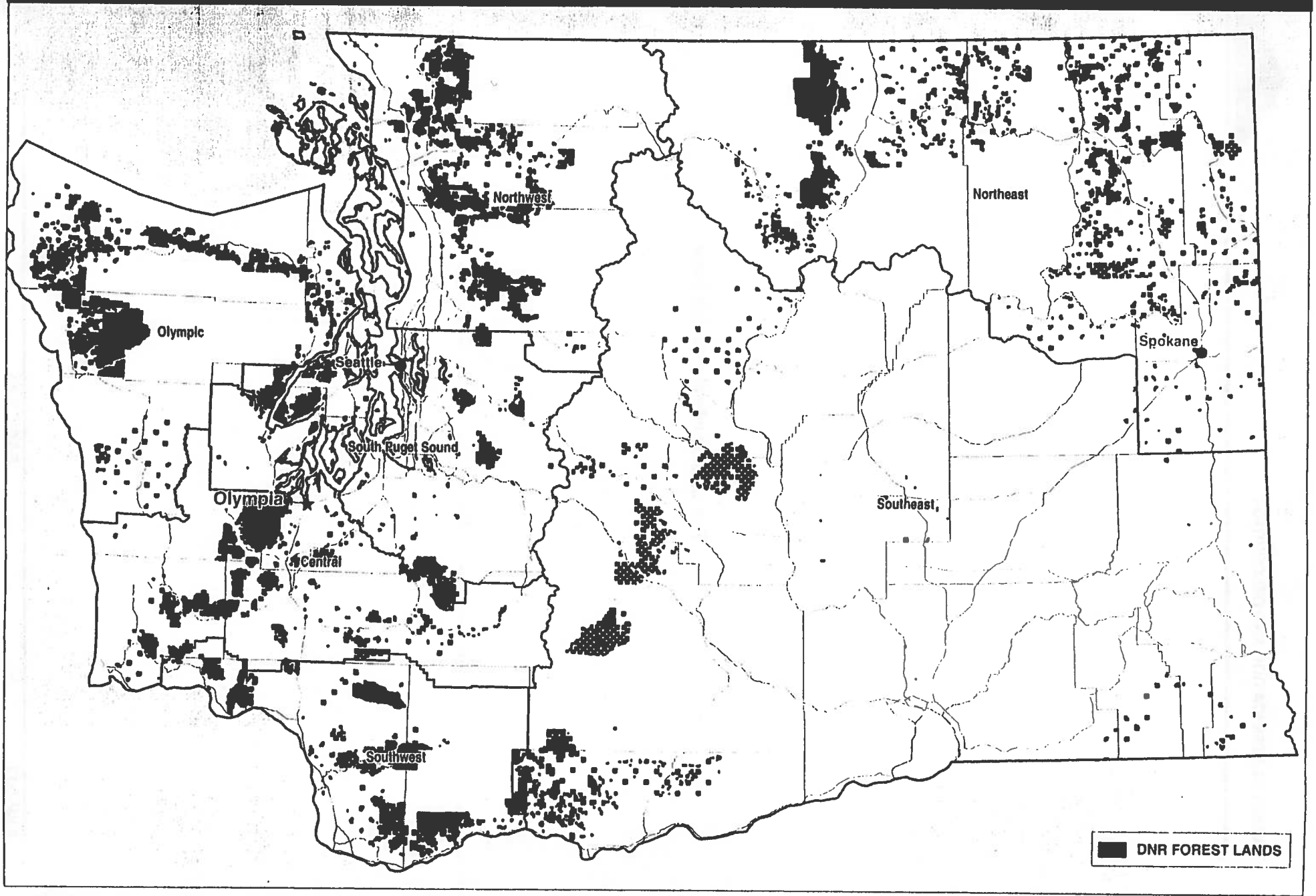
FOREST RESOURCES ASSET CLASS



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Grazing Lands Asset Class

GENERAL DESCRIPTION

The Grazing Lands asset class[14] consists of DNR-managed trust land managed for the purpose of grazing livestock. Grazing lands are also known as rangelands, meadows and pastures. They are typically located in areas that do not adequately support agriculture or timber production due to low to moderate levels of precipitation and soil conditions shallower and sandier than those of the more productive lands.

The ground cover of the grazing lands is primarily a mixture of grasses, grass-like plants and shrubs suitable for animal grazing. A specific site's soil condition and its precipitation level affect the quality and quantity of vegetation that is produced for grazing.

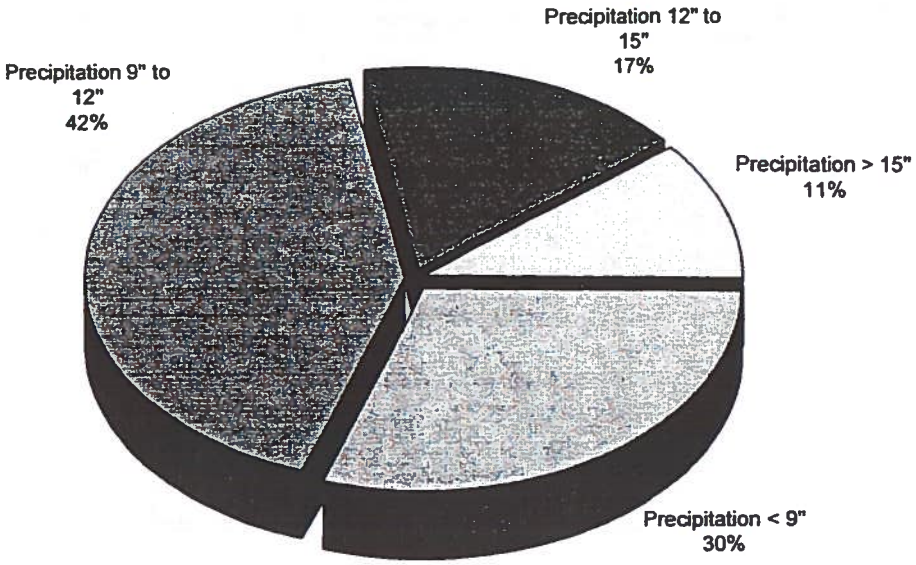
There are three primary sources of grazing lands available for lease: federal lands, state lands (such as those evaluated here) and private lands. The livestock (cattle, sheep, etc.) industry is the major user of grazing land.

CLASSIFICATION SUB-GROUPS

In general, the grazing land asset class is a homogenous asset class with minimal variance. As a result, all grazing lands have been grouped together into one sub-group for analytical purposes.

[14] This class includes Grazing Leases, and related Leases and Permits, Surface/ground Waters, Roads (including bridges/gates/fences/signs), Wildlife & Habitat, Animal Corridors, Soils, Wetlands, Surface/Ground Waters, Sensitive/Threatened/Endangered Species, Oxygen/Carbon Dioxide Exchange Systems and other environmental resources and attributes and Non-Market Services & Attributes.

Exhibit 2-6
Grazing Lands Acreage by Average Annual Precipitation



Source: DNR - GIS

SIZE OR MAGNITUDE

The DNR manages a total of 533,000 acres of grazing lands primarily through long term leasing. Generally, long-term grazing leases are issued for typical grazing lands, and shorter-term and somewhat use-restrictive grazing permits are issued for grazeable woodland areas (included in the Forest Resources asset class). Lease agreements often vary by season, duration, renewal, escalations and other factors.

GEOGRAPHIC LOCATION

Almost all of the DNR-managed grazing lands are located east of the Cascade Mountain Range. Of the 20 counties located east of the Cascades, the following five counties account for approximately 63% (333,000 acres) of the total grazing acreage: Kittitas County, 79,000 acres;

Okanogan County, 76,000 acres; Yakima County, 62,000 acres; Douglas County, 61,000 acres; and Grant County, 55,000 acres. See the location map at the end of this section.

INVESTMENT FACTORS

From an investment perspective, grazing land resides in a mature marketplace with a well-established market. Grazing land, as an investment, is similar to all investment real estate in its low liquidity. Because of grazing land's relatively low market values and the low levels of management knowledge and activity required, market participants can and do vary from small to large land owners and from recreational users to business enterprise (ranching) users.

In the near term, a grazing land investment is unlikely to experience any significant change in market value or income. Leased fee ownership interests in grazing land such as the State's should not experience the volatility in income and value that owners of livestock that rely on grazing land can experience from year to year.

INDUSTRY FACTORS

Grazing land is part of the Agriculture Industry. As such, grazing land lies within a mature industry with long-standing participants providing a variety of services, goods and products. Hence, there is a relationship between livestock prices and the demand for grazing land. At the present time there are some concerns that the widespread use of state and federal grazing lands for raising cattle and sheep may be changing in response to evolving

attitudes about this use of public lands. If this change continues, it may lead to changing industry practices concerning how and where livestock is raised, and may influence the price of beef and other related products.

Consumer preference for food products continue to change and beef products have been among those who have experienced a change in demand. This trends may continue in the future. Importation of foreign beef products may continue to challenge US beef producers, influencing the price and profitability of cattle, as well as the cost of production.

ENVIRONMENTAL FACTORS

An ongoing environmental concern has been noxious weed control. Noxious weeds are plants that, if left to grow unabated, can harm other plant species. Typically, noxious weeds are found on non-productive land areas. The current practice is to control noxious weeds by herbicide spraying and other methods. There is concern about the risks of herbicide use.

A second factor is retention of top soil. Soil is the basic resource in generating vegetation cover suitable for grazing, and its loss (through wind or water erosion resulting from over-grazing) often has cumulative adverse effects. Besides losing valuable top soil, the quality of vegetative cover often declines, as does water quality in nearby streams. Thus, the DNR has

taken an active role in soil protection.[15]

Very recently, environmental advocacy and protection groups have begun to competitively bid for grazing leases on public land, for preservation purposes and not for livestock grazing purposes. This is a new phenomenon, yet one which may increase in the future. It is our understanding that this activity is motivated by concern for the environment that results from livestock grazing. It is not apparent how the federal and state governments will react to this new development.

The potential listing of salmon under the Federal Endangered Species Act could significantly affect water rights and activities that occur or effect the riparian habitat.

SOCIAL FACTORS

In the western states, the use of public lands for grazing of livestock is a long-established practice. It is not uncommon for grazing leases to be renewed with the same parties for many, many years. Small and family ranchers have expressed concern about the possible loss of their lifestyle, similar to those concerns expressed by "family" farmers, and these concerns have been heightened by the recent attempts of the federal government to raise grazing land lease rates, and by the attempts of some environmental advocacy and protection groups to compete for grazing land leases for preservation purposes. To the extent that changes in the grazing

[15] Agricultural and Grazing Lands Program Policy Plan (1988), p. 46.

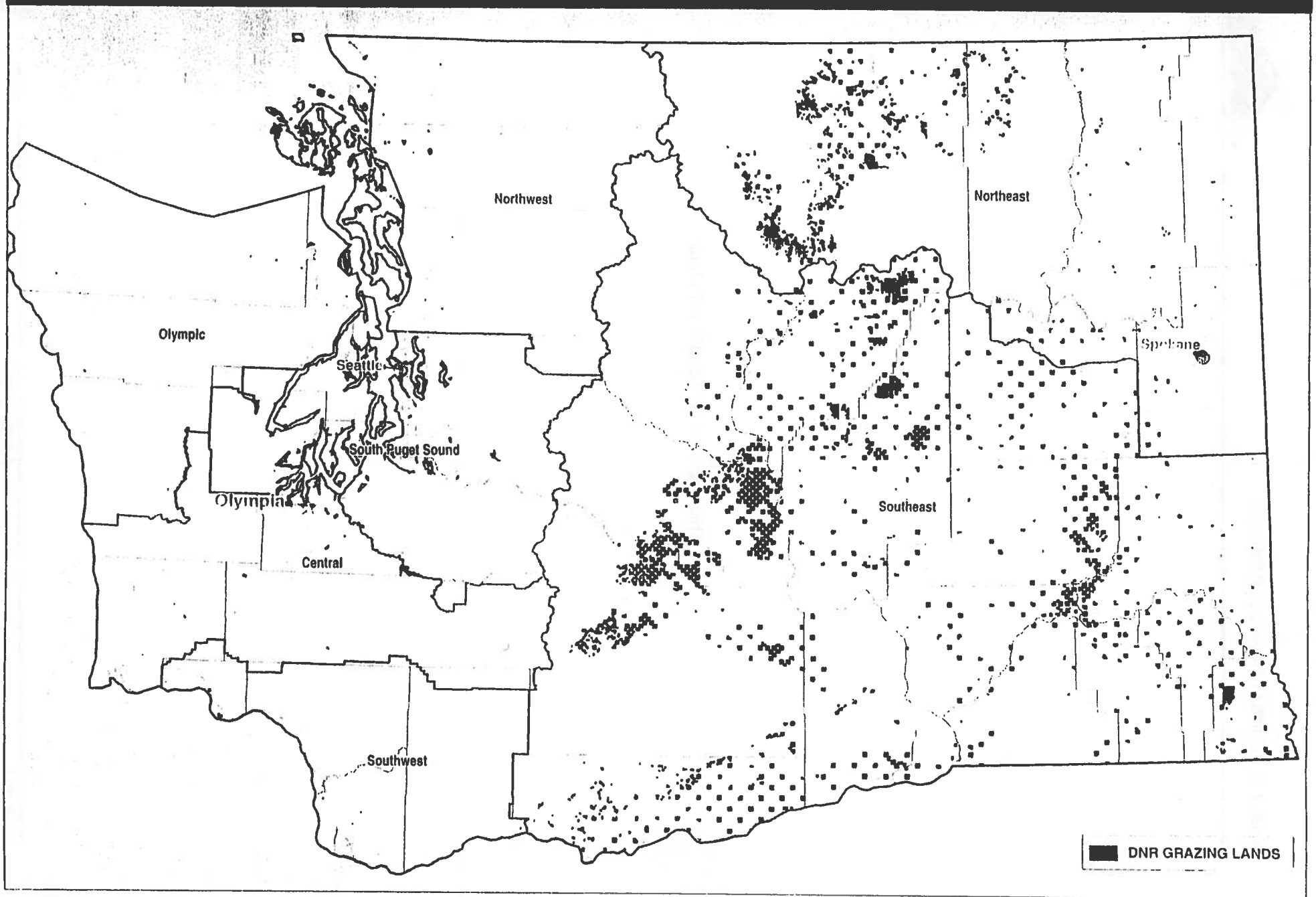
land leasing rates and lease terms change, both the small and family ranch as well as the communities and vendors that serve these ranches, may be affected.

SPECIAL CONDITIONS

By statute, all state lands leased for grazing purposes are open and available to the public for purposes of hunting and fishing.[16] However, these activities are limited to the extent that they do not impinge on the rights of the existing lessee.

[16] Report to the Washington State Board of Natural Resources from the Independent Review Committee (1995).

GRAZING RESOURCES ASSET CLASS



Deloitte & Touche LLP

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Monetary (Permanent Fund) Assets Class

GENERAL DESCRIPTION

The Monetary (Permanent Funds) Assets class[17] consists of fourteen DNR-administered funds and five permanent trust funds managed by the Washington State Investment Board (WSIB). Within the DNR-administered funds, there are trust management funds that are utilized by the DNR in executing the various trust responsibilities assigned to the department, and other funds for carrying regulatory responsibilities and other activities. A portion of these administered funds utilize revenue collected from various licenses, fees and charges and federal Grants-in-Aid to fund operational expenditures, such as forest fire suppression, property acquisition and environmental education. The DNR-administered funds are used for operational activities and responsibilities. As such, these funds, which account balances vary from day to day, are used for cash management (receipts and disbursements) and are not held for investment purposes[18]

Permanent trust funds consist of five irreducible funds invested for the support of the Beneficiaries (common and normal schools, and selected colleges and universities).

CLASSIFICATION SUB-GROUPS

None

---

[17] This class includes General Funds, Various Accounts, Active Performance Securities, Permanent Funds (Agricultural School, Common School, Scientific School, Normal School, University)(*either controlled by DNR or on which DNR has an impact through management activities*).

[18] Accordingly, these funds are not be included in the Return on Investment (ROI) analysis performed later in this report.

SIZE OR MAGNITUDE Following are balances as of June 30, 1995:

Exhibit 2-7
DNR-Administered Trust Funds

	Balance at FYE 6/30/95 (Rounded)
Forest development	$6,862,000
Resource management *	23,742,000
Access road revolving	1,372,000
Surveys and maps	1,000,000
Landowner contingency forest fire	4,347,000
Parkland and trust revolving *	11,717,000
Aquatic lands dredged material	250,000
Conservation areas stewardship	1,106,000
School construction revolving *	12,000
Surface mining reclamation account	191,000
Real property replacement *	7,598,000
Clarke-McNary	223,000
Forest fire protection assessments	7,020,000
State forest nursery	1,370,000
Total	$66,810,000

* These funds are held for by various Beneficiaries.

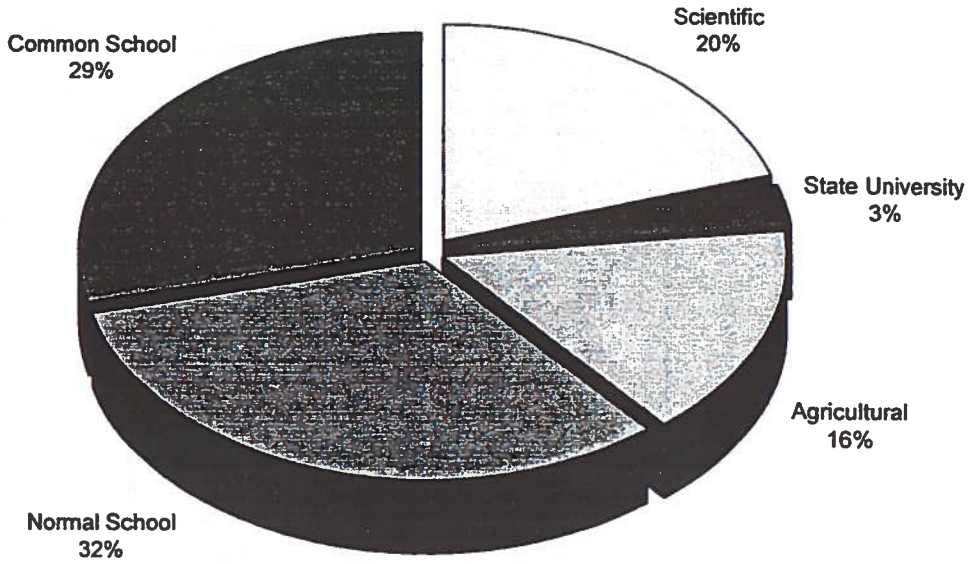
Source: Washington State Investment Board

Exhibit 2-8
Permanent Trust Fund Balances

	BALANCE	
	Market Value FYE Jun-94 (Rounded) Per WSIB Qtrly Summary 6/30/94	Market Value FYE Jun-95 Per WSIB 14th Annual Rpt. 6/30/95
Fund 601: Agricultural	**$72,685,000**	**$80,110,174**
Fund 604: Normal School	**153,826,000**	**165,843,807**
Fund 605: Common School	**135,989,000**	**147,231,660**
Fund 606: Scientific	**93,898,000**	**105,683,502**
Fund 607: State University	**11,771,000**	**13,987,442**
Total Permanent Funds	**$468,169,000**	**$512,856,585**

Source: Washington State Investment Board

Exhibit 2-9
Distribution of Permanent Fund Accounts; Market Value at 6/30/95



Source: Washington State Investment Board

GEOGRAPHIC LOCATION

Not applicable.

INVESTMENT FACTORS

The permanent fund is a one-half billion dollar investment portfolio consisting of five individual funds. As discussed in Chapter 6b of this report, Portfolio Management Issues, these funds are limited to a narrow range of conservative securities investments such as bonds and other fixed income investments. Therefore, the relevant investment factors that affect these funds are primarily associated with the general factors that affect all fixed income instruments and bonds in the financial markets as well as the portfolio's investment manager's allocation strategy among different securities.

INDUSTRY FACTORS None

ENVIRONMENTAL FACTORS Not applicable.

SOCIAL FACTORS Not applicable.

SPECIAL CONDITIONS The permanent funds' investments are mandated to emphasize stability of income to support the beneficiaries of the irreducible trusts and are to be actively managed to exceed the return of the Lehman Brothers Aggregate Bond Index.[19]

Risk considerations impose several constraints on the portfolio according to the current investment policy of the Washington State Investment Board, including the following:

- Bond selections are at least be Investment Grade, defined as those rated BBB or higher by Standard & Poors, an international financial rating agency, and Baa3 or higher by Moody's Investor Services, a second rating agency.
- The portfolio duration range is not to exceed +/- 1.5 years of the Lehman Brothers Aggregate Bond Index.
- Since the funds are tax-exempt, tax-exempt bonds generally are not to

[19] Washington State Investment Board Fourteenth Annual Report, June 30, 1995, p. 2.

be purchased.

- No corporate fixed income issue shall exceed 3% of cost or 6% of market value of the fund. [20]

Additionally, all of the funds, except Fund 605 (Permanent Common School Account Fund), are restricted by the State Constitution from investing in equity in a private corporation. The WSIB policy, however, is to manage Fund 605 in the same manner and with the same limitations as the other funds.

[20] Ibid. p. 4.

Mineral Resources Asset Class

GENERAL DESCRIPTION

The Minerals Resources asset class[21] is limited to land not contained in the other asset classes that is owned and managed for its mineral production or mineral potential, and subsurface mineral rights retained from prior sales of land. It should be noted, however, that there may be significant mineral potential in the other asset classes such as the Forest Resources asset class (2,113,760 acres), Aquatic Resources asset class (2,179,840 acres), Grazing Land asset class (532,760 acres), Agricultural Resources asset class (188,509 acres) and some of the other asset classes. This is because the State's ownership interest is the full, fee simple interest and not a surface-rights (only) real property interest.

Potential mineral assets include:

- Sand, gravel and rock;
- Metallic minerals (gold, silver, lead, zinc, copper, etc.);
- Non-metallic minerals (clay, talc, coal, limestone, dolomite, etc.);

and

- Oil and Gas.

Currently, there are approximately 25 active mining operations on DNR-managed land that mine sand, gravel, rock, clay and dolomite.

[21] This class includes Sand/Gravel/Common Rock Sale Contracts, Oil/Gas Leases, Mineral Contracts, Prospecting Leases, Water Rights, Sand/Gravel/Common Rock, Oil/Gas, Mineral rights.

Of the approximately 682,000 acres of land included in this asset class, less than 2,000 acres (0.2%) has any information about whether there are minerals of any value present. Consequently, an important aspect of this asset class is the absence of information about the presence of and/or value of these mineral rights.

CLASSIFICATION SUB-GROUPS

Within the minerals asset classification, four sub-groups were selected for analysis. These sub-groups are generally based upon ownership interest:

1) surface rights only (land purchased for the State by DNR where the seller retained the mineral rights),

2) mineral rights only (land sold for the State by DNR where the mineral rights were retained),

3) surface & mineral rights - active (active mining operations), and

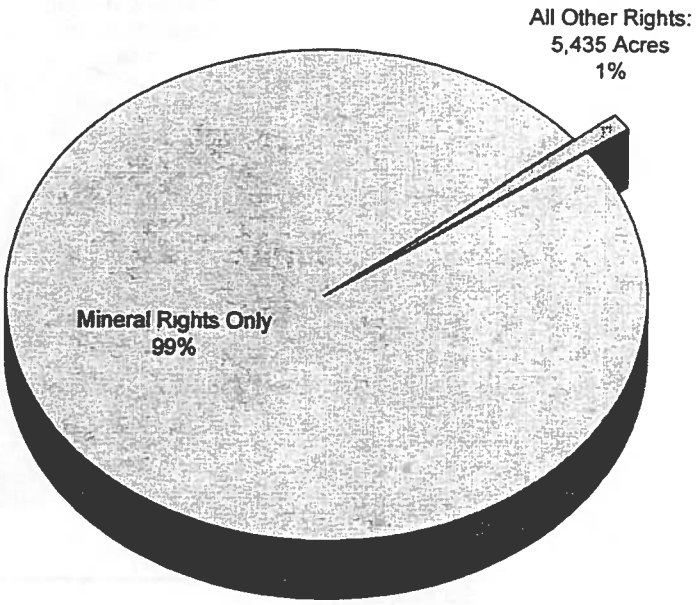
4) surface & mineral rights - prospects (potential mining locations).

SIZE OR MAGNITUDE

The following table details the mineral asset class acreage by sub-group:

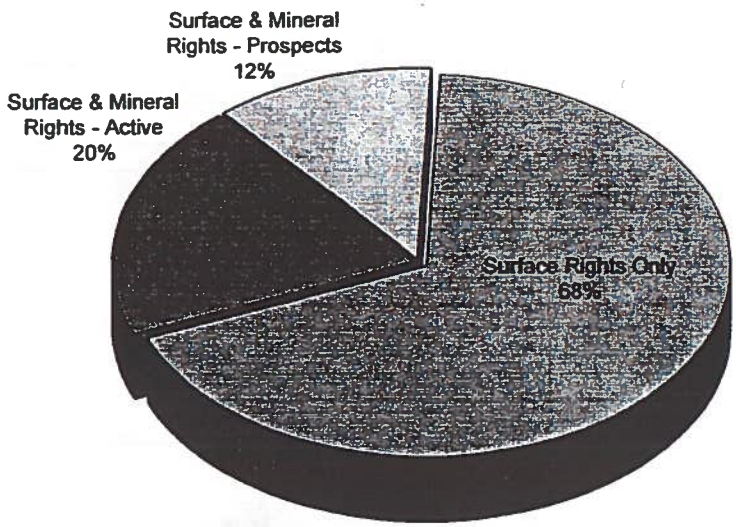
Partial Fee Estate Ownership:		
Surface rights only	3,717	acres
Mineral rights only	677,151	acres
Full Fee Estate Ownership:		
Surface & mineral rights - active	1,076	acres
Surface & mineral rights - prospects	642	acres
Total Acreage:	682,586	acres

Exhibit 2-10
Distribution of Mineral Resources Asset Class By Acreage
Total Acreage = 682,586 acres



Source: DNR

Exhibit 2-11
Distribution of Mineral Resources Asset Class By Acreage
(Excluding Fee Ownership: Mineral Rights Only)
Net Area Summarized - 5,435 acres



Source: DNR

GEOGRAPHIC LOCATION

This asset class includes land and mineral rights that are located across the entire state. The location of these lands are not identified through DNR GIS mapping. Accordingly, no location map is provided in this section for Minerals Resources lands.

INVESTMENT FACTORS

It is difficult to characterize this asset class investment, since so little is known about the lands in the class. To the extent that this class might be considered an investment, it is a highly speculative one. To illustrate, minerals prospects (generally speaking, minerals lands where some level of information about the quantity and quality of mineral deposits are known) are themselves considered highly speculative, due to the many

uncertainties surrounding profitable extraction and processing; recoverable quantity, the concentrations of ore or minerals, varying market prices and extraction or mining costs, environmental mitigation costs and others. The minerals lands in this class have greater risk than a minerals prospect because of the missing information. We should note, however, that this information is only gained through detailed study and analysis, and the absence of this information is not indicative of neglect. In order for the DNR, as manager of these assets, to justify these studies, there would need to be an expectation of identifying mineral deposits of significant commercial value. We are not aware of any DNR expectations that mineral rights have sufficient commercial value (beyond those 2,000 acres of known prospects) to justify study at this time.

INDUSTRY FACTORS

Due to the limited amount of known higher value mineral reserves, industry considerations for this class are very limited. Sand, rock and gravel extraction dominate the value of the Mineral Resources asset class at this time. These minerals are used primarily for construction and road building; therefore, population and community growth will drive demand for those known aggregates located on DNR-managed Mineral Resources lands.

ENVIRONMENTAL FACTORS

Environmental issues related to mineral resources deal primarily with health and safety issues of the mining operation such as noise, dust, visual impact, hours of operation, water quality, increased traffic, etc. Additional concerns relate to the mine reclamation process.

SOCIAL FACTORS

None noted.

SPECIAL CONDITIONS

None noted.

Aquatic Resources Asset Class

GENERAL DESCRIPTION

The Aquatic Resources asset class[22] comprises "tidelands", "bedlands" and "shorelands".[23] "Tidelands" are shores of navigable tidal waters lying between the lines of ordinary-high tide and extreme-low tide. "Bedlands" are lands below the line of navigability on rivers and lakes (freshwater - not subject to tidal flow) *and* lands located below tidelands and/or harbor areas (salt water - subject to tidal flow). "Shorelands" consist of the land below navigable lakes or rivers lying between the line of ordinary-high water and the line of navigability[24].

CLASSIFICATION SUB-GROUPS

Aquatic lands are categorized as 1) commercial geoduck beds, 2) commercial shellfish beds, 3) leased harbor areas, 4) leased non-harbor areas, 5) port management agreement areas, 6) unleased harbor areas and 7) unleased non-harbor areas.

SIZE OR MAGNITUDE

DNR manages some 8,000 lineal miles of aquatic lands on navigable rivers, lakes and "tidally-influenced" areas, with a total area of approximately 3,400 square miles or 2.2 million acres.[25] This area is equal in size to King County. The following graphs and table provide snapshots

---

[22] This class includes Shorelands/Beds-of-Rivers/Lakes, Public Tidelands, Beds of Marine Waters, Harbor Areas, Aquatic Land Leases, Geoduck/Other Sale Contracts, Dept. of Fish and Wildlife Habitat Leases, Geoducks/Hard-Shell-Clams/Mussels, Ecosystems and Components, Fish & Habitat, Wetlands, Sensitive/Threatened/Endangered Species, Recreation Sites, Recreation Trails and Non-Market Services & Attributes.

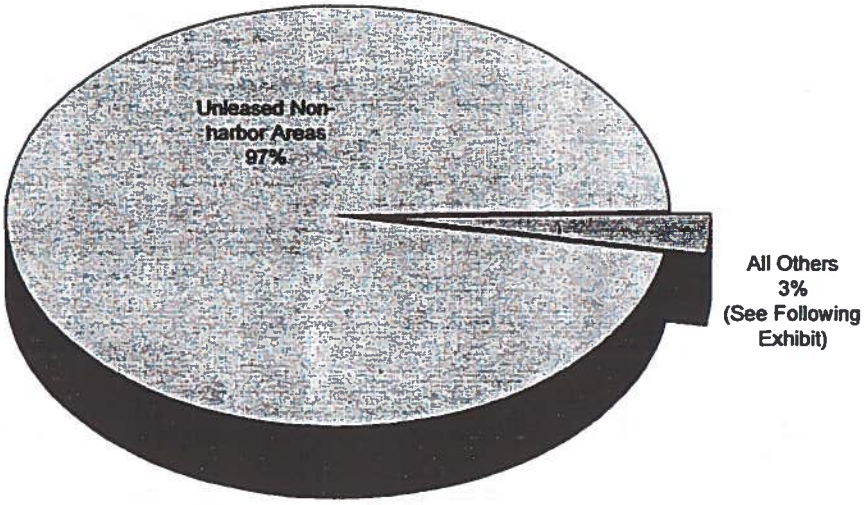
[23] DNR Aquatic Lands, Strategic plan (1992).

[24] Ibid., p. 9.

[25] Ibid., p. 10.

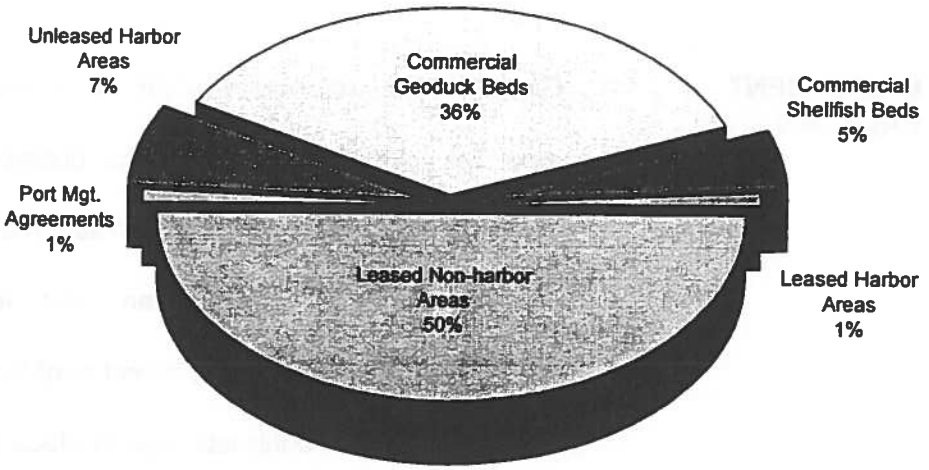
of this asset class:

Exhibit 2-12
Distribution of Aquatic Resources Lands by Acreage (All areas)
2,179,840 Acres



Source: DNR

Exhibit 2-13
Distribution of Aquatic Resources Lands by Acreage "All Others" from Exhibit 2-12 Comprising Approximately 65,000 Acres



Source: DNR

Exhibit 2-14
Distribution of Aquatic Resources Lands by Type

Type of Aquatic Lands	Square Miles	Acres
Bedlands	1,250	800,000
Shorelands	140	89,600
Tidelands	205	131,200
Beds of Marine Lands	1,800	1,152,000
Harbor Areas	11	7,040
Total	3,406	2,179,840

Source: DNR

GEOGRAPHIC LOCATION

Aquatic lands are well distributed throughout Washington. However, a hig concentration of these lands are located in Hood Canal, around Puget Sound and in the Strait of Juan de Fuca.[26]

INVESTMENT FACTORS

Given the unusual nature of this asset class, these properties essentially have the investment value of the business contracts that underlies the asset. In other words, if the contracts did not exist, this asset class most probably would not constitute an investment in the traditional sense, i.e., providing a return on and of investment through the productivity and value of the asset. The contracts now in place have financial value by virtue of the promise to pay rent and the financial capability that underlies each tenant's or users promise to pay. The Aquatic Resources asset class includes long-term contracts for the use of aquatic lands, and related port and harbor development; these lease contracts have the greatest certainty of financial performance, and the greatest opportunity for continued value growth. The other significant revenue generator are the commercial geoduck and shellfish beds, which generate significant annual revenues from the harvest of geoducks and shellfish. Unlike the port and harbor lands leases, these contracts or agreements have a very different character and investment risk. They are, in effect, revenue-sharing arrangements, and they are shorter in term and much less certain that the port and harbor lease agreements. As a revenue-sharing agreement, the

[26] Ibid.

ability of these agreements to generate income is a function of harvest, market prices, and the costs of harvest. In this respect, the revenue which is realized from these agreements is much less certain and more speculative. Both of these types of agreements may be considered investments, since they hold the promise of a return on and of investment. They are, however, very different in character.

It is also notable that these revenue-producing lands constitute only a small portion of the 2.2 million acre total of this asset class. The balance of the lands, in many respects similar to the Mineral Resources asset class lands, do not represent "investments", since so little is known about them from a market demand perspective.

INDUSTRY FACTORS

Changes and trends in the maritime industry may have a very modest influence on the port and harbor lands in this asset class; although it is not clear that maritime industry trends will have any direct impact. Since these port and harbor lands are located offshore, and in most cases are not shorelands, shore-based development and construction (maritime or related development) may have little or no influence on the economic performance of these lands.

Geoduck and shellfish beds may be influenced by changes in the fishing industry, itself a reflection of consumer demands and preferences for fish and shellfish products. For the present time, the demand for geoducks

seems quite strong and this species of shellfish has provided a steady revenue stream. The consumer demand which underlies the high price for geoducks may change, however, and affect prices (up or down). Significantly, geoduck production represents such a small share of total finfish and shellfish production in the northwest or the U.S. that it is very difficult to extrapolate industry trends to this small niche.

ENVIRONMENTAL FACTORS

The state contends with threats to aquatic lands and associated resources caused by the cumulative effects of pollution, alteration of habitat, sedimentation and development. Among these threats, contamination of the bottom sediment is one of the most significant. Since the enactment of federal and state "Superfund" laws, the State may be held liable for cleanup of contaminated sediments on state-owned aquatic lands.[27] The Department is working on mitigating and reversing these effects.[28]

SOCIAL FACTORS

While it is difficult to determine the economic value of submerged lands, they may have social, cultural and environment value.[29] We qualify this statement and use the word "may" because while we are confident that the fresh and saltwater lying above these submerged lands are socially, culturally and environmentally significant, we are less confident about these submerged lands. Information provided by the DNR indicates that

[27] Ibid., p. 48.
[28] Ibid., p. 35.
[29] Ibid., p. 13.

there is a high degree of concern about environmental contamination of submerged lands, suggesting (at a minimum) some environmental value. Continued evaluation of the social and cultural (and natural habitat) contribution of these submerged lands by DNR and other related agencies may reveal more about their social significance.

SPECIAL CONDITIONS None noted

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Natural Areas/Conservation Areas Asset Class

GENERAL DESCRIPTION

The asset class contains two types of preservation areas[30]. A Natural Area Preserve (NAP) is an area of land and/or water predominantly in its natural state, largely undisturbed by human activity and designated under the Natural Area Preserve Act of 1972 RCW 79.70. The NAP program's purposes are to: 1) protect examples of undisturbed terrestrial and aquatic ecosystems, rare plant and animal species and unique geologic features; 2) serve as gene pool reserves; 3) serve as baselines against which the influences of human activities in similar, disturbed ecosystems may be compared; and 4) provide outdoor laboratories for scientific research and education.[31]

A Natural Resources Conservation Area (NRCA) is an area of land and/or water designated under the Natural Resources Conservation Act of 1987 RCW 79.71. The NRCA program's purposes are to: 1) protect lands identified as having high priority for conservation, natural systems, wildlife and dispersed recreational values; 2) protect prime natural features of the Washington landscape, inland or coastal wetlands, significant littoral, estuarine, or aquatic sites or important geological features; 3) protect

30 This class includes Natural Area Preserves, *Limited* Public Access Natural Heritage Sites, Aquatic Reserves, Natural Resource Conservation Areas, Public Access Natural Heritage Sites, (*including Potential Fee Access to Public Lands*) Ecosystems and Components, Plants/Trees, Wildlife & Habitat, Soils, Wetlands, Roads/ bridges/gates/signs, Recreation Sites, Recreation Trails, Sensitive/Threatened/Endangered Species, Oxygen/Carbon Dioxide Exchange Systems, Genetic Resources, Biodiversity and Non-Market Services & Attributes.

31 Natural Heritage Plan (1989).

examples of native ecological communities; and 4) protect environmentally significant sites threatened with conversion to incompatible or ecologically irreversible uses.

CLASSIFICATION SUB-GROUPS

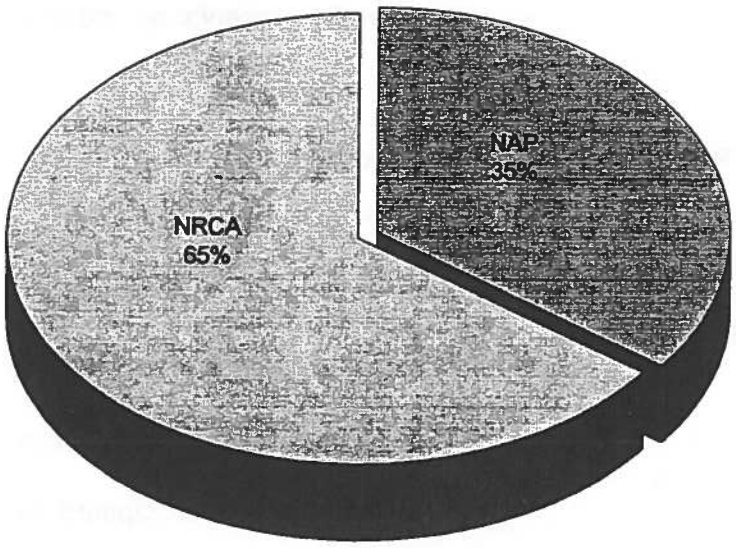
For purposes of this analysis, the Natural Area Preserves and the Natural Resources Conservation Areas have been evaluated collectively as one sub-group.

SIZE OR MAGNITUDE

The DNR currently manages 70,000 acres of NAP and NRCA land[32]. While these natural areas range in size, the largest is currently the Mt. Pilchuck NRCA (9,500 acres), followed by the Mt. Si NRCA (8,000 acres) and the Morning Star NRCA (7,800 acres).

[32] Total acquisition costs of these lands were approximately $220 million. This land was acquired through nearly 200 acquisitions and donations over the last 22 years. Approximately 25% of this cost was related to NAP acquisition, and 75% represents the acquisition costs of NRCA lands. In the past, acquisitions have been funded by a variety of sources including a temporary increase in the real estate excise tax by .06% for two years, various State legislature appropriations and various market value purchases from the Upland Trusts.

Exhibit 2-15
Distribution of NAP and NRCA Acreage



Source: DNR

GEOGRAPHIC LOCATION

DNR-managed NAP lands are located throughout the state, although a large number of NAPs are located west of the Cascade Mountain Range. A concentration of NAPs are situated within Grays Harbor, Mason and Thurston Counties, and they represent nearly 30% of the total NAP acreage. In eastern Washington, the largest concentration of the NAP's is in Klickitat County, which accounts for nearly 14% of the NAP acreage. NRCA lands are primarily located in western Washington, with the exception of the 70-acre Dishman Hills NRCA located in Spokane County. Snohomish and King Counties contain the largest concentrations of NRCA lands. This is a consequence of the large NRCA's in that region, such as the Morning Star, Mt. Si, Greider Ridge and Mt. Pilchuck NRCA's. A

location map NAP/NCRA's has not been included in this section.

INVESTMENT FACTORS

Not applicable. This asset class is not an investment property class; it is purchased for preservation and educational purposes.

INDUSTRY FACTORS

Not applicable.

ENVIRONMENTAL FACTORS

NAP and NRCA lands have been acquired and are managed for the purpose of preservation and education. As such, their preservation in a natural or near-natural state mitigates many of environmental concerns. This asset class is anticipated to be managed in a manner which will preserve existing "on-property" habitats and eco-systems, as well as to mitigate any adverse impacts resulting from nearby risk factors (encroaching development, contamination, or habitat disruption).

SOCIAL FACTORS

Washington State is known for its social and environmental activism. This is expected to result in continued pressure to protect and preserve NAP and NCRA lands, which may conflict with a perceived need to make some portion of these lands available for active recreation.

SPECIAL CONDITIONS

As discussed above, NAP and NCRA lands are restricted-access lands.

Administrative Resources Asset Class

GENERAL DESCRIPTION

This asset class[33] includes DNR administrative facilities, office equipment, transportation equipment, computer hardware and software, construction equipment and human resources (employees). Administrative assets are the underlying foundations that allow the department to operate. Through its employees, tools, machinery, computers and facilities throughout the state, the DNR is able to carry out its natural resource management activities. These assets have been acquired over time through a variety of funding sources.

CLASSIFICATION SUB-GROUPS

Within the Administrative asset classification, assets have been categorized into seven sub-groups for analysis: analysis: 1) facilities greater than 10,000 square feet, 2) facilities less than 10,000 square feet, 3) office equipment, 4) transportation equipment, 5) construction equipment, 6) computer and intellectual property and 7) work-force in place.

Facilities owned by the State that are managed and used by the DNR include offices, garages, storage sheds, work centers and other improvements. In reviewing the facilities for purposes of this analysis, a

[33] This class includes Department Office/Other Leases and Rental Agreements, GIS Services and asset-specific data, Photos/Maps/Publications, Roads (including bridges/gates/fences/signs), Administrative/Other Buildings, Vehicle Fleet/Revolving Fund & State Tag Equipment, Electronic Information/Data, Electronic Data Management Systems, and Human Resources (Employees, Stakeholders, Volunteers).

division of the assets into two sub-groups based on size appeared to be appropriate. These assets were categorized either *large* (greater than 10,000 square feet) and having reasonable potential for reuse or alternative uses, or *small* (less than 10,000 square feet) and having limited potential for reuse or alternative uses.

Office equipment consists of facsimile machines, telephones, cameras and other commonly used administrative machinery. Transportation equipment consists of fire trucks, trailers, automobiles and other transportation machinery, as well as engine parts and motor vehicle accessories. Computer equipment consists of numerous computer stations, printers and other hardware equipment, as well as many software programs, both commercially acquired and created by DNR. Construction equipment consists of heavy industrial machinery in addition to smaller maintenance equipment and tools. Finally, the human resources of the DNR are the employees that play an integral role in the operation of the department.

SIZE OR MAGNITUDE

The State owns facilities at 59 sites across the State of Washington that are used by the DNR for offices, maintenance and storage, among other administrative uses. The average size of these buildings is over 11,000 square feet. In general, these facilities are assumed to have an approximate building coverage ratio of 10%. In other words, approximately 10% of the land area is covered by a building, and 90% of the land area consists of uncovered yard or parking area. Therefore, the total land area

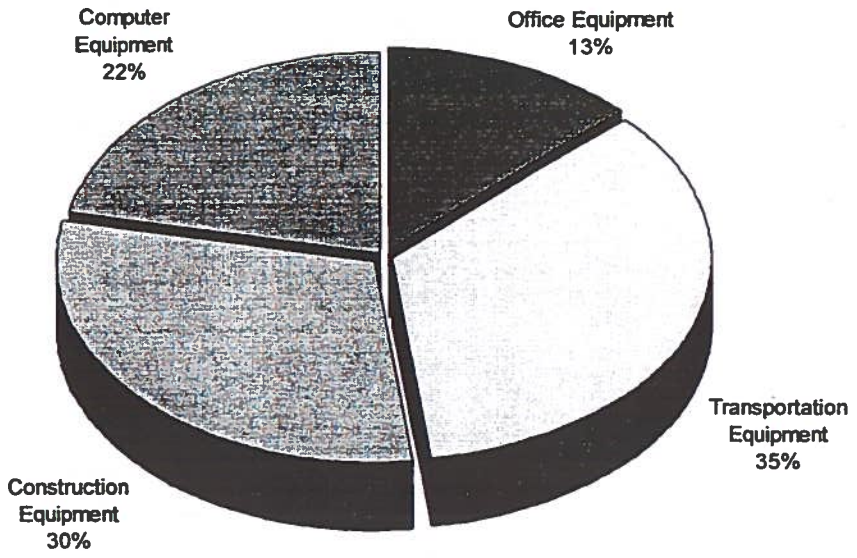
associated with this class is estimated (based upon reported building area) at approximately 148 acres, with an average land area per administrative site of approximately 112,000 square feet (2.57 acres).

For purposes of this analysis, the extensive road system established on DNR-managed land is not separated from the real estate and considered for analysis separately. All roads, such as forest access roads, are assumed to be part of their related asset class and are used for asset management or resource extraction purposes. The value of these access roads is intended to be reflected in the Trust Value estimates for each asset class.

Overall, there are more than 14,000 pieces of state owned equipment in this asset class, with an acquisition cost of approximately $53 million. The distribution of administrative equipment is summarized below:

- Office Equipment: 3,566 pieces with acquisition cost of approximately $6.9 million.
- Transportation Equipment: 1,553 pieces with an acquisition cost of approximately $18.7 million.
- Construction Equipment: 4,673 pieces with an acquisition cost of approximately $16 million.
- Computer & Intellectual Property (including GIS equipment and data): 4,332 pieces with an acquisition cost of approximately $11.6 million.

Exhibit 2-16
Distribution of Equipment by Total Acquisition Cost



Source: DNR

In addition, the DNR has 1,386 full-time employees as its workforce-in-place. For full-time employees within the department, seven classification levels have been considered, as follows:

• Agency Administrator	1
• Executive Management	26
• Middle Management	94
• Entry Level Management	259
• Supervisory	252
• Entry Level Supervisors	135
• Non-supervisory	619

According to the DNR, the average employee tenure in the agency is approximately nine years and the average age of an employee is 42 years.

Of 1,386 employees, approximately 533 employees (38%) have obtained an undergraduate degree. 118 employees (9%) have advanced graduate degrees.

GEOGRAPHIC LOCATION

DNR manages its operations from its headquarters in Olympia, Washington, and from the following seven regional offices: Central Region in Chehalis; Northeast Region in Colville; Northwest Region in Sedro-Woolley; Olympic Region in Forks; South Puget Sound Region in Enumclaw; Southeast Region in Ellensburg; and the Southwest Region in Castle Rock. Furthermore, there are various DNR-managed camps and other facilities located across the state of Washington. The majority of the number of sites are facilities located in a rural areas.

INVESTMENT FACTORS

Not applicable. Administrative Resources assets assist in the management and operation of other asset classes and not for direct income production.

INDUSTRY FACTORS

Not applicable.

ENVIRONMENTAL FACTORS

None noted.

SOCIAL FACTORS

None noted.

SPECIAL CONDITIONS As computer equipment represents approximately 22% of the total acquisition cost, we note that technological advances in computer technology may affect the value of the department's computer inventory as time progresses. This depreciation is a function of technological advancements and changing industry practices and is not a function of DNR activities.

VALUES, INCOMES & RETURNS

This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

INTRODUCTION

The analysis of the market values of the asset classes is a very complex undertaking because of the diversity of the classes, the size of some of the classes and the variation in valuation methodologies that are suitable for each class of asset. As was described in the Introduction of this report, the primary methodology that we have relied upon for the market value/Trust Value portion of this study has been the Sales Comparison Approach, also commonly referred to as the "Market Approach." As noted, each asset class has been valued in total. No part of this analysis has been designed to value specific properties or groups of properties beyond that described below.

Our analysis has segregated valuation of each class by "sub-group" and by key value indicator. The "sub-group" is the primary segregation of the asset class into subsets suitable for valuation (e.g., "Forest Resources" class split into subsets by species of timber). The "key value indicators" are a further segregation of the sub-groups intended to better differentiate among the sub-groups and to provide a more reliable estimate of market or Trust Value. For example, having segregated Forest Resources into sub-groups by species of timber, key value indicators included segregation of those subgroups by age of the timber (less than 10 years, 10 to 40 years and

more than 40 years) and by the productivity of the soil for timber producti (site index).

Our objective in using sub-groups and key value indicators was to segregate the classes into more manageable groups, by size and attribute, to allow more reliable application of market information (property values, sales and rents) for these subsets of each class. It is important to note, however, that our differentiation among subsets stopped at this point, in accordance with our scope of work under this contract. For example, if there were further differences within a subset, such as differences in availability of road access, proximity to urban or suburban development, etc., these differences *were not* reflected in our analysis.

Through this methodology, we are able to manage the valuation of millions of acres of land in a reasonable time period, and we are able to recognize the most important factors in valuing the class, while not considering the less significant value factors.

The primary sources of market information we have relied upon have been the valuation reports, sales data and other records of the DNR that provide indications of property value. This consisted mainly of appraisals prepared by independent firms hired by the DNR to value assets from time to time. Outside data was gathered to supplement this information where necessary

and available. Also very significant in our valuation were actual sales of properties or timber by the DNR.

Where specialized properties exist that do not readily lend themselves to direct market comparison, such as Aquatic Resources or Communications Resources, a modified income analysis was used. This method valued the property based upon lease or rental contracts now in force, with reasonable judgments as to whether existing contracts represent total demand for the asset class, or whether additional demand was probable. For these classes, it was conservatively assumed that the market need for such land had been largely met by the DNR's current agreements, and that any additional demand for the classes would be small.[1]

Having formed opinions of value for the classes of assets, as indicated above, final adjustments were applied to reflect size, type, and other conditions affecting value. Significant final adjustments were applied to Forest Resources to compensate for the very large size of the portfolio and the limited abilities of the marketplace to (hypothetically) purchase such a large pool of properties. Our class by class discussion of value estimates details the basis and application of these final adjustments.

[1] This is a reasonable assumption for highly specialized assets like Communications Resources, where the land asset consists of mountain top communication sites, or for submerged lands, where geoduck harvest agreements constitute the bulk of the income for this sub-group.

MARKET VALUE VERSUS TRUST VALUE

Our task was is to value each asset class subject to the primary restrictio and requirements under which the DNR and Trust assets must function. These statutory, regulatory or policy restrictions and requirements may reduce the value of the asset class to the Trust because of restrictions and requirements that do not apply to the private marketplace. One example of is timber export restrictions, wherein the DNR cannot sell timber for export without minimum amounts of U.S. manufacture. Our analysis has estimated the value of Forest Resources recognizing this limitation, for example. Accordingly, our value estimates are called "Trust Value" and not market value.

TRUST RETAIL VALUE VERSUS TRUST VALUE

In the discussion above, we note the need to make adjustments to valu estimates to compensate for the size of the portfolio and the limited ability of the marketplace to (hypothetically) purchase such a large pool of properties. The underlying theory behind this adjustment, often referred to as a "bulk sale discount" by real estate appraisers, is that a value estimate of an assemblage of properties must reflect, as appropriate, the time, costs and risk of selling a portfolio of properties, *if that adjustment is not present in the market data relied upon*. In this instance, our market data is based upon typical (small) sales in the marketplace. Sales of very large portfolios of timber and timberland (or other asset classes), like that present in this portfolio, rarely occur. When they do, they are most frequently associated

with the sale of, for example, forest products companies, with diverse business operations and other valuable assets.

Accordingly, we have applied these techniques to each of the asset classes valued, resulting in the "final adjustments" discussed above. To clarify the value estimates before and after application of these final adjustments, we refer to value estimates "before" application of these adjustments as "Trust Retail Value," while the values "after" the adjustments are referred to as "Trust Value" estimates. While the final adjustments range from 20% to 40%, generally, an adjustment factor of 20% was selected that considers the following:

- Time period to utilize or sell individual properties;
- Financial risk assumed in operating or selling individual properties; and
- Profit expectations of buyer.

Adjustment factors for asset classes that differ significantly from the general adjustment factor noted above are explained later at the asset class level.

INCOMES

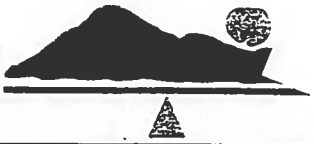
The Values, Incomes And Returns section continues with a review of the Trust Revenues, Trust Distribution Incomes and Trust Appreciation that are associated with each asset class.

RETURNS

Following the discussion of Market Values and Incomes is a comparison of the two, to indicate the return on investment that is suggested by a comparison of Trust Distribution Income and Trust Appreciation with the asset class Trust Value.

DNR REGIONS

For analysis and descriptive purposes, an east and west demarcation was made, based upon the boundaries of DNR administrative regions, located either east or west of the Cascade Mountain Range.



VALUES

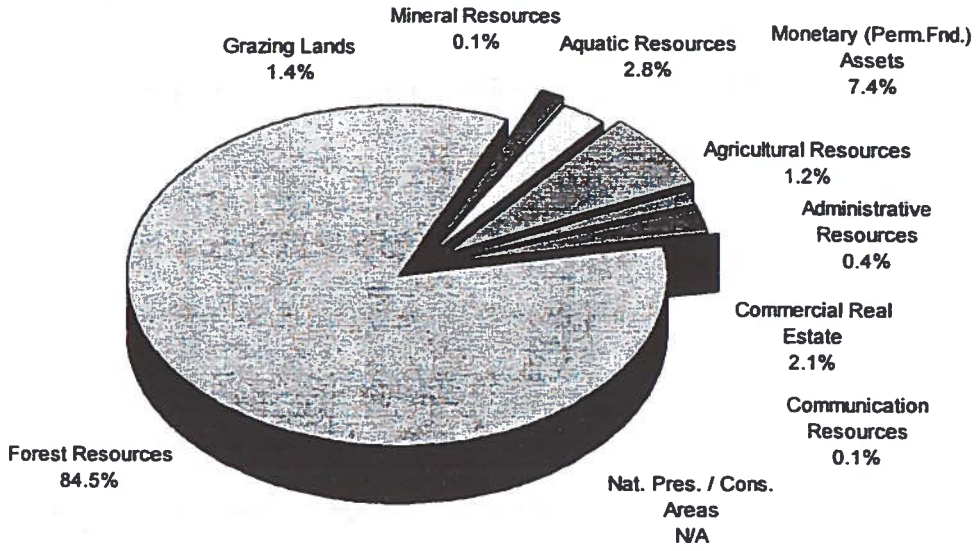
This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

INTRODUCTION

The following sections summarize our findings and conclusions of Trust Value for eight asset classes. Monetary (Permanent Fund) Assets and Natural Area Preserves/Natural Resource Conservation Areas are not valued in this section (see "Asset Classes not Valued in this Section" discussion). Based upon our investigation and analysis, we have estimated the Trust Value of the ten asset classes studied at a total of $6.9 billion (including Monetary (Permanent Fund Assets). The Trust Values associated with each of the asset classes are summarized below in Exhibits 3-1 and 3-2. Our discussion of the estimated Trust Value of the asset classes follows.

TRUST VALUE SUMMARY

Exhibit 3-1
Trust Value Allocation by Asset Class



Source: Deloitte & Touche LLP

Exhibit 3-2
Trust Value Estimates by Asset Class

Asset Class	
Agricultural Resources	$84,000,000
Commercial Real Estate	$146,000,000
Communication Resources	$9,000,000
Forest Resources	$5,883,000,000
Grazing Lands	$100,000,000
Monetary (Perm. Fund) Assets	$513,000,000
Mineral Resources	$10,000,000
Aquatic Resources	$196,000,000
Nat.Preserve / Conser. Areas	N/A
Administrative Resources	$25,000,000
Total Indicated Trust Value	$6,965,000,000

Source: Deloitte & Touche LLP

Deloitte & Touche LLP

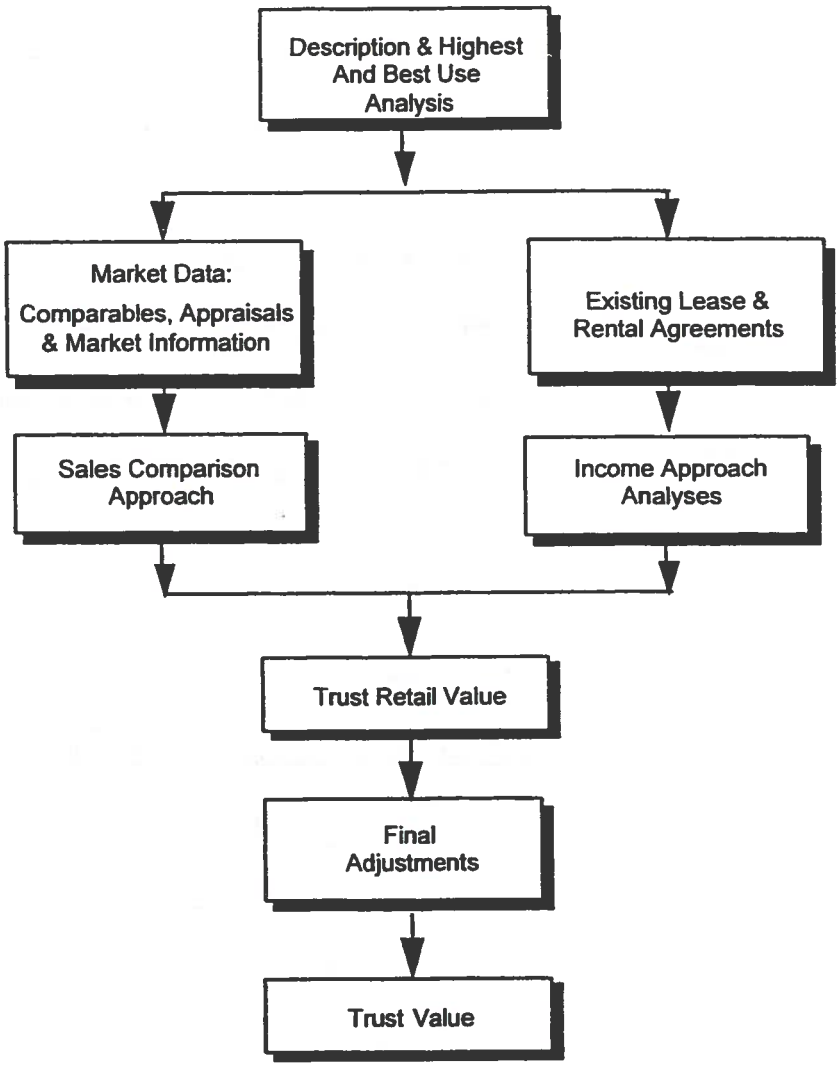
METHODOLOGY

As previously discussed and illustrated, our valuation methodology represents a combination of both the Sales Comparison and the Income Approaches to Value. The Sales Comparison (or Market) Approach is the primary basis for the asset class valuation, while the Income Approach has been used as a secondary method for those asset classes where sufficient amounts of market information is not available. The DNR data files have been the principal source of market and value information (comparable sales, rentals, offers to buy or sell, actual sales information), based upon DNR sale/lease activity and independent appraisals which are obtained in the ordinary course of the management of assets and properties.

FINAL ADJUSTMENTS EXPLAINED

In the introduction to this chapter, we explained that the difference between "Trust Retail Value" and "Trust Value" results from the application of adjustments to compensate for differences between the size of the asset class or property valued and the size of typical transactions in the marketplace. We further explained that the application of these "final adjustments" was usual and customary in the valuation of groups of properties. In this section, we expand our discussion of these adjustments to provide additional insight into the underlying theory and methodology.

Exhibit 3-3
Valuation Methodology Flowchart



Source: Deloitte & Touche LLP

While we recognize in this study and in the context of a review of DNR-managed lands that there is no intent to sell these lands (in bulk), real estate valuation methodology presumes such a sale. The market value definition presumes a "willing buyer and willing seller" as the basis for the value or price estimate. The usual market value estimate may also be referred to as "value in exchange," which further illustrates that the presumptive standard for market value is an exchange, a "sale."

Where property sales or other market evidence of sales of large groups of properties are not available for the appraiser to rely on, the final adjustments that the market would normally apply can be simulated by considering three key factors that any buyer of the group of properties would consider: 1) the time it will take to utilize or sell individual properties within the group[2], 2) the financial risks assumed in operating or selling individual properties, and 3) the necessary profit to which the buyer, as an investor and entrepreneur, is entitled. Consequently, in our consideration of the extent of the final adjustments, for each class we consider the expected time, risk and profit that prospective buyers would expect. These elements indicate the extent of the final adjustment that should be applied.

Generally speaking, the longer it takes to sell or benefit from an asset, the lower its present worth or value, due to cost of capital considerations.

2 For valuation purposes it makes no difference whether a property is held for production (rents, resource revenues, etc.) or sold.

Higher risk ventures must provide higher returns to compensate for the risks assumed. Finally, profit levels are largely dictated by industry practices and the profits or returns suggested by alternative forms of investment.

The proper application of these concepts and analyses results in a value estimate for a group of assets which fully conforms to the market value standard, particularly those standards associated with buyer/seller competency, cash equivalency, the presumption of highest and best use, and that of the most probable buyer.

APPLICABLE LAWS & REGULATIONS

Throughout this valuation analysis, a variety of statutory, regulatory and policy restrictions on the use, sale or administration of DNR assets have influenced the values estimated; hence our characterization of these values as "Trust Value" and not "market value." Where applicable, these statutes, regulations and policies have been noted.

ASSET CLASSES NOT VALUED IN THIS SECTION

- Monetary (Permanent Fund) Assets
- Natural Preserves/Conservation Areas

Monetary (Permanent Fund) Assets, consisting of cash and other liquid assets, are valued at their market value assigned and reported by WSIB as of June 30, 1995.

NP/CAs have not been included in the market value portion of this study because, under existing regulations, these lands may not be sold, nor utilized for commercial or revenue generation purposes. Certain "non-market" values of this asset class are measured under the non-market section of this study.

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Deloitte & Touche LLP

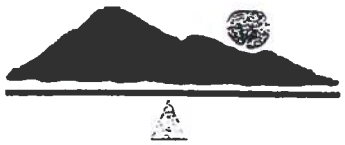
Agricultural Resources Asset Class

VALUATION ATTRIBUTES OF SUB-GROUPS & KEY VALUE INDICATORS

Four sub-groups have been identified for this asset class: irrigated perennials (orchards and vineyards), irrigated annuals (row crops), drylands (including wheat and CRP[3] lands), and non-productive land[4]. The sub-groups were selected based upon the data available from DNR.

The key value indicators selected for this asset class assist in identifying the characteristic that provides a measurement criteria for most of the market value at the sub-group level. The level of annual precipitation was selected for the dryland and non-productive land sub-groups. The real estate markets differentiate between dryland with superior precipitation and dryland with inferior precipitation. The remaining two sub-groups are irrigated annuals and perennials. Since these lands require irrigation for production purposes, a key value indicator of rainfall is far less meaningful; consequently, these lands were grouped together for valuation purposes. These key value indicators best reflect the data available from DNR and the change in value for agricultural land.

3 See Chapter Two for discussion of "CRP" land.
4 See Chapter Two for discussion of "off-base" land.



VALUE CONCLUSIONS - TRUST VALUE & FUTURE VALUE TRENDS

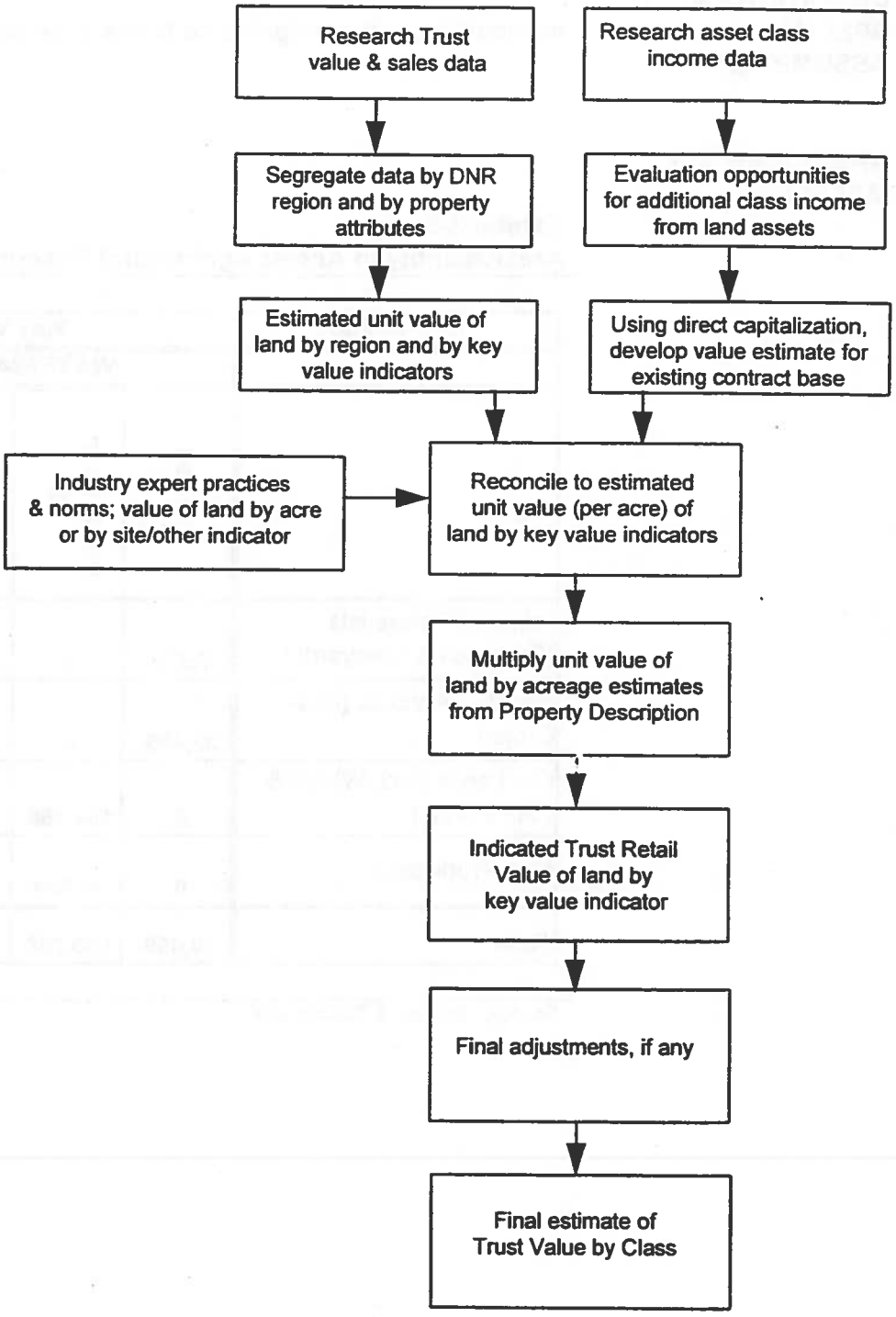
The estimated Trust Value for this asset class is $84 million or an avera of $446 per acre.

Future value trends for this asset class are modest to good. Opportunities for value growth exist through increasing utilization of agricultural land, moderating production costs through improved technology and farm management practices, a general expectation of growing scarcity of similar land and the expectation of the continued competitiveness of Washington agricultural products.

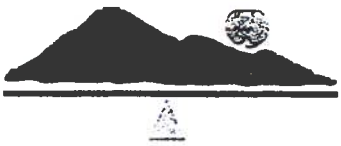
METHODOLOGY & APPLICATION TO ASSET CLASS

The methodology used for the valuation of this asset class was the sales comparison approach, as shown in the following flowchart. Adequate amounts of market data existed to use the sales comparison approach, and the relative ranges of value were consistent and expected.

Exhibit 3-4
Agricultural Resources Methodology Flowchart



Source: Deloitte & Touche LLP



LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

See the Introduction Chapter for a summary of limiting conditions and assumptions that are applicable to this asset class analysis.

AREA/QUANTITY MATRIX

Exhibit 3-5
Area/Quantity in Acres: Agricultural Resources

Sub-Group	Key Value Indicator				
	WATER/ANNUAL RAINFALL				
	Irrigated	Precipitation < 12"	Precipitation 12" to 16"	Precipitation > 16"	Total
Irrigated Perennials (Orchards & Vineyards)	7,970	0	0	0	7,970
Irrigated Annuals (Row Crops)	22,489	0	0	0	22,489
Dry Lands (incl. Wheat & CRP Lands)	0	104,958	15,849	6,487	127,294
Non-Productive	0	25,839	1,362	3,555	30,756
Total	30,459	130,797	17,211	10,042	188,509

Source: Deloitte & Touche LLP

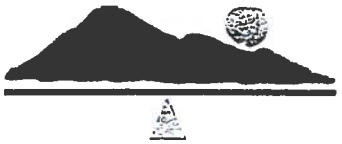
UNIT VALUE MATRIX

Exhibit 3-6
Average Unit Price per Acre: Agricultural Resources

Sub-Group	Key Value Indicator				
	WATER/ANNUAL RAINFALL				
	Irrigated	Precipitation < 12"	Precipitation 12" to 16"	Precipitation > 16"	Average
Irrigated Perennials (Orchards & Vineyards)	$5,000				$5,000
Irrigated Annuals (Row Crops)	$1,300				$1,300
Dry Lands (incl. Wheat & CRP Lands)		$250	$300	$350	$261
Non-Productive		$85	$100	$120	$90
Average	$2,268	$217	$284	$269	$558

Source: Deloitte & Touche LLP

Deloitte & Touche LLP



TRUST RETAIL VALUE MATRIX

Exhibit 3-7
Trust Retail Value: Agricultural Resources
Acres x Average Price per Acre

Sub-Group	Key Value Indicator				
	WATER/ANNUAL RAINFALL				
	Irrigated	Precipitation < 12"	Precipitation 12" to 16"	Precipitation > 16"	Total
Irrigated Perennials (Orchards & Vineyards)	$39,850,000				$39,850,000
Irrigated Annuals (Row Crops)	$29,235,700				$29,235,700
Dry Lands (incl. Wheat & CRP Lands)		$26,239,500	$4,754,700	$2,270,450	$33,264,650
Non-Productive		$2,196,315	$136,200	$426,600	$2,759,115
Total	$69,085,700	$28,435,815	$4,890,900	$2,697,050	$105,109,465

Source: Deloitte & Touche LLP

FINAL ADJUSTMENTS

A final adjustment of 20% was applied to the $105 million Trust Retail value of agricultural land. This final adjustment is a reflection of the time, expense and risk associated with the portfolio, and explicitly recognizes the fragmented nature of the portfolio of agricultural lands. The resulting final Trust Value estimate is $84 million.

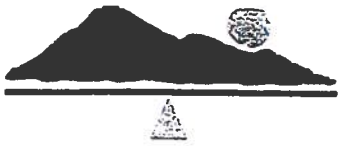
Commercial Real Estate Asset Class

VALUATION ATTRIBUTES OF SUB-GROUPS & KEY VALUE INDICATORS

Five subgroups have been identified for this asset class: leased land, leased land and buildings, undeveloped urban enhanced land, undeveloped urban unimproved land and undeveloped "transitional" rural land. Leased land is real property with an existing ground lease, but no building lease. Leased land and buildings represent parcels in which the state owns both ground and building. Undeveloped urban enhanced land is unoccupied real property in a location that has infrastructure in place and has the ability to be developed within 20 years. Undeveloped urban unimproved land is unoccupied real property in a location that has no infrastructure in place but has the ability to be developed within 20 years. Undeveloped rural land is unoccupied real property in a location not designated as urban or any other land classification (i.e., forest, agricultural, pasture), but identified as "transition lands" in conjunction with Growth Management Act guidelines. The key value indicator for this asset class is existing or highest use. For this analysis, six classifications of existing or highest use have been identified: hotel/resort, office, retail/restaurant, industrial/warehouse, residential, and current existing use.

VALUE CONCLUSIONS - TRUST VALUE & FUTURE VALUE TRENDS

Based upon the valuation methodology for this asset class, the estimated Trust Value of Commercial Real Estate is $146 million.

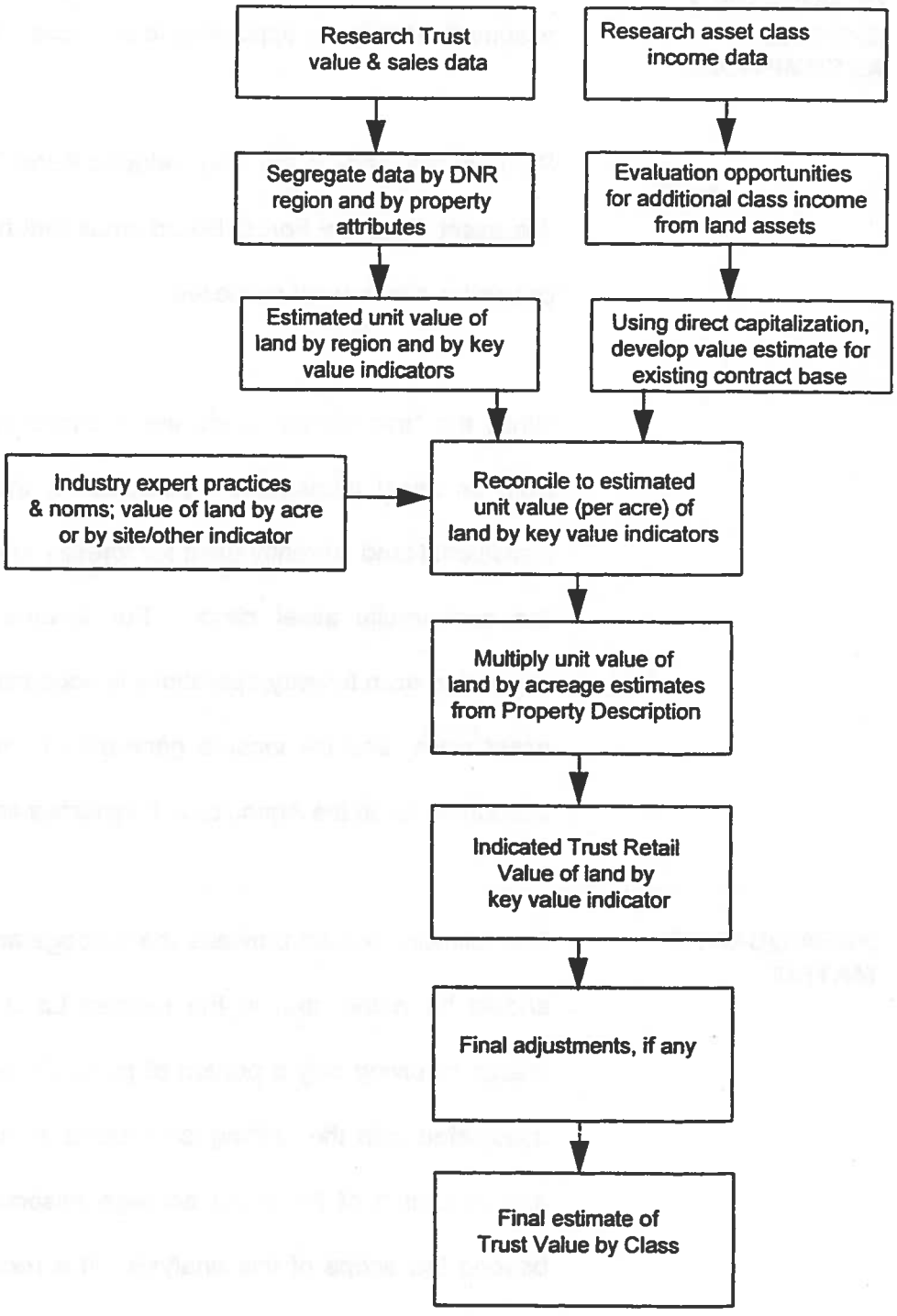


Future value trends for this class of asset are considered good, particularly for those lands that are not considered as "transitional lands". Those lands in the path of growth, or those surrounding growing sub-urban and growing rural areas show the greatest potential for value growth in the near term. We believe, however, that a high percentage of the transitional lands will show value change based upon their existing (or traditional) use, e.g., forest lands, agricultural lands. Only where the prospect for redevelopment is within the ten-year time frame will these transition lands show significant value growth over that of their traditional uses.

METHODOLOGY & APPLICATION TO ASSET CLASS

The methodology used for the valuation of this asset class was the sales comparison approach, as shown in the following flowchart. Adequat amounts of market data existed to use the sales comparison approach, and the relative ranges of value were consistent and expected

Exhibit 3-8
Commercial Real Estate Valuation Methodology Flowchart



Source: Deloitte & Touche LLP

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

See the Introduction Chapter for a summary of limiting conditions and assumptions that are applicable to this asset class analysis.

Some of the lands in the Undeveloped Rural "Transition" Land sub-group of this asset class are Forest Board lands that have a prohibition against sale or use for commercial purposes.

While the "transitional" lands are included in the commercial asset class from an asset management perspective, the income generated from the transitional land currently used for forestry and agricultural is not included in the commercial asset class. For income reporting purposes, income generated from forestry operations is accounted for in the Forest Resource asset class, and the income generated from the agriculture operations is accounted for in the Agricultural Resources asset class.

AREA/QUANTITY MATRIX

The following exhibit provides the acreage amounts for each sub-group. It should be noted, that in the Leased Land and Buildings sub-group, for leases involving only a portion of particular land holding, all of the acreage associated with the holding is included in the sub-group. A reconciliation and allocation of the exact acreage associated with the lease income is beyond the scope of this analysis. If a reconciliation and allocation were performed, the total land indicated as leased would likely decrease.

Exhibit 3-9
Area/Quantity in Acres: Commercial Real Estate

Sub-Group	Key Value Indicator						
	EXISTING/HIGHEST USE						
	Hotel/Resort	Office	Retail/Restaurant	Industrial/Warehouse	Residential	Existing Use	Total
Leased Land	757	98	216	1	1,863	11,690	14,625
Leased Land & Buildings	0	346	0	148	553	0	1,047
Undeveloped Urban Enhanced Land	0	0	0	0	1,721	0	1,721
Undeveloped Urban Unimproved Land	0	0	0	0	1,531	0	1,531
Undeveloped Rural "Transition" Land	0	0	0	0	0	29,176	29,176
Total	757	444	216	149	5,668	40,866	48,100

Source: Deloitte & Touche LLP

UNIT VALUE MATRIX

Exhibit 3-10
Average Unit Price per Acre: Commercial Real Estate

Sub-Group	Key Value Indicator						
	EXISTING/HIGHEST USE						
	Hotel/Resort	Office	Retail/Restaurant	Industrial/Warehouse	Residential	Existing Use	Average
Leased Land	$1,890	$14,936	$2,757	$1,000	$1,879	$675	$1,018
Leased Land & Buildings		$111,474		$106,157	$1,989		$52,895
Undeveloped Urban Enhanced Land					$3,500		$3,500
Undeveloped Urban Unimproved Land					$3,000		$3,000
Undeveloped Rural "Transition" Land						$3,492	$3,492
Average	$1,890	$90,166	$2,757	$105,451	$2,685	$2,686	$3,800

Source: Deloitte & Touche LLP

TRUST RETAIL VALUE MATRIX

Exhibit 3-11
Trust Retail Value: Commercial Real Estate
Acres x Average Price per Acre

Sub-Group	Key Value Indicator						
	EXISTING/HIGHEST USE						
	Hotel/Resort	Office	Retail/Restaurant	Industrial/Warehouse	Residential	Existing Use	Total
Leased Land	$1,430,860	$1,463,730	$595,500	$1,000	$3,499,985	$7,895,438	$14,886,513
Leased Land & Buildings		$38,570,004		$15,711,212	$1,100,000		$55,381,216
Undeveloped Urban Enhanced Land					$6,023,955		$6,023,955
Undeveloped Urban Unimproved Land					$4,592,963		$4,592,963
Undeveloped Rural "Transition" Land						$101,881,987	$101,881,987
Total	$1,430,860	$40,033,734	$595,500	$15,712,212	$15,216,903	$109,777,425	$182,766,634

Source: Deloitte & Touche LLP

FINAL ADJUSTMENTS The Trust Retail value of the asset class is indicated at $183 million. This value is finally adjusted by 20% to reflect the costs, time and risk associated with the portfolio. The indicated Trust Value is $146 million.

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Communication Resources Asset Class

VALUATION ATTRIBUTES OF SUB-GROUPS & KEY VALUE INDICATORS

Originally, this asset class entailed four sub-groups intended to differentiate among the assets by the probability of having alternative uses following termination of communication lease activity, and having constructed or feasible road access. However, no sites were identified with alternative "for profit" (alternative use) potential. Hence, only the following two sub-groups have been identified for this asset class: locations with good access, and locations with poor access. The sub-groups selected reflect the manner that the data was available from DNR.

The key value indicators for this asset class segregate the asset class by the following locations: Seattle, Tacoma/Olympia, Spokane, rural.

VALUE CONCLUSIONS - TRUST VALUE & FUTURE VALUE TRENDS

The estimated Trust Value of Communications Resources is $9.0 million. Future value trends for this class are largely driven by technology and the cost of radio transmission (versus alternatives of satellite or fiber optic transmission). Our analysis has been based generally upon the assumption that major uses of these communication sites will move towards alternative modes within the next ten years, while smaller users will continue to use radio technology for the foreseeable future. There is little question that the movement towards satellite communication diminishes the opportunity for value growth for this asset class. At present, there are no obvious and valuable alternative uses for these highly specialized sites.

METHODOLOGY & APPLICATION TO ASSET CLASS

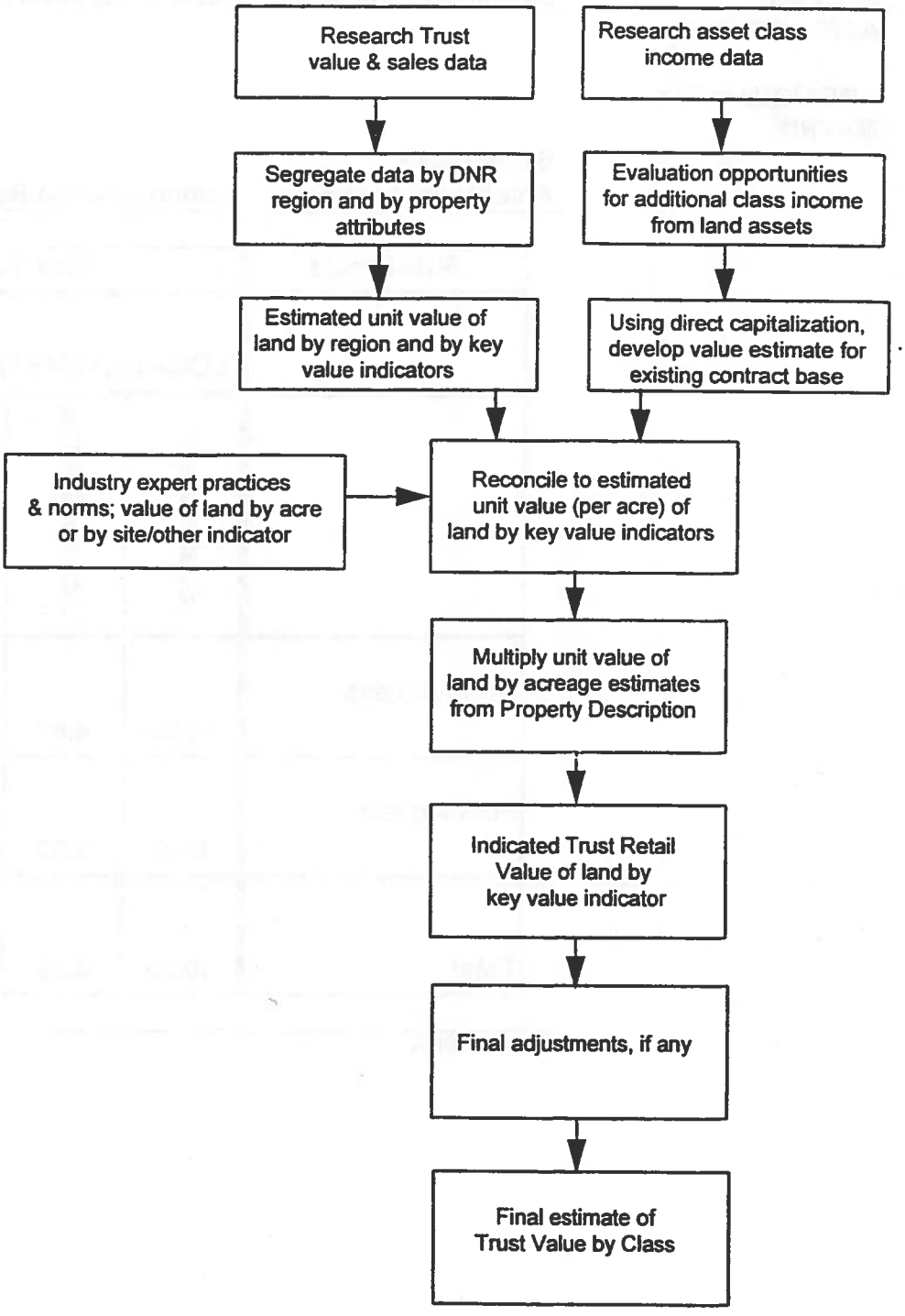
DNR classifies the 92 communication sites by population density and road access. Using this classification, together with the gross acreage of the sites, access and location were established.

The four sites that measure more than five acres were then examined together with highway access, population density and adjacency to city boundaries to come up with an estimate of the likelihood that the sites would have "for profit potential."

None of them were found to have alternate uses other than as communication sites. DNR further provided us with two income figures for each site: one derived from facility and the other from site. Using these we have derived an income estimate per acre.

The flowchart on the following page illustrates our methodology.

Exhibit 3-12
Communication Resources Valuation Methodology Flowchart



Source: Deloitte & Touche LLP

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

See the Introduction Chapter for a summary of limiting conditions a assumptions that are applicable to this asset class analysis.

AREA/QUANTITY MATRIX

Exhibit 3-13
Area/Quantity in Acres: Communication Resources

Sub-Group	Key Value Indicator				
	LOCATION/METROPOLITAN PROXIMITY				
	Seattle Metro	Tacoma/Olympia	Spokane	Rural	Total
Good Access	**10.20**	**4.89**	**0.21**	**85.07**	**100.38**
Poor Access	**0.00**	**0.00**	**0.00**	**5.62**	**5.62**
Total	**10.20**	**4.89**	**0.21**	**90.69**	**106.00**

Source: DNR

UNIT VALUE MATRIX

Exhibit 3-14
Average Unit Price per Acre: Communication Resources

Sub-Group	Key Value Indicator				
	LOCATION/METROPOLITAN PROXIMITY				
	Seattle Metro	Tacoma/Olympia	Spokane	Rural	Average
Good Access	$153,974	$375,389	$282,895	$81,592	$103,692
Poor Access				$156,722	$156,722
Average	$153,974	$375,389	$282,895	$86,250	$106,505

Source: Deloitte & Touche LLP

TRUST RETAIL VALUE MATRIX

Exhibit 3-15
Trust Retail Value: Communication Resources
Acres x Average Price per Acre

Sub-Group	Key Value Indicator				
	LOCATION/METROPOLITAN PROXIMITY				
	Seattle Metro	Tacoma/Olympia	Spokane	Rural	Total
Good Access	$1,571,198	$1,837,122	$58,913	$6,941,129	$10,408,362
Poor Access				$881,217	$881,217
Total	$1,571,198	$1,837,122	$58,913	$7,822,346	$11,289,57[illegible]

Source: Deloitte & Touche LLP

FINAL ADJUSTMENTS The total Trust Retail value indicated for this class is $11 million. A 20% final adjustment was applied to this class to reflect costs, timing and risk associated with this portfolio. The indicated Trust Value is then $9 million.

Forest Resources Asset Class

VALUATION ATTRIBUTES OF SUB-GROUPS & KEY VALUE INDICATORS

Seven sub-groups have been identified for this asset class: Douglas Fir/Pine - West, Douglas Fir/Pine - East, Hardwood - West, Hardwood - East, Whitewood - West, Whitewood - East, and "off-base."[5] The sub-groups selected reflect the manner that the data was available from DNR and general market value factors for timber in the State of Washington.

The key value indicators selected for this asset class assist in identifying the characteristic that provides a measurement criteria for most of the market value at the sub-group level. Following, are the key value indicators for Western Washington stands:

40+ years, with high soil productivity
40+ years, with medium soil productivity
40+ years, with low soil productivity

10 to 40 years, with high soil productivity
10 to 40 years, with medium soil productivity
10 to 40 years, with low soil productivity

0 to 10 years, with high soil productivity
0 to 10 years, with medium soil productivity
0 to 10 years, with low soil productivity

[5] See Chapter Two for discussion of off-base land.

For Eastern Washington, the following key value indicators were based on stem size, usually referred to as DBH (diameter breast height):

Primary Species Average Stem Size - 18+ inches
Primary Species Average Stem Size - 6 to 18 inches
Primary Species Average Stem Size - 0 to 6 inches

VALUE CONCLUSIONS - TRUST VALUE & FUTURE VALUE TRENDS

The total estimated value of the Forest Resources class is $5.9 billion, or an average of $2,783 per acre.

The long-term value trends for Forest Resources are believed to be moderate to good. The value of this asset class is driven primarily by the value of the timber resources, with the value of the underlying timber land having only a modest contributory value. Approximately 75% of the value of this class is represented by timber greater than 40 years old, that is at near commercial viability. The remainder of the value is represented by young timber and timber between the ages of 10 and 40 years, which will grow, of course, to maturity. Given the DNR's policy of even-flow harvest allocation, the value growth in the portfolio are expected to match (generally) the changes in the value of timber.

Long-term trends in the value of timber and timberland are up, with most industry experts describing long-term value change on the order of 1% to 2% per year, adjusted for inflation. Historic data provided by the department suggests a value change of 6% per year (including inflation) since before the turn of the century. Future value changes can reasonably

be expected to approximate this average, assuming that there is no dramatic change in the world-wide supply of timber, that the U.S. market continues at levels of demand similar to the recent past and that there are not additional significant reductions in the access to timber on DNR-managed lands as a result of increased environmental regulation. We believe that if DNR is allowed to export timber, this change could have a significant and positive impact upon the value of the Forest Resources class.

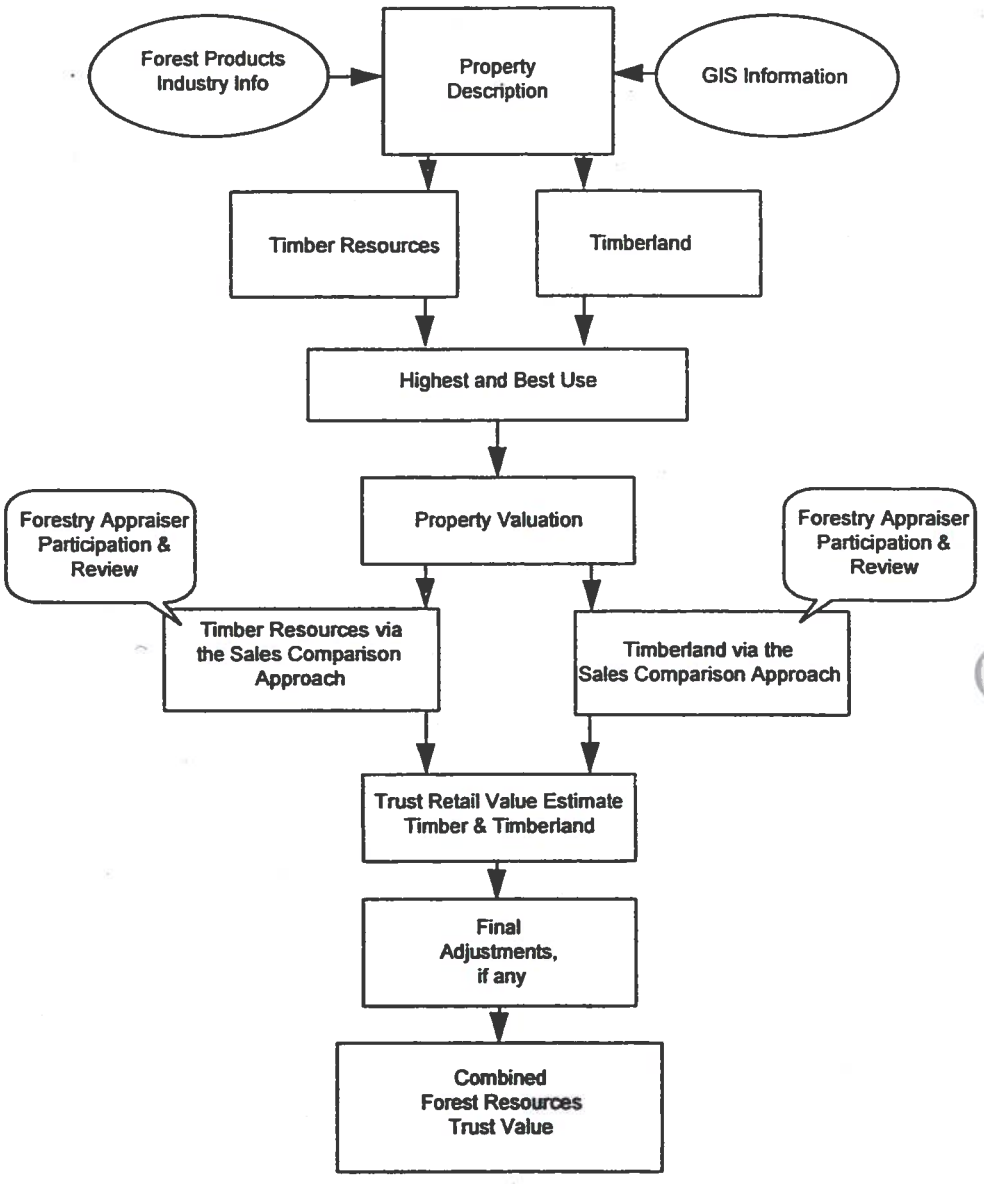
METHODOLOGY & APPLICATION TO ASSET CLASS

As described earlier, our basic valuation methodology is a Sales Comparison Approach, modified to reflect the special nature of timber and timberland valuation. As shown in the following flowchart, timber is valued separately from timberland; the two values are assembled to form a total value for the Forest Resources asset class.

Timber is valued based upon the species, age and expected soil productivity. Among the most important indicators of value for timber are the price of the timber "on the stump" or "stumpage rate" and the volume of timber within a stand, forest or (in this case) by species. At its simplest, the value of timber may be expressed as:

Stumpage Rate in $$ X Timber Volume = Timber Value

Exhibit 3-16
Forest Resources Valuation Methodology Flowchart



Source: Deloitte & Touche LLP

This formula, however, is overly simple, and does not take into account the age or quality of timber, the costs of production, etc. Our analysis has been based upon expected timber volume by species *at maturity*, which is based upon the average volume at maturity of existing DNR-managed forest lands (by species). Thinning volume is separately estimated. In our analysis, volume at maturity is multiplied by the stumpage rate indicated by recent DNR timber sales, less adjustments for volume, financing costs, and owner's costs of permitting, engineering and disposition through sale.

Timberland is valued on a per acre basis, with the soil's productivity or site index given significant weight in our analysis. Timberland values seem to be quite uniform statewide, and our analysis relies on consensus estimates of the contributory value of timberland to the combined Forest Resources value estimate. For example, timberland (separate from the value of timber) represents about 3% of the value of Forest Resources land in the western part of the state.

FINAL ADJUSTMENT FACTORS

Having estimated the value of both timber and timberland, the Trust Retail Value is estimated. Trust Retail Value is the sum of the indications of value based upon the type of timber and timberland sales typically found in the marketplace. In this case, usually the sales range in size of between 50 acres and 200 acres of timberland, and from 500,000 to 2,000,000 board feet of timber. Timber board feet is usually expressed per thousand board

feet (MBF); hence, 500,000 board feet is expressed as 500 MBF. A final adjustment is appropriate when valuing a very large assemblage of like properties (2 million acres in this case), and our study has analyzed the extent of the final adjustment to be applied.

Sales of portfolios of timber and timberland like the subject rarely occur. When they do, they are most frequently associated with the sale of forest products companies with diverse business operations and other valuable assets. Consequently, we believe that the most reliable means of valuing the Forest Resources class is by "building up" to Trust Retail value (based upon DNR experience with timber sales and other industry data) and then making a final adjustment to reflect the extraordinary size of the holding.

The analysis we have completed to estimate the final adjustment is based upon a number of different scenarios for the sale of the forest holding: sell-off times ranging from ten to fifteen years, with different assumptions of value growth during the sell-off period, and different financial rates of return. The indications of the final adjustment ranged from a low of 25% (implying a rapid sell-off, high value growth or a low rate of return requirement) to 60% (implying a slow sell-off, slow or no value growth, and a high rate of return requirement). Several of our scenarios indicated final adjustments ranging from 36% to about 43%, prompting us to select a final adjustment factor of 40% as the mid-point of the range and suitable for application to this asset class.

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

The valuation of timber and timberland assumes continuation of current export restrictions, the restriction against sales of properties by the DNR larger than 160 acres, and a continuation of a policy of even-flow harvest of timber. Forest Board lands may not be sold.

A DNR-prepared analysis of the lost Trust Revenues, as a result of the current export restrictions, indicates a potential of up to $90 million in additional Trust Revenues annually if the export restrictions were repealed. A review of DNR's analysis and comments regarding possible impact or implications of this issue are beyond the scope of this economic analysis report.

See the Introduction Chapter for a summary of limiting conditions and assumptions that are applicable to this asset class analysis.

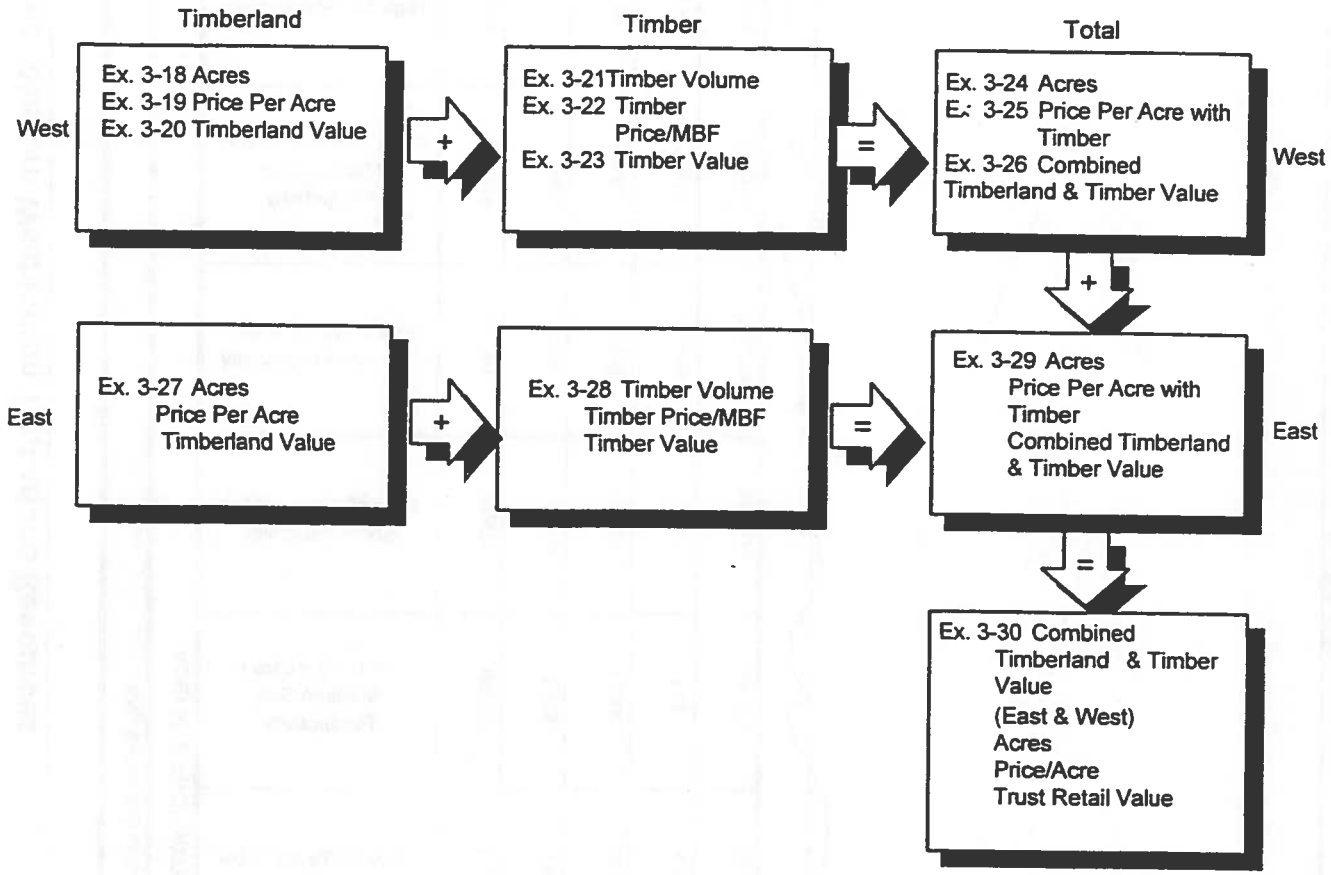
FINAL ADJUSTMENTS

As is detailed in the following spreadsheets, the Trust Retail value of timber and timberlands is estimated at $9.8 billion. A final adjustment of 40% is applied, which results in a Trust Value estimate of $5.9 billion.

EXPLANATION OF VALUATION TABLES

On the following several pages are a series of tables which value timberland and timber, leading to a value estimate of the Trust Retail Value of timber and timber lands. Because of the segregation of Forest Resources into a "western" and "eastern" component as a result of the manner in which data is maintained by the DNR, the series of tables is somewhat complex. The following exhibit is a explanatory map which illustrates the relationship of each table to one another. The numbers shown correspond to the exhibit number.

Exhibit 3-17
Explanation of Forest Resources Trust Retail Valuation Tables



Source: Deloitte & Touche LLP

Exhibit 3-18

Area/Quantity in Acres: Western Washington Timberland Resources

Sub-Group	Key Value Indicator									
	AGE/ SITE PRODUCTIVITY									
	More Than 40 Years / High Soil Productivity	More Than 40 Years / Medium Soil Productivity	More Than 40 Years / Low Soil Productivity	10 to 40 Years / High Soil Productivity	10 to 40 Years / Medium Soil Productivity	10 to 40 Years / Low Soil Productivity	Less Than 10 Years / High Soil Productivity	Less Than 10 Years / Medium Soil Productivity	Less Than 10 Years / Low Soil Productivity	Total
Douglas Fir/Pine - West	157,393	160,416	80,257	95,479	100,361	61,883	62,697	35,372	23,652	777,510
Hardwood - West	101,381	8,609	7,932	10,698	1,489	1,588	2,377	143	892	135,109
Whitewood - West	45,321	109,001	59,708	7,175	62,893	80,785	3,470	24,033	17,563	409,948
Non Productive - West	11,529	15,678	47,490	1,176	1,933	4,715	335	367	1,000	84,224
TOTALS	315,624	293,704	195,387	114,528	166,676	148,971	68,878	59,916	43,107	1,406,790

Source: Deloitte & Touche LLP

Exhibit 3-19
Average Unit Price per Acre: Western Washington Timberland Resources

Sub-Group	Key Value Indicator									
	AGE/ SITE PRODUCTIVITY									
	More Than 40 Years / High Soil Productivity	More Than 40 Years / Medium Soil Productivity	More Than 40 Years / Low Soil Productivity	10 to 40 Years / High Soil Productivity	10 to 40 Years / Medium Soil Productivity	10 to 40 Years / Low Soil Productivity	Less Than 10 Years / High Soil Productivity	Less Than 10 Years / Medium Soil Productivity	Less Than 10 Years / Low Soil Productivity	Average
Douglas Fir/Pine - West	$319	$187	$87	$340	$267	$153	$253	$168	$112	$232
Hardwood - West	$235	$103	$49	$331	$181	$95	$236	$1	$72	$220
Whitewood - West	$393	$263	$148	$432	$311	$172	$334	$292	$164	$251
Non Productive - West	$45	$69	$61	$57	$74	$70	$46	$11	$74	$61
AVERAGE	$293	$206	$98	$342	$280	$160	$256	$216	$132	$226

Source: Deloitte & Touche LLP

Exhibit 3-20
Trust Retail Value: Western Washington Timberland Resources
Acres x Average Price per Acre

Sub-Group	Key Value Indicator									
	AGE/ SITE PRODUCTIVITY									
	More Than 40 Years / High Soil Productivity	More Than 40 Years / Medium Soil Productivity	More Than 40 Years / Low Soil Productivity	10 to 40 Years / High Soil Productivity	10 to 40 Years / Medium Soil Productivity	10 to 40 Years / Low Soil Productivity	Less Than 10 Years / High Soil Productivity	Less Than 10 Years / Medium Soil Productivity	Less Than 10 Years / Low Soil Productivity	Total
Douglas Fir/Pine - West	$50,281,513	$29,929,696	$7,016,604	$32,479,625	$26,758,387	$9,480,307	$15,891,479	$5,941,893	$2,651,721	$180,431,226
Hardwood - West	$23,848,585	$886,611	$385,612	$3,539,476	$269,765	$150,374	$561,219	$204	$64,304	$29,706,150
Whitewood - West	$17,833,295	$28,698,910	$8,840,756	$3,102,884	$19,554,271	$13,865,578	$1,159,337	$7,013,660	$2,878,034	$102,946,726
Non Productive - West	$514,542	$1,080,524	$2,904,015	$66,678	$142,845	$329,323	$15,446	$3,962	$74,462	$5,131,799
TOTALS	$92,477,936	$60,595,741	$19,146,987	$39,188,664	$46,725,268	$23,825,582	$17,627,482	$12,959,719	$5,668,522	$318,215,901

Source: Deloitte & Touche LLP

Exhibit 3-21
Area/Quantity in MBF: Western Washington Timber Resources

Sub-Group	Key Value Indicator									
	AGE/ SITE PRODUCTIVITY									
	More Than 40 Years / High Soil Productivity	More Than 40 Years / Medium Soil Productivity	More Than 40 Years / Low Soil Productivity	10 to 40 Years / High Soil Productivity	10 to 40 Years / Medium Soil Productivity	10 to 40 Years / Low Soil Productivity	Less Than 10 Years / High Soil Productivity	Less Than 10 Years / Medium Soil Productivity	Less Than 10 Years / Low Soil Productivity	Total
Douglas Fir/Pine - West	6,250,348	4,905,924	1,477,054	3,829,951	3,501,208	1,206,289	2,622,194	1,276,840	423,046	25,492,856
Hardwood - West	2,003,836	106,887	5,187	200,689	16,537	2,869	48,143	1,962	2,003	2,388,112
Whitewood - West	2,108,769	4,937,293	1,104,367	330,237	3,121,283	1,500,137	157,365	1,248,058	332,896	14,840,405
Non Productive - West	115,337	393,119	421,725	7,893	53,265	50,129	3,552	6,943	9,270	1,061,233
TOTALS	10,478,290	10,343,223	3,008,333	4,368,770	6,692,292	2,759,424	2,831,254	2,533,803	767,214	43,782,605

Source: Deloitte & Touche LLP

Exhibit 3-22
Average Unit Price per MBF: Western Washington Timber Resources

Sub-Group	Key Value Indicator									
	AGE/ SITE PRODUCTIVITY									
	More Than 40 Years / High Soil Productivity	More Than 40 Years / Medium Soil Productivity	More Than 40 Years / Low Soil Productivity	10 to 40 Years / High Soil Productivity	10 to 40 Years / Medium Soil Productivity	10 to 40 Years / Low Soil Productivity	Less Than 10 Years / High Soil Productivity	Less Than 10 Years / Medium Soil Productivity	Less Than 10 Years / Low Soil Productivity	Average
Douglas Fir/Pine - West	$465	$459	$441	$71	$62	$64	$11	$11	$11	$252
Hardwood - West	$154	$147	$151	$22	$21	$22	$4	$3	$3	$138
Whitewood - West	$262	$268	$287	$33	$34	$38	$7	$6	$7	$160
Non Productive - West										
AVERAGE	$359	$348	$322	$66	$48	$49	$11	$9	$9	$209

Source: Deloitte & Touche LLP

Exhibit 3-23
Trust Retail Value: Western Washington Timber Resources
MBF x Average Price per MBF

Sub-Group	Key Value Indicator									
	AGE/ SITE PRODUCTIVITY									
	More Than 40 Years / High Soil Productivity	More Than 40 Years / Medium Soil Productivity	More Than 40 Years / Low Soil Productivity	10 to 40 Years / High Soil Productivity	10 to 40 Years / Medium Soil Productivity	10 to 40 Years / Low Soil Productivity	Less Than 10 Years / High Soil Productivity	Less Than 10 Years / Medium Soil Productivity	Less Than 10 Years / Low Soil Productivity	Total
Douglas Fir/Pine - West	$2,903,763,784	$2,253,992,431	$661,655,646	$270,896,924	$217,325,023	$76,827,807	$29,938,062	$13,686,696	$4,606,759	$6,422,692,931
Hardwood - West	$309,055,443	$15,671,579	$781,073	$4,389,566	$346,656	$62,791	$170,934	$6,166	$6,755	$330,470,961
Whitewood - West	$551,909,129	$1,325,060,402	$316,675,855	$10,953,933	$106,237,033	$57,063,092	$1,105,066	$7,984,767	$2,309,875	$2,379,299,152
Non Productive - West										
Total	$3,764,728,356	$3,594,724,412	$969,012,473	$286,220,423	$323,908,712	$133,953,690	$31,214,062	$21,677,529	$6,923,389	$9,132,363,044

Source: Deloitte & Touche LLP

Exhibit 3-24
Area/Quantity in Acres: Western Washington Timberland and Timber Resources

Sub-Group	Key Value Indicator									
	AGE/ SITE PRODUCTIVITY									
	More Than 40 Years / High Soil Productivity	More Than 40 Years / Medium Soil Productivity	More Than 40 Years / Low Soil Productivity	10 to 40 Years / High Soil Productivity	10 to 40 Years / Medium Soil Productivity	10 to 40 Years / Low Soil Productivity	Less Than 10 Years / High Soil Productivity	Less Than 10 Years / Medium Soil Productivity	Less Than 10 Years / Low Soil Productivity	Total
Douglas Fir/Pine - West	157,393	160,416	80,257	95,479	100,361	61,883	62,697	35,372	23,652	777,510
Hardwood - West	101,381	8,609	7,932	10,698	1,489	1,588	2,377	143	892	135,109
Whitewood - West	45,321	109,001	59,708	7,175	62,893	80,785	3,470	24,033	17,563	409,948
Non Productive - West	11,529	15,678	47,490	1,176	1,933	4,715	335	367	1,000	84,224
TOTALS	315,624	293,704	195,387	114,528	166,676	148,971	68,878	59,916	43,107	1,406,790

Source: Deloitte & Touche LLP

Exhibit 3-25
Trust Retail Average Unit Price per Acre: Western Washington Timberland and Timber Resources

Sub-Group	Key Value Indicator									
	AGE/ SITE PRODUCTIVITY									
	More Than 40 Years / High Soil Productivity	More Than 40 Years / Medium Soil Productivity	More Than 40 Years / Low Soil Productivity	10 to 40 Years / High Soil Productivity	10 to 40 Years / Medium Soil Productivity	10 to 40 Years / Low Soil Productivity	Less Than 10 Years / High Soil Productivity	Less Than 10 Years / Medium Soil Productivity	Less Than 10 Years / Low Soil Productivity	Average
Douglas Fir/Pine - West	$18,769	$14,238	$8,206	$3,177	$2,432	$1,395	$731	$555	$307	$8,493
Hardwood - West	$3,284	$1,923	$147	$739	$414	$134	$308	$45	$80	$2,666
Whitewood - West	$12,571	$12,420	$5,452	$1,959	$2,000	$878	$653	$624	$295	$6,055
Non Productive - West	$45	$69	$61	$57	$74	$70	$46	$11	$74	$61
AVERAGE	$12,221	$12,446	$5,057	$2,841	$2,224	$1,059	$709	$578	$292	$6,718

Source: Deloitte & Touche LLP

Exhibit 3-26
Trust Retail Value: Western Washington Timberland and Timber Resources
Acres x Average Price per Acre

Sub-Group	Key Value Indicator									
	AGE/ SITE PRODUCTIVITY									
	More Than 40 Years / High Soil Productivity	More Than 40 Years / Medium Soil Productivity	More Than 40 Years / Low Soil Productivity	10 to 40 Years / High Soil Productivity	10 to 40 Years / Medium Soil Productivity	10 to 40 Years / Low Soil Productivity	Less Than 10 Years / High Soil Productivity	Less Than 10 Years / Medium Soil Productivity	Less Than 10 Years / Low Soil Productivity	Total
Douglas Fir/Pine - West	$2,954,046,297	$2,283,922,127	$658,572,149	$303,376,549	$244,083,410	$86,308,114	$45,829,541	$19,628,489	$7,258,480	$6,603,024,157
Hardwood - West	$332,904,028	$16,568,190	$1,166,684	$7,909,042	$616,421	$213,165	$732,153	$6,369	$71,060	$360,177,112
Whitewood - West	$569,742,424	$1,353,759,313	$325,616,611	$14,056,817	$125,791,304	$70,928,670	$2,264,403	$14,998,427	$5,187,909	$2,482,245,878
Non Productive - West	$514,542	$1,080,524	$2,904,015	$66,678	$142,845	$329,323	$15,446	$3,962	$74,462	$5,131,799
TOTALS	$3,857,206,292	$3,655,320,153	$988,159,460	$325,409,086	$370,633,980	$157,779,273	$48,841,544	$34,637,247	$12,591,911	$9,450,578,946

Source: Deloitte & Touche LLP

Exhibit 3-27

Area/Quantity in Acres, Average Unit Price per Acre, and Trust Retail Value: Eastern Washington Timberland Resources Acres x Average Price per Acre

Area/Quantity In Acres

Sub-Group	Key Value Indicator			
	AVERAGE DBH			
	Primary 18"+	Primary 6" to 18"	Primary 6" Stem	Total
Douglas Fir/Pine - East	107,280	280,553	163,358	551,191
Hardwood - East	2,047	2,127	278	4,452
Whitewood - East	9,209	69,822	26,897	105,927
Non Productive - East	9,983	29,678	5,739	45,400
TOTALS or AVERAGE UNIT PRICE	128,519	382,180	196,271	706,970

Average Unit Price Per Acre

Key Value Indicator			
AVERAGE DBH			
Primary 18"+	Primary 6" to 18"	Primary 6" Stem	Average
$198	$222	$224	$218
$172	$223	$225	$200
$198	$224	$225	$222
$79	$99	$100	$95
$188	$213	$221	$210

Trust Retail Value: Acres x Average Price per Acre

Key Value Indicator			
AVERAGE DBH			
Primary 18"+	Primary 6" - 18"	Primary 6" Stem	Total
$21,232,652	$62,219,268	$36,658,641	$120,110,561
$351,492	$475,021	$62,573	$889,085
$1,819,554	$15,632,715	$6,051,715	$23,503,985
$788,684	$2,945,062	$573,856	$4,307,602
$24,192,382	$81,272,065	$43,346,785	$148,811,232

Source: Deloitte & Touche LLP

Exhibit 3-28

Area/Quantity in MBF, Average Unit Price per MBF, and Trust Retail Value: Eastern Washington Timber Resources MBF x Average Price per MBF

Area/Quantity in MBF

Sub-Group	Key Value Indicator			
	AVERAGE DBH			
	Primary 18"+	Primary 6" to 18"	Primary 6" Stem	Total
Douglas Fir/Pine - East	316,671	1,213,428	723,825	2,253,924
Hardwood - East	28,663	29,773	3,893	62,329
Whitewood - East	22,166	566,074	209,938	798,178
Non Productive - East	71,919	73,743	14,440	160,102
TOTALS or AVERAGE UNIT PRICE	439,419	1,883,018	952,096	3,274,533

Average Unit Price Per MBF

Key Value Indicator			
AVERAGE DBH			
Primary 18"+	Primary 6" to 18"	Primary 6" Stem	Average
$335	$47	$8	$75
$75	$10	$2	$39
$307	$45	$8	$43
$262	$44	$8	$63

Trust Retail Value: MBF x Average Price per MBF

Key Value Indicator			
AVERAGE DBH			
Primary 18"+	Primary 6" - 18"	Primary 6" Stem	Total
$106,083,879	$56,960,133	$5,949,894	$168,993,906
$2,149,700	$299,095	$7,324	$2,456,119
$6,795,731	$25,641,562	$1,700,181	$34,137,473
$115,029,310	$82,900,789	$7,657,399	$205,587,498

Source: Deloitte & Touche LLP

Exhibit 3-29

Area/Quantity in Acres, Trust Retail Average Unit Price per Acre, and Trust Retail Value: Eastern Washington Timberland and Timber Resources
Acres x Average Price per Acre

Area/Quantity in Acres

Sub-Group	Key Value Indicator			
	AVERAGE DBH			
	Primary 18"+	Primary 6" to 18"	Primary 6" Stem	Total
Douglas Fir/Pine - East	107,280	280,553	163,358	551,191
Hardwood - East	2,047	2,127	278	4,452
Whitewood - East	9,209	69,822	26,897	105,927
Non Productive - East	9,983	29,678	5,739	45,400
TOTALS or AVERAGE UNIT PRICE	128,519	382,180	196,271	706,970

Average Unit Price Per Acre

Key Value Indicator			
AVERAGE DBH			
Primary 18"+	Primary 6" to 18"	Primary 6" Stem	Average
$1,187	$425	$261	$525
$1,222	$364	$251	$751
$936	$591	$288	$544
$79	$99	$100	$95
$1,083	$430	$260	$501

Trust Retail Value: Acres x Average Price per Acre

Key Value Indicator			
AVERAGE DBH			
Primary 18"+	Primary 6" - 18"	Primary 6" Stem	Total
$127,316,531	$119,179,400	$42,608,534	$289,104,466
$2,501,192	$774,116	$69,897	$3,345,204
$8,615,286	$41,274,276	$7,751,896	$57,641,458
$788,684	$2,945,062	$573,856	$4,307,602
$139,221,693	$164,172,854	$51,004,184	$354,398,730

Source: Deloitte & Touche LLP

Exhibit 3-30
Summary of Forest Resouces Trust Retail Value Conclusions

Sub-Group	Western Washington Brought Forward from Totals Column, Exhibit 3 26	Eastern Washington Brought Forward from Totals Column, Exhbit 3-29	Total Combined
Total Acreage Amounts			
Douglas Fir/Pine	777,510	551,191	1,328,701
Hardwood	135,109	4,452	139,561
Whitewood	409,948	105,927	515,875
Non Productive	84,224	45,400	129,623
Totals	1,406,790	706,970	2,113,760
Indicated Average Trust Retail Price Per Acre (Timber & Timberland)			
Douglas Fir/Pine	$8,493	$525	$5,187
Hardwood	$2,666	$751	$2,605
Whitewood	$6,055	$544	$4,923
Non Productive	$61	$95	$73
Average	$6,718	$501	$4,639
Total Trust Retail Value			
Douglas Fir/Pine	$6,603,024,157	$289,104,466	$6,892,128,623
Hardwood	$360,177,112	$3,345,204	$363,522,316
Whitewood	$2,482,245,878	$57,641,458	$2,539,887,336
Non Productive	$5,131,799	$4,307,602	$9,439,401
Totals	$9,450,578,946	$354,398,730	$9,804,977,676

Grazing Lands Asset Class

VALUATION ATTRIBUTES OF SUB-GROUPS & KEY VALUE INDICATORS

In this asset class, no real estate market segregation of grazing land at the sub-group level was necessary due to the great similarity of the land and the general recognition in the marketplace of a range of unit values for grazing land. Hence, no individual sub-groups were used. The key value indicators for this asset class attempt to identify the characteristic that results in the greatest change in the value of grazing land, that being annual rainfall. The greater the rainfall, the better the vegetation, and the more valuable the grazing land. The key value indicator of precipitation was segregated as less than 9" of rainfall per year, between 9" and 12" of rainfall per year, between 12" and 15" of rainfall per year, and greater than 15" of rainfall per year. This segregation by key value indicator was accomplished using DNR GIS information.

VALUE CONCLUSIONS - TRUST VALUE & FUTURE VALUE TRENDS

The estimated Trust Value for Grazing Lands was $100 million or an average of $187/acre.

Future changes in value for grazing land value are expected to be modest; and varying directly with long term trends in the prices of grazing stock. As a very low-value land use, growth in value of grazing land as an asset class may come from reclassification into other higher land value uses.

METHODOLOGY & APPLICATION TO ASSET CLASS

A sales comparison approach methodology was used, similar to the agricultural lands.

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

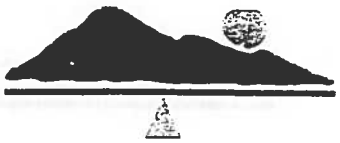
See the Introduction Chapter for a summary of limiting conditions and assumptions that are applicable to this asset class analysis.

AREA/QUANTITY MATRIX

Exhibit 3-31
Area/Quantity in Acres: Grazing Lands

Sub-Group	Key Value Indicator				
	WATER/ANNUAL RAINFALL				
	Precipitation < 9"	Precipitation 9" to 12"	Precipitation 12" to 15"	Precipitation > 15"	Total
Grazing	162,041	221,264	91,496	57,960	532,760

Source: Deloitte & Touche LLP



UNIT VALUE MATRIX

Exhibit 3-32
Average Unit Price per Acre: Grazing Lands

Sub-Group	Key Value Indicator				
	WATER/ANNUAL RAINFALL				
	Precipitation < 9"	Precipitation 9" to 12"	Precipitation 12" to 15"	Precipitation > 15"	Average
Grazing	$120	$178	$418	$472	$234

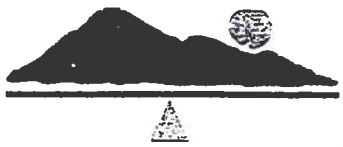
Source: Deloitte & Touche LLP

TRUST RETAIL VALUE MATRIX

Exhibit 3-33
Trust Retail Value: Grazing Lands
Acres x Average Price per Acre

Sub-Group	Key Value Indicator				
	WATER/ANNUAL RAINFALL				
	Precipitation < 9"	Precipitation 9" to 12"	Precipitation 12" to 15"	Precipitation > 15"	Total
Grazing	$19,509,960	$39,472,831	$38,211,704	$27,332,397	$124,526,892

Source: Deloitte & Touche LLP



FINAL ADJUSTMENTS A 20% final adjustment has been applied to the $125 million Trust Ret value of this asset class. The resulting final Trust Value estimate for this asset class is $100 million.

Monetary (Permanent Funds) Asset Class

Monetary assets consisting of permanent funds relating to DNR-managed lands are not valued in this chapter. Refer to Chapter 2 for an explanation of this valuation process.

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Mineral Resources Asset Class

VALUATION ATTRIBUTES OF SUB-GROUPS & KEY VALUE INDICATORS

Four sub-groups have been identified for this asset class: surface rights only (not in other asset classes), mineral rights only, surface and mineral rights active (active mining operations), surface and mineral rights prospects (not in other asset classes). These sub-groups reflect the nature and extent that the data was available from DNR.

The key value indicators for this asset class were selected to identify the characteristic that provides a measurement criteria for most of the market value at the sub-group level. The following key value indicators are based on the type of mineral resources available or potential available:

Sand, Gravel, Rock - High Potential
Sand, Gravel, Rock - Low Potential
Metallic Minerals
Non-Metallic Minerals & Coal
Oil & Gas

VALUE CONCLUSIONS - TRUST VALUE & FUTURE VALUE TRENDS

The estimated Trust Value of this asset class is $10 million.

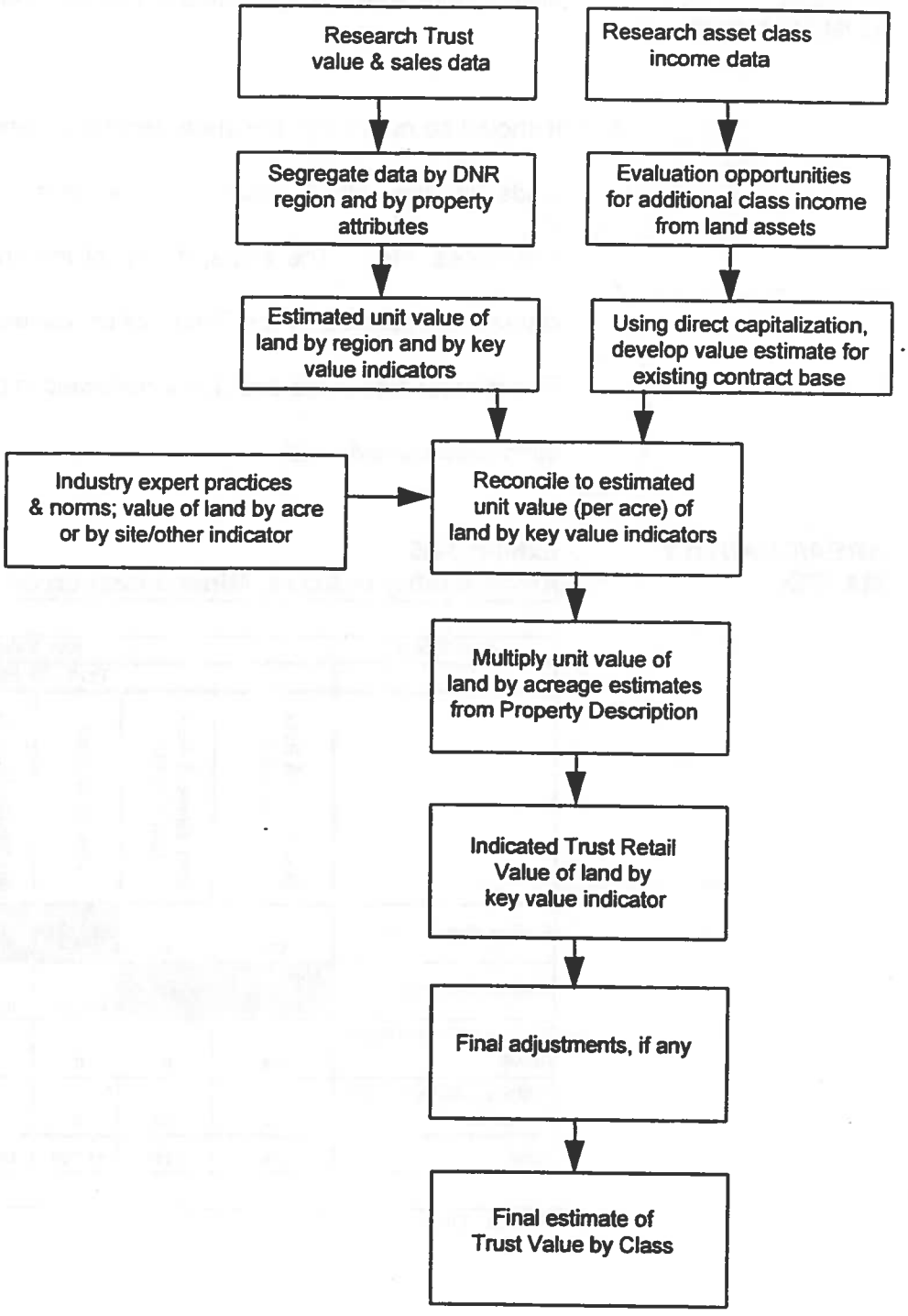
The expected change in Trust Value over the coming years is little to only modest change. Value change in this class will depend upon the demand for sand, gravel and rock for construction purposes, and the location of these deposits (relative to the locations for demand) has not identified. The

value change for other sub-groups will depend upon the DNR's ability to continue to study the value of minerals and petroleum or gas deposits, making greater amounts of information known about mineral and sand/gravel deposits. As information becomes available, estimates of value may be adjusted to reflect this new information.

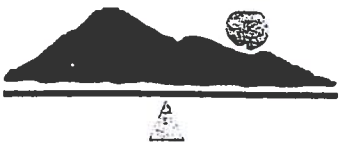
METHODOLOGY & APPLICATION TO ASSET CLASS

The methodology employed was similar to that used for the Aquatic Resources class, and further explanation is provided in that section of this chapter. Existing contractual income was capitalized to a present value estimate, and a downward value adjustment of 90% was applied to the remaining "Mineral Rights Only" sub-group acreage within this class to reflect the highly speculative nature of the value of these mineral rights since little or no specific information about the presence of minerals is known.

Exhibit 3-34
Mineral Resources Valuation Methodology Flowchart



Source: Deloitte & Touche LLP



LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

See the Introduction Chapter for a summary of limiting conditions a assumptions that are applicable to this asset class analysis.

It should be noted that the state generally owns the mineral rights under the lands in the other asset classes (e.g., Forest Resources, Aquatic Resources, etc.). The value, if any, of mineral rights in these other asset classes is captured in the Trust Value estimates for these asset classes. The mineral resources and rights reviewed in this asset class lie outside the other classes reviewed.

AREA/QUANTITY MATRIX

Exhibit 3-35
Area/Quantity in Acres: Mineral Resources

Sub-Group	Key Value Indicator						
	TYPE OF RIGHTS OWNED						
	Sand, Gravel & Rock - High Potential	Sand, Gravel & Rock - Low Potential	Metallic Minerals	Non-Metallic Minerals Coal	Oil & Gas	Other-No Value Contribution	Total
Surface Rights Only	178	3,539				0	3,717
Mineral Rights Only			81,258	101,573	148,973	345,347	677,151
Surface & Mineral Rights Active	955	0	0	121	0	0	1,076
Surface & Mineral Rights Prospects	62	580	0	0	0	0	642
Total	1,195	4,119	81,258	101,694	148,973	345,347	682,586

Source: DNR

UNIT VALUE MATRIX

Exhibit 3-36
Average Unit Price per Acre: Mineral Resources

Sub-Group	Key Value Indicator						
	TYPE OF RIGHTS OWNED						
	Sand, Gravel & Rock - High Potential	Sand, Gravel & Rock - Low Potential	Metallic Minerals	Non-Metallic Minerals Coal	Oil & Gas	Other-No Value Contribution	Average *
Surface Rights Only	$225	$225					$225
Mineral Rights Only			$1	$1	$1	$0	$0
Surface & Mineral Rights Active	$10,600			$450			$9,459
Surface & Mineral Rights Prospects	$6,300	$225					$812
Average	$8,832	$225	$1	$2	$1	$0	$17

Note: * number denoted as $0 reflect dollar amount less than $1.00

Source: Deloitte & Touche LLP

TRUST RETAIL VALUE MATRIX

Exhibit 3-37
Trust Retail Value: Mineral Resources
Acres x Average Price per Acre

Sub-Group	Key Value Indicator						
	TYPE OF RIGHTS OWNED						
	Sand, Gravel & Rock - High Potential	Sand, Gravel & Rock - Low Potential	Metallic Minerals	Non-Metallic Minerals Coal	Oil & Gas	Other-No Value Contribution	Total
Surface Rights Only	$40,050	$796,275					$836,325
Mineral Rights Only			$81,258	$101,573	$148,973	$0	$331,804
Surface & Mineral Rights Active	$10,123,000			$54,450			$10,177,450
Surface & Mineral Rights Prospects	$390,600	$130,500					$521,100
Total	$10,553,650	$926,775	$81,258	$156,023	$148,973	$0	$11,866,679

Source: Deloitte & Touche LLP

FINAL ADJUSTMENTS A 20% final adjustment has been applied to the $12 million Trust Re value of this asset class. The resulting final Trust Value estimate for this class is $10 million (rounded).

Aquatic Resources Asset Class

VALUATION ATTRIBUTES OF SUB-GROUPS & KEY VALUE INDICATORS

Seven sub-groups have been identified for this asset class: commercial geoduck beds, commercial shellfish beds, leased harbor areas, leased non-harbor areas, port management agreements, unleased harbor areas and unleased non-harbor areas. The sub-groups were selected based upon the data available from DNR.

Because of the nature of the sub-groups that were selected for descriptive and analysis purposes, and in the context of our scope of work, no further subdivision of sub-groups was utilized; consequently, sub-groups do not have key value indicators which further describe or define valuation attributes. Valuation based upon sub-group attributes (only) was felt to be appropriate for this asset class.

VALUE CONCLUSIONS - TRUST VALUE & FUTURE VALUE TRENDS

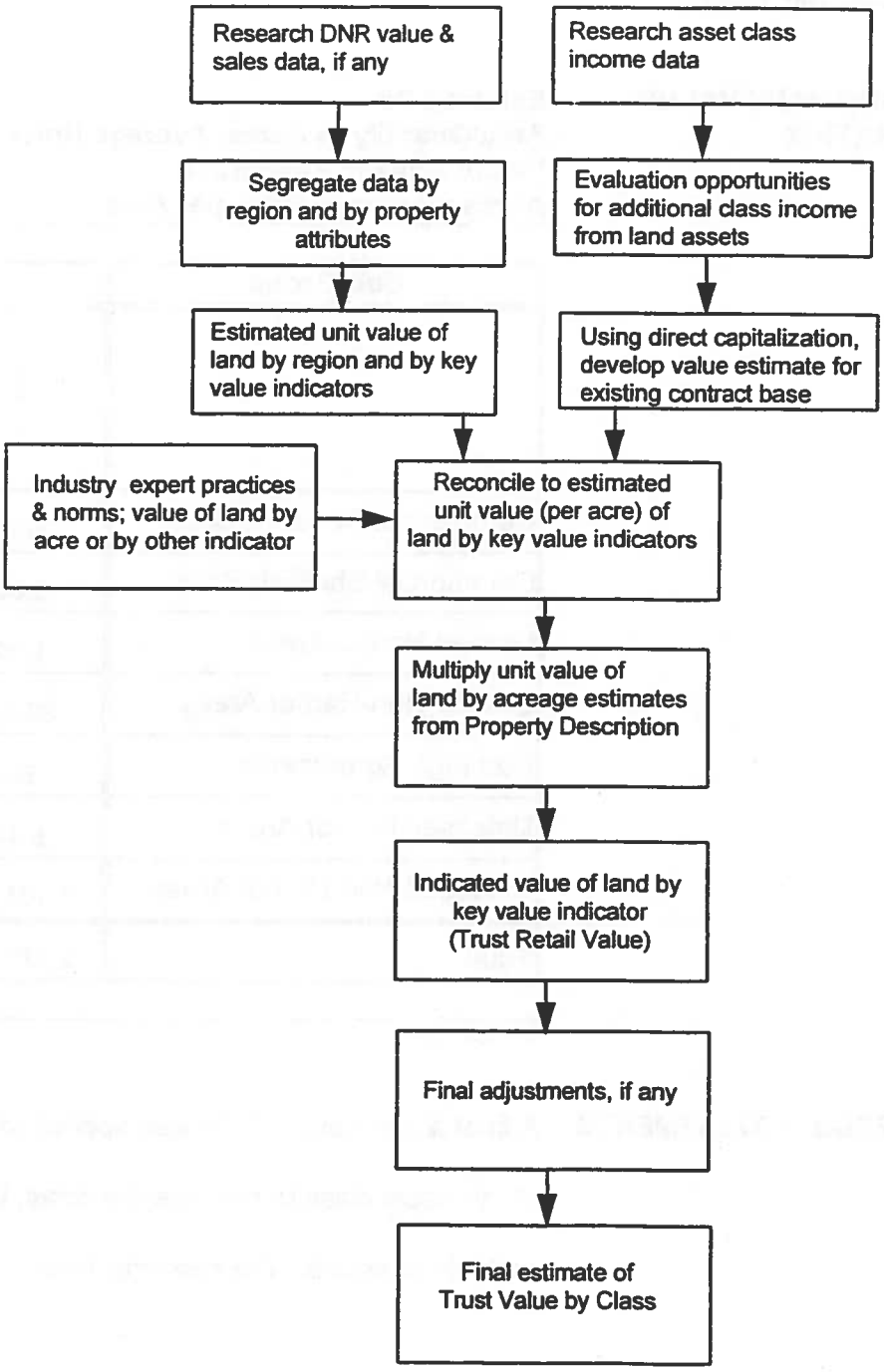
Our estimate of Trust Value for the Aquatic Class is $196 million. Future value trends for aquatic class lands are highly uncertain. Nearly $122 million of the above value is represented by the highly speculative value of the 2.1 million acres of submerged lands that have no presently defined use and for which there is no readily ascertained value. This is, however, a reasonable extrapolation of the value of the lands for which there is an identifiable use and income stream. The approximately $74 million of value associated with commercial shellfish beds and leased harbor areas has a comparatively more certain future, insofar as these lands have an

identifiable scarcity and (frequently) proximity to urban and sub-urban development. Because of the uncertainty surrounding value trends for the great majority of aquatic lands, we believe prospects for value growth are low, at best; no doubt those sub-groups with identifiable income streams will show some growth in value over the long term.

METHODOLOGY & APPLICATION TO ASSET CLASS

The methodology used to value the aquatic class was primarily an Income Approach-based methodology, which valued the property based upon the income streams generated from shellfish agreements and harbor leases. These existing income streams were capitalized at differing rates (to reflect significant differences in investment risk) to indicate a present value that was then applied to the acreage of the sub-group. For the remaining Unleased Non-Harbor Areas without existing revenue agreements, a downward value adjustment of some 90% was applied to reflect the probability that some of the remaining lands will have significant values (on par with other sub-groups) while the vast majority will have only nominal contributory value.

Exhibit 3-38
Aquatic Resources Valuation Methodology Flowchart



Source: Deloitte & Touche LLP

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

See the Introduction Chapter for a summary of limiting conditions a assumptions that are applicable to this asset class analysis.

SUMMARY VALUE MATRIX

Exhibit 3-39
Area/Quantity in Acres, Average Unit Price per Acre, and Trust Retail Value: Aquatic Resources
Acres x Average Price per Acre

Sub-Group	Acres	Unit Price	Total
Commercial Geoduck Beds	26,000	$827	$21,505,111
Commercial Shellfish Beds	3,600	$498	$1,792,239
Leased Harbor Areas	1,000	$26,958	$26,958,340
Leased Non-Harbor Areas	36,000	$729	$26,228,060
Port Mgt. Agreements	600	$1,056	$633,810
Unleased Harbor Areas	5,440	$2,696	$14,665,337
Unleased Non-Harbor Areas	2,107,200	$73	$153,521,578
Total	2,179,840		$245,304,475

Source: DNR

FINAL ADJUSTMENTS

A final adjustment of 20% was applied to the $245 million Trust Retail value of this asset class to simulate the costs, timing and risks associated with the portfolio of assets. The resulting Trust Value is $196 million.

Natural Preserves & Conservation Areas Asset Class

As discussed earlier in this chapter, Natural Area Preserves & Natural Resource Conservation Areas may not be sold, and consequently a Trust Value analysis has not been completed. The contributory value of this asset class is discussed in Chapter Four, Non-Market Benefits and Values.

Sales data available

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Administrative Resources Asset Class

VALUATION ATTRIBUTES OF SUB-GROUPS & KEY VALUE INDICATORS

Seven subgroups have been identified for this asset class. DNR facilities are improved real properties used for administrative purposes (separated into smaller than 10,000 sq. ft. and larger than 10,000 sq. ft.), including garages, storage sheds and offices. Office equipment consists of the tools, machinery and supplies utilized in an office environment. Transportation equipment consists of the automotive vehicles, parts and accessories that facilitate the transportation needs of the management of the lands. Construction equipment consists of the mechanical tools, industrial machinery and heavy equipment owned by the state. Computer equipment and intellectual property are the software, hardware and peripheral computer equipment owned by the department. Work-force in place are the full time employees of the department's seven offices. These assets have been acquired over many years utilizing a variety of funding sources.

Facilities in both subgroups have been segregated according to the key value indicator - location. The following four locations have been designated for purposes of this analysis: Seattle Metropolitan Area, Tacoma/Olympia, Spokane and Rural.

VALUE CONCLUSIONS - TRUST VALUE & FUTURE VALUE TRENDS

Trust Retail Value - Based upon the valuation methodology for this asset class, the overall estimated Trust Retail Value of administrative assets is $25 million. Future value trends for this asset class are modest. As a pool

of assets used for the administration and operation of DNR activities, the assets consist primarily of equipment, which depreciates rapidly, and special purpose facilities with limited alternative-use potential.

METHODOLOGY & APPLICATION TO ASSET CLASS

In order to derive a Trust Retail Value of the various assets within this classification, different valuation methodologies were applied. In order to value the various pieces of equipment owned by the State, a Cost Approach was utilized. By applying industry standard estimated lives, depreciation rules and salvage rates, and cost indices for various pieces of equipment, a Trust Retail Value was derived. In order to value the Department's facilities, the Sales Comparison Approach was utilized.

A cost/replacement approach was utilized to estimate the value of the work-force in place. This methodology recognizes that there is time and cost associated with assembling a work-force in place, and estimates the value of the work-force in place as a function of the estimated costs to assemble (recruit, interview and place) the work-force, as well as related costs (fees, administrative overhead during the assembly process, etc.). Further, the analysis recognizes that an assembled work-force has an average age, which may be compared with the estimated average tenure for the group as a whole; the older the average age, i.e., the closer to average tenure, the closer the work-force is to its replacement or renewal. This is then the theoretical basis for depreciating the work-force in place value; our analysis

has included this step in the process.

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

See the Introduction Chapter Forward for a summary of limiting conditions and assumptions that are applicable to this asset class analysis.

Exhibit 3-40
Administrative Resources Trust Retail Value

Sub-Group	Key Value Indicator					
	LOCATION/METROPOLITAN PROXIMITY					
	Seattle Metro	Tacoma/Olympia	Spokane	Rural	Non Real Estate	Total
Facilities - Big > 10,000 SF	$203,868	$4,362,800		$2,396,062		$6,962,729
Facilities - Small < 10,000 SF	$157,901	$354,419	$142,250	$1,076,531		$1,731,101
Office Equipment					$2,677,236	$2,677,236
Transportation Equipment					$9,591,755	$9,591,755
Construction Equipment					$5,211,854	$5,211,854
Computer & Intellectual Property					$4,237,176	$4,237,176
Work-Force in Place					$2,500,000	$2,500,000
Total	$361,769	$4,717,218	$142,250	$3,472,593	$24,218,022	$32,911,852

Source: Deloitte & Touche LLP

FINAL ADJUSTMENTS

The final adjustment factor addresses the general considerations of time and expenses (and risk) associated with the pool of personal property, real

property and other assets, plus special-use and depreciating asset considerations of the assets. Further, the location of these assets are widely disbursed across the State of Washington, and a potential buyer would likely incur additional costs for transportation and other related costs to transfer the assets to a new location. As a result, a 25% final adjustment has been applied to the indicated Trust Retail Value of $33 million to estimate a net Trust Value of $25 million.

INCOME & APPRECIATION BENEFITS

This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

INTRODUCTION

In general, market income and appreciation benefits are characterized as annual benefits "earned" (or lost) as a direct result of the ownership of a capital asset or investment. Income is usually received in the form of rent or interest during the year for a real estate investment (weekly, monthly or quarterly) or at some other "maturity" date for other monetary investments. Appreciation is earned (or lost) over the year as the value of the asset fluctuates upward and downward with changes in the market, but it is not captured (or surrendered) until the asset is actually sold, transferred or refinanced.

TYPES OF INCOME BENEFITS

In this analysis, actual revenues as reported in the 1995 DNR Annual Report (for fiscal year ended June 30, 1995) have been used as the basis for income. There are numerous reports, databases and schedules that report in some manner the various income benefits that are produced by the different DNR asset classes. Because of the diverse nature of the individual asset classes and the related management information needs for each class, most of the data sources do not share a common or standard reporting format. While these numerous data sources provided useful information and formed the basis for the market valuation of selected asset

classes, we have elected to use a single source, specifically the 1995 DNR Annual Report, for the income portion of our return on investment analysis.

The primary effect of this choice is that we are defining income as revenue less statutory management allocations, without consideration of depreciation or amortization. As a result, the identification and reconciliation of revenue and expense accruals (if any) and loss deferrals, according to Generally Accepted Accounting Principles (GAAP), is not within the scope of this analysis and has not been considered or included.

DIRECT IMPACTS DEFINED

Direct Economic Impacts consist of those benefits that accrue to the Beneficiaries of the trusts. These benefits are measured as a function of the economic (market) returns from the operation, appreciation or disposition of trust assets. In this analysis, the direct Economic Impacts consist of income and capital appreciation. Income is generated from the sale or lease of the resource assets and interest earned from the Monetary (Permanent Fund) Assets. Capital appreciation is generated by increases in asset and resource values from inflationary increases and/or real growth.

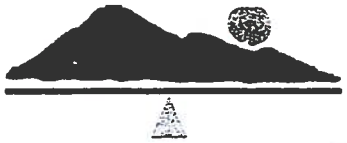
REVENUE TO TRUST DISTRIBUTION INCOME METHODOLOGY

By statute, the DNR allocates a portion of the gross revenues generated by its managed assets into Resource Management Cost Account (RMCA) and the Forest Development Account (FDA), as appropriate. The Washington State legislature appropriates monies from these accounts as part of the biennial operating and capital budget for the state to the DNR for managing

the respective assets, from whom these revenues were derived. These management activities include items that might be categorized as property management expenses, asset management expenses and capital reinvestment.

Following current state budgeting and accounting practices, laws and regulations, the DNR does not account for expenditures according to those specific categories. In addition, the DNR receives appropriations from the state biennial capital budget from different fund sources, that could include the proceeds of state borrowing. These appropriations are treated as capital in nature by virtue of their designation under the capital budget. Fund sources for these appropriations can include the RMCA and FDA.

Under state law, total revenues ("Trust Revenue" from DNR 1995 Annual Report) generated through DNR's asset management programs are generally distributed 75% to the Beneficiaries and 25% to the RMCA or FDA, depending upon the source of revenues. The DNR distribution is a management allocation through its Resource Management Cost Account (RMCA) or the Forest Development Account (FDA), depending upon the source of revenues. The distribution to the RMCA and the FDA is to support the management activities carried out by the DNR. Exceptions to this distribution allocation percentage include revenue generated from certain Forest Resources, Aquatic Resources and Monetary (Permanent Fund) Assets.



Revenues generated from Federally Granted Upland Trusts are distributed 75% to trusts and 25% to the RMCA. Revenues distributed to the Beneficiaries from State Forest Board Lands are the result of a 75% allocation from Forest Board Transfer and a 50% allocation from Forest Board Purchase, which yields a weighted overall distribution of 73% to Beneficiaries and a 27% distribution to the FDA.

The distribution of funds generated by Aquatic Resources is dependent upon the source of Aquatic Resources revenues. The funds are distributed to the RMCA (Aquatic) and the Aquatic Land Enhancement Account (ALEA). The following exhibit illustrates the distribution of revenues by the source of revenue:

Exhibit 3-41
Source of Revenues & Aquatic Lands Enhancement Account Distribution - Aquatic Resources

Source of Revenue	ALEA Distribution	Subgroup
1st Class Tidelands and Shore Areas	75%	Commercial Geoduck Beds Commercial Shellfish Beds Port Management Agreements
2nd Class Tidelands and Beds of Navigatable Waters	50%	Leased Non-Harbor Areas Unleased Non-Harbor Areas
Harbor Areas	80%	Leased Non-Harbor Areas Unleased Non-Harbor Areas
Total (Weighted Average)	70%	

Source: DNR

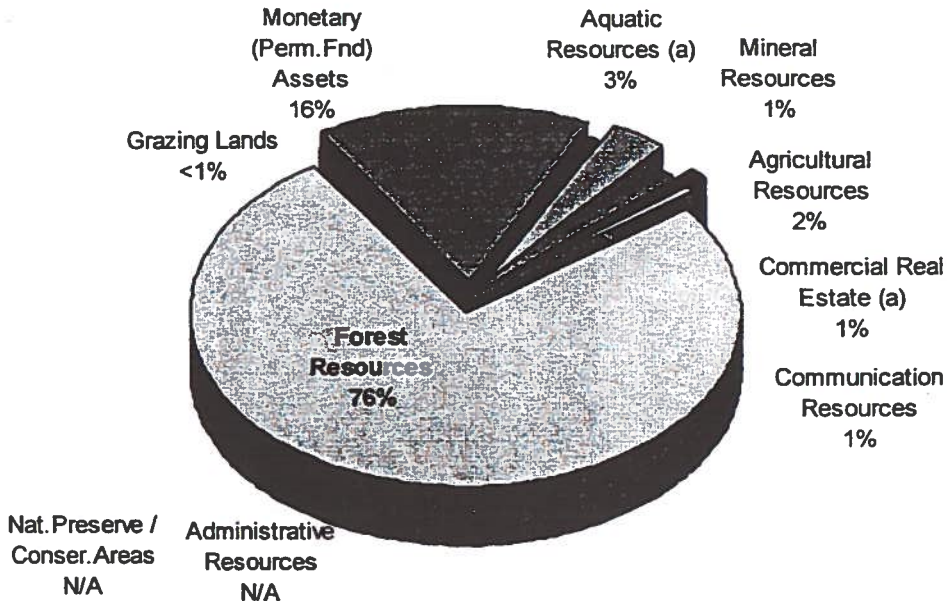
The resulting calculated weighted average distribution of funds from this asset class to ALEA is 70%.

The income generated by Monetary (Permanent Fund) Assets is distributed to various funds for the benefit of Beneficiaries by the Washington State Investment Board (revenues do not pass through DNR) as specified by law. In fiscal 1995, the WSIB distributed 87% of the income to these various funds. This distribution amount can change, however, since it reflects the portion of total income (13% for fiscal 1995) that is allocated to amortize net capital losses deferred from prior years.

Revenue and income distribution information for fiscal year ended 1995 from Monetary (Permanent Fund) Assets were taken from the Statewide Investment Management System State of Washington Fourteenth Annual Income Statement for the period 7/1/94 to 6/30/95.

In order to derive a direct market "Trust Distribution Income" benefit to the Beneficiaries after statutory fixed allocations, the appropriate direct market income distribution factors, as calculated above, were applied to direct market revenue taken from the DNR 1995 Annual Report (6/30/94 - 6/30/95). The following exhibits display the "Trust Revenue," direct market income "Distribution Factors," and direct market "Trust Distribution Income" benefits to Beneficiaries from the department's operations in fiscal year 1995:

Exhibit 3-42
Trust Distribution Income Allocation By Major Asset Classes



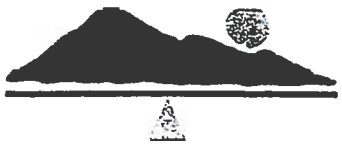
Source: DNR 1995 Annual Report, Washington State Investment Board 1995 Annual Rep

Exhibit 3-43
DNR Market Revenues, Distribution Factors, and Market Distribution

Value/Benefit >> ($ millions)	Annual Market "Distrbution Income" Benefit		
	a	b	c
<< Asset Class	Trust Revenue: Direct Market "Trust Revenue" from DNR 1995 Annual Report (except Monetary from WSIB Fourteenth Annual Investment Report), Before Distribution Factor (6/30/94 - 6/30/95)	Trust Dist. Factor: Direct Market Income "Trust Distribution Factor," allocated and weighted in accordance with applicable State law	Trust Distribution Income: Direct Market "Trust Distribution Income" Benefit, After Distribution Factor Adjustment (6/30/94 - 6/30/95)
Agricultural Resources	$5.2	@75%	$3.9
Commercial Real Estate	$3.0	@75%	$2.3
Communication Resources	$1.4	@75%	$1.1
Forest Resources	$192.0	@73%	$139.8
Grazing Lands	$0.5	@75%	$0.4
Monetary (Perm.Fnd) Assets	$33.8	@87%	$29.6
Mineral Resources	$1.4	@75%	$1.1
UPLAND TRUSTS TOTAL VALUE/BENEFITS	$237.4	@75%	$178.1
Aquatic Resources	$9.0	@70%	$6.3
Nat.Preserve / Conser.Areas			
AQUATIC TRUST & NP/CA TOTAL VALUE/BENEFITS	$9.0	@70%	$6.3
Administrative Resources	na		
UPLAND/AQUATIC TRUSTS, NP/CA & ADMIN. TOTAL	$246.4	@75%	$184.4

Note: Dir. Mkt. Revenue Benefits are before deduction of DNR fixed allocation.
Income is generally @ 75% of gross rev. (DNR fixed alloc.@ 25%) by law

Source: 1995 DNR Annual Report; 1995 Washington State Investment Board 1995 Annual Report



APPRECIATION METHODOLOGY

Measurement of the "Capital Appreciation" to the Beneficiaries is obtained by calculating the difference between the current Trust Value (estimated in the valuation section of this report as of 6/30/95) and the estimated market value at the beginning of the period ("Trust Investment" at 6/30/94). In order to estimate the annual Capital Appreciation of these assets over fiscal year 1995, a backward adjustment factor was applied to the Trust Value to determine the DNR Investment on an asset class-specific basis. Annual market appreciation factors for all asset classes are listed as follows:

Agricultural Resources:	2%
Grazing Resources:	2%
Forest Resources:	6%
Monetary Assets:	Actual appreciation represented as the change in market value from June 30, 1994 to June 30, 1995, adjusted for any capital contributions from timber and land sales per WSIB Investment Report for the same period. Market value estimates for the WSIB were provided by the Bank of New York.
Administrative Assets:	No estimated net annual market appreciation.
All others:	3%

The 2% estimated annual appreciation for the Agricultural and Grazing Resources was derived from an analysis of the National Council of Real Estate Investment Fiduciaries (NCREIF) Farmland Index. The 6%

estimated annual appreciation for Forest Resources was derived from an analysis of the NCREIF Timberland Index. Administrative assets were assumed to remain constant since the real property components of this asset class have the potential to appreciate, but the non-property components have the potential to depreciate. The remaining asset classes were assumed to appreciate at the approximate rate of inflation, taken as 3%.

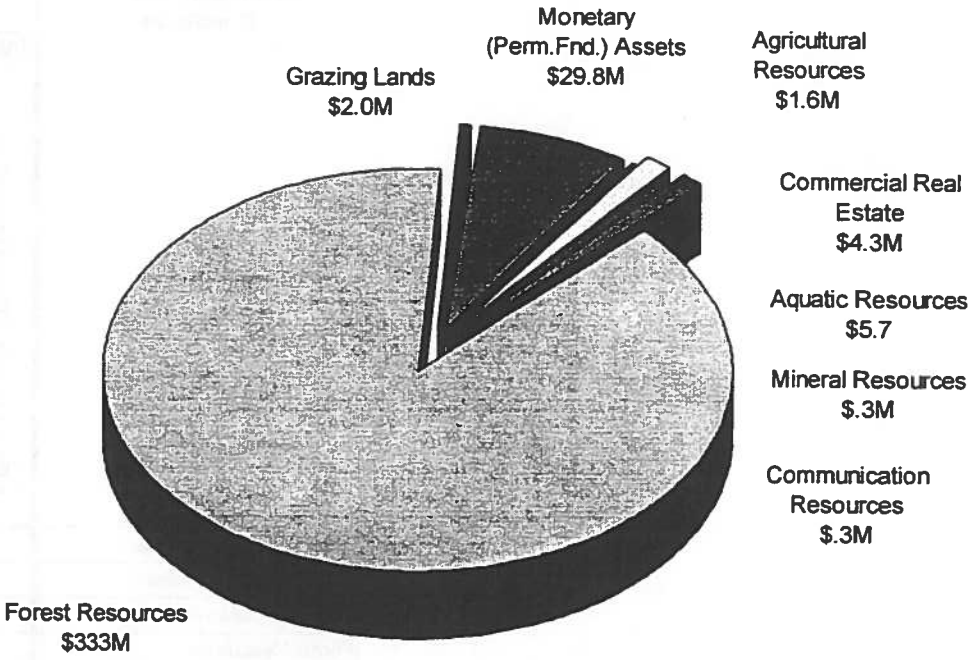
Based upon these assumptions, an estimated Trust Investment of DNR assets at fiscal year-end 1994, corresponding Fiscal 1995 Trust Appreciation and Total Trust Income were calculated, as illustrated in the following three exhibits:

Exhibit 3-44
Estimated Trust Investment at 6/30/94 - By Asset Class

<< Asset Class	Trust Investment: Estimated "Trust Investment" Value @ 6/30/94	Trust Value: Current "Trust Value" (@6/30/95)
Agricultural Resources	$82.4	$84.1
Commercial Real Estate	$142.0	$146.2
Communication Resources	$8.8	$9.0
Forest Resources	$5,550.0	$5,883.0
Grazing Lands	$97.6	$99.6
Monetary (Perm.Fnd) Assets	$468.2	$512.9
Mineral Resources	$9.2	$9.5
UPLAND TRUSTS TOTAL VALUE/BENEFITS	$6,358.2	$6,744.4
Aquatic Resources	$190.5	$196.2
Nat.Preserve / Conser.Areas		
AQUATIC TRUST & NP/CA TOTAL VALUE/BENEFITS	$190.5	$196.2
Administrative Resources	$24.7	$24.7
UPLAND/AQUATIC TRUSTS, NP/CA & ADMIN. TOTAL	$6,573.4	$6,965.3

Source: DNR, Washington State Investment Board, Deloitte & Touche LLP

Exhibit 3-45
Estimated Trust Appreciation Fiscal Year 1995 - By Asset Class



Source: DNR, Washington State Investment Board, Deloitte & Touche LLP

Exhibit 3-46
Estimated Total Trust Income Fiscal Year 1995 - By Asset Class

Value/Benefit >> ($ millions) / << Asset Class	c Trust Dist. Inc. Direct Market "Trust Distribution Income" Benefit, After Distribution Factor Adjustment (6/30/94 - 6/30/95)	d Tr.Cap.Appr. Trust Capital Appreciation (6/30/94 - 6/30/95)	e Tr.Tot.Income Trust Total Income (Distribution Income + Capital Appreciation) (6/30/94 - 6/30/95)
Agricultural Resources	$3.9	$1.6	$5.6
Commercial Real Estate	$2.3	$4.3	$6.5
Communication Resources	$1.1	$0.3	$1.3
Forest Resources	$139.8	$333.0	$472.8
Grazing Lands	$0.4	$2.0	$2.3
Monetary (Perm.Fnd) Assets	$29.6	$29.8	$59.4
Mineral Resources	$1.1	$0.3	$1.4
UPLAND TRUSTS TOTAL VALUE/BENEFITS	$178.1	$371.2	$549.3
Aquatic Resources	$6.3	$5.7	$12.0
Nat.Preserve / Conser.Areas			
AQUATIC TRUST & NP/CA TOTAL VALUE/BENEFITS	$6.3	$5.7	$12.0
Administrative Resources			
UPLAND/AQUATIC TRUSTS, NP/CA & ADMIN. TOTAL	$184.4	$376.9	$561.3

Source: DNR, Washington State Investment Board, Deloitte & Touche LLP

The overall Fiscal Year 1995 Trust Distribution Income of DNR-managed and WSIB-managed assets is estimated to be $184 million, the Trust Appreciation is estimated to be $377 million, and the Total Trust Income is estimated to be $561 million.

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

See the Introduction Chapter for a summary of limiting conditions and assumptions that are applicable to this asset class analysis.

ASSET CLASSES NOT EVALUATED

Natural Area Preserves and Natural Resource Conservation Areas

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RETURNS ON INVESTMENT

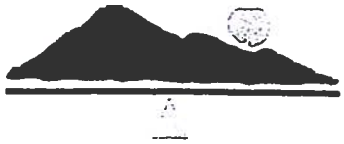
This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

GENERAL SUMMARY

Market return on investment is one method of evaluating alternative investments within a portfolio or between current portfolio investments and potential investments available for addition to the portfolio. An investment can be defined as the current commitment of assets (real estate, monetary, equipment, and human resources) for a period of time in order to derive future payments.

This section of the analysis merges the two components of the return on investment (ROI) and calculates the ROI at the asset class level. ROI will be discussed in detail at the portfolio level in Chapter Six. For purposes of the analysis, ROI incorporates returns from both income and capital appreciation. There are three rate of returns measured in this analysis: 1) Trust Distribution Income ROI ("Income ROI"), 2) Trust Capital Appreciation ROI ("Appreciation ROI") and 3) Trust Total ROI ("Total ROI").

Income ROI relates the calculated Trust Distribution Income to the Trust Investment value at 6/30/94. Appreciation ROI relates the return from Capital Appreciation to the Trust Investment at 6/30/94. Total ROI indicates the total or combined return.



Following is an example calculation of ROI used in this analysis for hypothetical asset class:

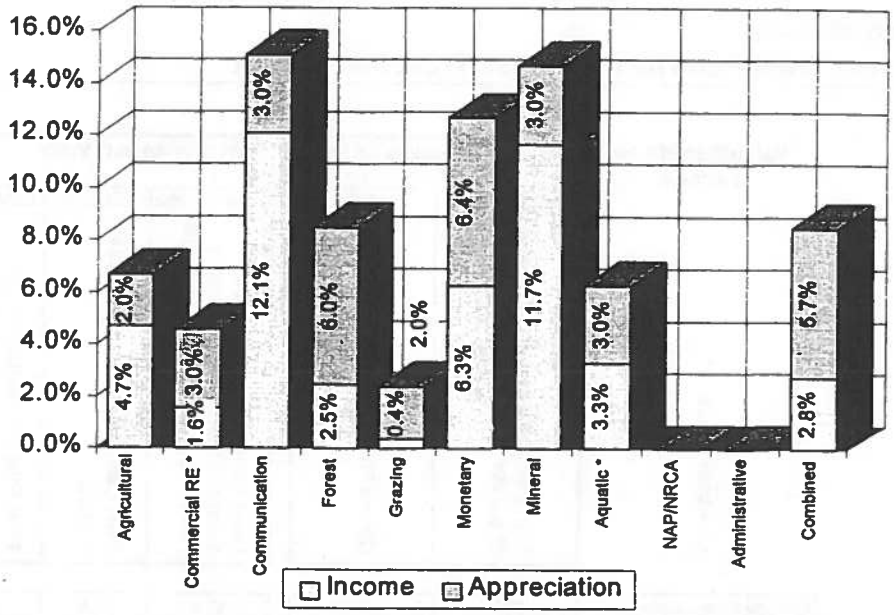
Exhibit 3-47
Sample ROI Calculation

Assumptions:	
Estimated Trust Investment @ 6/30/94	$100
Current Trust Value @ 6/30/95	$103
Trust Distribution Income (6/94 to 6/95)	$5
Capital Appreciation ($103 - $100)	$3
ROI Calculations:	
Total ROI ([$5+$3]/$100)	8.0%
Income ROI ($5/$100)	5.0%
Appreciation ROI ($3/$100)	3.0%

Source: Deloitte & Touche LLP

The estimated returns at the class level are summarized in the following table and graph. As noted earlier, a detailed discussion of the Trust return on investment at the portfolio level is provided in Chapter Six of this analysis.

Exhibit 3-48
Trust Returns on Investment by Asset Class
DNR Fiscal Year Ended 1995



* These asset classes include land areas which are not income producing and that have a Trust Value greater than 50% of the asset class. This results in the reported Return on Investment for the class not being representative of the income returns associated with only the income-producing lands.

Source: Deloitte & Touche LLP

It should be noted that for the Commercial Real Estate and Aquatic asset classes in the preceding exhibit, over 50% of the total estimated Trust value (used in the Total Return on Investment calculation) for these two asset classes consist of acreage that is not currently producing income for the asset class. This results in an total asset class ROI that is lower than an estimated ROI calculation for only acreage that is currently producing income. However, a property specific analysis would be required to address this level of detail within the asset class, which is beyond the scope of this economic analysis.

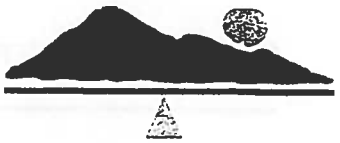
SUMMARY OF RETURNS ON INVESTMENTS

Exhibit 3-49
Direct Trust Returns on 6/30/94 Trust Investment

Value/Benefit >> ($ millions) / << Asset Class	Direct Trust Returns on Market "Trust Investment" Value							
	a	b	c	d	e	f	g	h
	Trust Investment	Trust Value	Trust Dist. Inc.	Tr.Cap.Appr.	Tr.Tot.Income	Income ROI	Apprec. ROI	Total ROI
	Estimated "Trust Investment" Value @ 6/30/94	Current "Trust Value" (@6/30/95)	Direct Market "Trust Distribution Income" Benefit, After Distribution Factor Adjustment (6/30/84 - 6/30/95)	Trust Capital Appreciation (6/30/94 - 6/30/95)	Trust Total Income (Distribution Income + Capital Appreciation) (6/30/94 - 6/30/95)	Direct Market "Trust Income ROI"	Direct Market "Trust Capital Appreciation ROI"	Direct Market "Trust Total ROI", Including Trust Distribution Income and Trust Capital Appreciation
Agricultural Resources	$82.4	$84.1	$3.9	$1.6	$5.6	4.7%	2.0%	6.7%
Commercial Real Estate (a)	$142.0	$146.2	$2.3	$4.3	$6.5	1.8%(a)	3.0%	4.6%
Communication Resources	$8.8	$9.0	$1.1	$0.3	$1.3	12.1%	3.0%	15.1%
Forest Resources	$5,550.0	$5,883.0	$139.8	$333.0	$472.8	2.5%	6.0%	8.5%
Grazing Lands	$97.6	$99.6	$0.4	$2.0	$2.3	0.4%	2.0%	2.4%
Monetary (Perm.Fnd) Assets	$468.2	$512.9	$29.6	$29.8	$59.4	6.3%	6.4%	12.7%
Mineral Resources	$9.2	$9.5	$1.1	$0.3	$1.4	11.7%	3.0%	14.7%
UPLAND TRUSTS TOTAL VALUE/BENEFITS	$6,358.2	$6,744.4	$178.1	$371.2	$549.3	2.8%	5.8%	8.6%
Aquatic Resources (a)	$190.5	$196.2	$6.3	$5.7	$12.0	3.3%(a)	3.0%	6.3%
Nat.Preserve / Conser.Areas								
AQUATIC TRUST & NP/CA TOTAL VALUE/BENEFITS	$190.5	$196.2	$6.3	$5.7	$12.0	3.3%	3.0%	6.3%
Administrative Resources	$24.7	$24.7						
UPLAND/AQUATIC TRUSTS, NP/CA & ADMIN. TOTAL	$6,573.4	$6,965.3	$184.4	$376.9	$561.3	2.8%	5.7%	8.5%

Source: Deloitte & Touche LLP

(a) These asset classes include land areas which are not income producing and have a Trust Value greater than 50% of the asset class. This results in the reported Return on Investment for the class not being representative of the income returns associated with only the income-producing lands.



NON-MARKET BENEFITS & VALUES

This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

INTRODUCTION

In this section, benefits and values associated with non-market related resources are examined. Non-market resources are those for which traditional monetary returns are not realized. These might take the form of "active" non-market assets and resources, such as those associated with recreational and other activities on the land, including fishing, hunting, clam digging, hiking and birdwatching. They might also take the form of "passive" non-market assets and resources such as those associated with the mere existence of a resource, the ability to use the resource at some time in the future or the ability to pass the resource on to future generations. For purposes of this analysis, the following definitions apply:

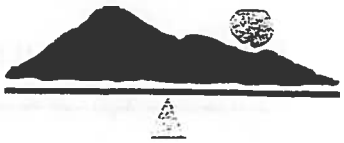
- **Non-Market** Assets and Resources consist of those assets for which no stream of revenue can be attributed (whether an existing or anticipated income stream) and/or for which there is no functional marketplace in which to complete a "willing-buyer/willing-seller" transaction. However, these attributes clearly have value to those who enjoy them, even though there is no direct use- or enjoyment-fee. Therefore, more sophisticated techniques must be applied in the determination of dollar equivalents of social and environmental values, such as consumer surveys, factoring techniques, unit valuations, standard time data, probability valuations

associated with average-value estimating, benefits-transfer approach a other statistical regression models. This category is further broken down into:

- **Active Non-Market** Assets and Resources generally relate to "social" interaction and physical enjoyment of assets (hiking trails, recreational areas, etc.) and can be analyzed in terms of ongoing "Unit-Days" value by empirical comparison to similar/equivalent alternative "market" activities (movies, amusement park, etc.). These are recurring "annual benefits."

- **Passive Non-Market** Assets and Resources generally relate to "environmental" interaction and spiritual/aesthetic/intellectual enjoyme of assets such as views, clean air and water, asset perpetuity, etc. These are sometimes referred to as resulting in "non-use values." Unlike the active market assets (annual recurring benefits), the passive non-market assets are a one-time lump-sum value.

Some of the DNR-managed assets examined exhibit both market and non-market components of value. For example, forest lands produce significant monetary returns from the sale of timber. In addition, they produce additional values for active non-market attributes, such as hiking and birdwatching, and passive non-market values through their role in providing



scenic views and otherwise adding to the Washington lifestyle. These values may be viewed as additive to the overall values of the state's lands. Thus, the value of a parcel of forest land might contain 1) a market value for the income stream developed from timber sales; 2) an active non-market value associated with recreational *user-days* for hiking and camping; and 3) a passive non-market value derived from merely knowing that the forests exist and the preservation of environmental ecosystems for the future.

GENERAL NON-MARKET VALUATION METHODOLOGY

Equivalent dollar values of active and passive non-market components can be estimated through several techniques, including (1) surveys involving the *contingent value method,* or (2) measures of the costs incurred in traveling to a recreational site, the *travel cost method.*

In this analysis, the contingent value method has been used for both active and passive non-market analyses. The active non-market analysis utilizes user-day and recreational use unit value survey information prepared by a wide variety of outside sources, which are referenced in the applicable section of this analysis. The passive non-market analysis utilizes a survey conducted specifically for this economic analysis and is explained in the applicable section of this analysis.

DESCRIPTION OF ACTIVE NON-MARKET ANNUAL BENEFITS

Five asset classes are considered to have significant non-market recreational use opportunities and are included in this analysis as follows:

- Agricultural Resources
- Aquatic Resources
- Forest Resources
- Grazing Lands
- Natural Preserve/Conservation Areas

Recreational use, for purposes of this analysis is defined as activities falling into the four major categories; fishing, hunting, outdoor recreation and water recreation.

Non-use, or *passive*, values refer to the satisfaction (or lack thereof) that people derive from goods and services not immediately used or consumed.

This analysis was performed by the application of a form of *contingent value* survey methodology, appropriate for passive non-market analyses. It was based on a timberland reference scenario, and the results could possibly be extended to represent such values for other types of *natural areas*, such as aquatic, grazing or agriculture.

DESCRIPTION OF PASSIVE NON-MARKET VALUES

The scope of the Survey instrument and other constraints did not permit the breakdown of this asset of non-use values to individual classes of land assets.

ACTIVE NON-MARKET ANNUAL BENEFITS

This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

DESCRIPTION OF ACTIVE NON-MARKET ANNUAL BENEFITS

Five Asset Classes have not been included in this analysis, since they involve no land (i.e., Monetary (Permanent Fund) Assets), or the land portion of the asset is either too small, too inaccessible or considered inappropriate for recreational use in the context of this analysis. Asset Classes not evaluated are as follows:

- Commercial Real Estate
- Communication Resources
- Monetary (Permanent Fund) Assets
- Mineral Resources
- Administrative Resources

Recreational use, for purposes of this analysis, is defined as activities falling into the following four major categories:

Fishing, containing the three major categories of cold/freshwater, warm/freshwater and cold/saltwater, which were further broken down into 16 individual species-specific activities.

Hunting, containing the three major categories of big game, small game and waterfowl, which were further broken down into 23 individual species-specific activities.

Outdoor Recreation, containing the eight major categories of camping, hiking, motorized off-road, motorized travel, nonmotorized off-road, viewing, wilderness and other, which were further broken down into 25 individual activities.

Water Recreation, containing the three major categories of beach, motorized watercraft and nonmotorized watercraft, which were further broken down into 11 individual activities.

ANNUAL VALUATION CONCLUSIONS

Active non-market value is expressed as an annual benefit derived from: 1) the estimation of annual *user-days* associated with the above public recreational activities; 2) the allocation of the resulting recreational activity total values among the applicable Asset Classes; and 3) the assigning of monetary dollar-equivalent daily unit values, by activity. The annual Active Non-Market value of DNR-managed lands is estimated at $248 million, as described in more detail below and summarized as follows:

Exhibit 4-1
Annual Active Non-Market Benefits Summary

	User-Days	Unit Values	Annual Active Non-Market Benefits
Agricultural Resources	118,000	$7.00	$789,000
Aquatic Resources	3,041,000	$23.00	$70,875,000
Forest Resources	7,230,000	$22.00	$158,063,000
Grazing Lands	758,000	$23.00	$17,810,000
Natural Preserve / Conservation Areas	80,000	$8.00	$603,000
Total	11,227,000	$22.00	$248,140,000

Note: These numbers are rounded figures from the calculations in Exhibit 4-2.

Source: Deloitte & Touche LLP

APPLICABLE LAWS & REGULATIONS

Natural Area Preserves (NAP) generally have restricted public access by state statute and therefore are not available for the recreational uses defined in this section. The Natural Resource Conservation Areas (NRCA) portion of the Natural Preserve / Conservation Areas Asset Class is available only for certain types of "low-impact" recreational use. This user-day analysis reflects this limited use.

LIMITING CONDITIONS

None identified, except as limited above.

RECREATION USER-DAY, USER-DAY UNIT VALUE & TOTAL VALUE GRID - ALL CLASSES

Exhibit 4-2
Annual Active Non-Market Benefits Summary

Activity	Asset Class					Total
	Agricultural Resources	Aquatic Resources	Forest resources	Grazing Lands	Natural Preserve / Conservation Areas	
Acres >>	188,509	2,179,840	2,113,760	532,760	70,041	5,084,910

Recreational User Days

	Agricultural	Aquatic	Forest	Grazing	NP/CA	Total Days	
Fishing - Subtotal	0	758,120	730,489	184,115	0	1,672,724	15%
Hunting - Subtotal	0	25,783	295,506	25,596	0	346,885	3%
Outdoor Recreational	118,430	1,369,480	5,354,747	334,705	79,877	7,257,239	65%
Water Recreational - Subtotal	0	887,723	849,038	213,995	0	1,950,756	17
Total	**118,430**	**3,041,106**	**7,229,780**	**758,411**	**79,877**	**11,227,604**	
(% Distribution)	1%	27%	64%	7%	1%		100%

Average Aggregate User-Day Benefits

	Agricultural	Aquatic	Forest	Grazing	NP/CA	Total Avg. $/Day
Fishing - Subtotal		$41.28	$41.17	$41.17		$41.22
Hunting - Subtotal		$36.84	$44.32	$32.62		$42.90
Outdoor Recreational	$6.66	$6.66	$16.15	$6.66	$7.55	$13.67
Water Recreational - Subtotal		$33.24	$33.48	$33.48		$33.37
Average	**$6.66**	**$23.31**	**$21.86**	**$23.48**	**$7.55**	**$22.10**

Annual Active Non-Market Benefits

	Agricultural	Aquatic	Forest	Grazing	NP/CA	Total $
Fishing - Subtotal		$31,292,598	$30,074,493	$7,580,087		$68,947,178
Hunting - Subtotal		$949,821	$13,096,511	$834,957		$14,881,289
Outdoor Recreational	$788,855	$9,121,998	$86,462,861	$2,229,445	$603,129	$99,206,288
Water Recreational - Subtotal		$29,510,555	$28,429,370	$7,165,444		$65,105,369
Total	**$788,855**	**$70,874,972**	**$158,063,235**	**$17,809,933**	**$603,129**	**$248,140,124**

Source: Deloitte & Touche LLP

ACTIVE NON-MARKET VALUATION METHODOLOGY

Specific Methodology

In principle, the standard procedure for estimating active non-market use values is straightforward, focusing on non-market activities (usually recreational) that take place onsite. That value reflects how much people make use of the resource and what each individual's valuation of that activity is. These activities are measured in units of "user-days." A user-day is a 12-hour period during which one person pursues a single activity at a given site. The "person" in this case need not be the same individual for the entire period. A hiking user-day, for example, can consist of one person hiking for 12 hours, two people each hiking for six hours, etc. This unit is also the basis for expressing the perceived active non-market economic value of an activity. The dollar value of a user-day can be estimated through a number of techniques, principally surveys, involving the so-called *contingent value* method, or measures of costs incurred in traveling to a recreation site—the *travel cost method.* The total value of a type of activity on a given site is then the product of the annual number of user-days and the user-day value of that activity:

Total Value = (Annual User-Days) x (Value per User-Day)

[Equation A]

The non-market use value of each of the five classes of land will be calculated by apportioning the annual user-days among the different classes.

While this procedure indirectly captures the values of various characteristics of a particular parcel of land, including its ecological attributes and human-made assets, it cannot distinguish the individual values of those characteristics. Exhibit 4-3 lists the ecological attributes and human-made assets associated with each of the five classes of land under review for this part of the study. These characteristics are assumed to enhance the experience of an active non-market recreational activity at a site. Their presence, therefore, has value to the recreational user and is a component of the land's value. Estimating the individual value of each component, however, is beyond the scope of this study.

Ideally, the application of Equation A would use data covering the full range and extent of non-market activity on the land and the values specific users of the DNR-managed land. No such extensive data exists, however, forcing the valuation to proceed along less direct pathways. Independent research into specific use of lands was also outside the scope of this study. The following sets forth the methods for approximating this data using existing sources.

User-Days on Land Managed by the DNR

The derivation of user-days on DNR-managed land is divided into two steps. First, using data specific to Washington State, we have estimated the number of user-days for each recreational activity; second, we

estimated the share of statewide user-days specific to each class of DNR-managed land.

A. Statewide Recreation User-Days

Three sources of data on statewide recreation user-days are used in the study: for fishing, the 1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, conducted by the U.S. Departments of the Interior and Commerce[1]; for hunting, the Washington 1994 Game Harvest Report, conducted by the Washington Department of Fish and Wildlife[2]; and for other recreation, a survey conducted in 1988-89 for the Washington State Statewide Comprehensive Outdoor Recreation Planning (SCORP) program.[3] It is noted that activity data was adjusted for population growth and inflation to make it commensurate with 1995 population and dollar values.

These three sources contain data on activities that was divided into the four major activity categories previously described: fishing, hunting, outdoor recreation and water recreation. The data on fishing and hunting for the state of Washington is in units of user-days; the data from the SCORP survey is in units of household trips. Converting household trips to user-

1 U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, Bureau of the Census. *1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, 1993. Washington, D.C.: U.S. Government Printing Office. p. 18.

2 *1994 Game Harvest Report*, Jim Rieck, ed., Washington Department of Fish and Wildlife, Olympia, 1995.

3 The survey was conducted by the Northwest Recreation Research Center at Western Washington University, and the results are listed in *Washington Outdoors: Assessment and Policy Plan 1990-1995*, Interagency Committee for Outdoor Recreation, Tumwater, Washington, April 1990.

days requires the following calculation:

(Household trips) x (Days per trip) x (Users per household) = User-days [Equation B]

Unfortunately, the SCORP survey did not record length of trip or number of persons in a household for each household trip. In lieu of individual data, we have set the number of users per household at 2.35, the average number of individuals five years or older per Washington State household in 1990.[4] No data specific to Washington State are available for trip length. Therefore, we have divided the activities between one-day and two-day trips, based on the presence (or likely presence) of an overnight component for the activity.

The SCORP survey also did not distinguish between single-purpose and multiple-purpose trips. If a person took a day-trip that involved both hiking and nature study, for example, the SCORP survey recorded a household trip for each activity. Without information on the frequency and composition of multiple-purpose trips, we have chosen to treat each trip as single-purpose and count each day as a full user-day. This introduces a potential upward bias in the estimate of user-days for the activities covered by the SCORP survey.

[4] *State and Metropolitan Area Data Book 1991*, U.S. Department of Commerce, Bureau of the Census, August 1991, pp. 206, 211.

B. Recreation User-Days Specific to DNR-Managed Lands

Ownership of land within the state generally may be divided into three groups: state-owned lands; federally owned lands; and privately held assets.[5] DNR-managed land accounts for a portion of the state-owned lands. Most of the statistics for use of lands within the state do not distinguish among the land ownership categories in which the experience took place. Given the absence of data on the actual levels of recreational activity on DNR-managed land, we have used indirect means to apportion the statewide user-days, first, to all DNR-managed land, and second, to the five classes of DNR-managed land covered by this part of the study.

In some cases, a recreational activity can take place only if a human-made asset is present. For example, hiking along a trail can take place only along a human-made or human-maintained trail. Similarly, swimming at a beach can take place only at a beach with human-made access and parking. We identified categories of recreational activity that most often take place in association with a human-made asset, and for which data exists on the DNR's share of the statewide total amount of that asset. Under the assumption that DNR-managed assets receive the same frequency of use that non-DNR-managed assets receive, the DNR's share of statewide user-days will be equal to its share of the associated asset. If recreation takes place in the absence of that asset, our estimates of DNR user-days will be

[5] The state owns other lands which are not under management by the Department of Natural Resources. For purposes of this analysis, only DNR-managed lands are valued.

biased downward or upward, depending on whether this occurs more or less often on DNR-managed land relative to non-DNR-managed land.

In other cases, recreation takes place more diffusely but is still associated with particular types of land. In these instances land ownership may have some influence on these activities, as access may be more restricted on privately owned lands. Under the assumption that DNR-managed land receives the same density of use that non-DNR-managed land receives, the DNR's share of statewide user-days for these activities will be equal to its share of those particular types of land. If recreation takes place on other types of land, the potential for downward or upward bias is determined in a fashion similar to that for the human-made assets.

Finally, a few types of activities are not associated with any particular type of land. In these cases, we assumed that activities take place at a uniform density across the state and, in the absence of contrary information, assigned them the DNR's share of all land in the state.

After calculating the DNR's total share of user-days, we allocated DNR user-days for each activity across classes of DNR-managed land. This was done using the share of each class's land acreage in the total DNR-managed acreage that supports that activity. For example, fishing is assumed to take place on DNR-managed forest, woodland permit grazing

land and aquatic land, but not on agricultural, grazing and preserve land. DNR-fishing days are then assigned to forest land based on that class's share of the total amount of DNR-managed forest, grazing and aquatic land; to grazing land based on that class's share in that total; and to aquatic land based on that class's share.

User-Day Values

There is a large body of literature on the value of various recreational activities. We relied on two surveys of this literature,[6] with a few values drawn from other sources.[7] To classify user-day values, the sources used a set of recreational activity categories different from the set that describes user-days. We established a set of relationships between the two sets of categories.

After compiling a complete list of user-day values for each recreational activity category, we eliminated values drawn from studies conducted outside the western United States. Wherever possible, we winnowed the list of values down to those drawn from the states of Washington, Oregon, or Idaho; in the remaining cases, the values are drawn from other western states or regions. In cases where more than one study covered the same

6 J. Loomis and C. Sorg, "A Critical Summary of Empirical Estimates of the Values of Wildlife, Wilderness, and General Recreation Related to National Forest Regions," ms., 1982; and R. Walsh, D. Johnson, and J. McKean, "Review of Outdoor Recreation Economic Demand Studies with Non-market Benefit Estimates, 1968-1988," Colorado Water Resources Research Institute, Completion Report No. 146, December 1988.

7 M. Hay, *Resource Pricing and Valuation Procedures for the Recommended 1990 RPA Program*, U.S. Department of Agriculture, Forest Service, Washington, D.C., 1990; and D.G. Waddington, K.J. Boyle, and J. Cooper, *1991 Net Economic Values for Bass and Trout Fishing, Deer Hunting, and Wildlife Watching*, U.S. Fish and Wildlife Service, Report 91-1, October 1994.

activity, the median value was used. All values are expressed in 1995 (3rd quarter) dollars.

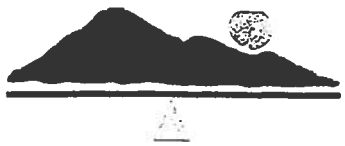
Non-Market Values of Activity on DNR-Managed Lands

For each activity and class of land, combining the estimated DNR user-days and the estimated user-day value produces the annual total value of the non-market use of that class. The previously presented Exhibit 4-2 shows these results.

Exhibit 4-3
Ecological Attributes and Human-Made Assets Associated with DNR-Managed Land Classes

Land class	Ecological attributes	Human-made assets
Agricultural lands (including land managed for agriculture)	Wildlife and habitat; animal corridors; soils; surface and ground waters; and other non-market services and attributes	Roads, bridges, fences, signs and gates; irrigation wells and systems; and other sharecropper products
Aquatic lands (including shorelands, beds of rivers and lakes, public tidelands, beds of navigable waters, and harbor areas)	Ecosystems and components; fish and aquatic habitat; wetlands; threatened, endangered and sensitive species; geoducks and hard shell clams; oysters and mussels; other non-market services and attributes	Structures and fills on aquatic lands; selected beaches and boat ramps
Forest lands (including forest research inventory plots)	Ecosystems and components; plants and trees; wildlife and habitat; animal corridors; soils; wetlands; forest lands; timber; oxygen-carbon exchange systems; old growth; biodiversity; potential medicinal plants; threatened, endangered and sensitive species; surface and ground waters; access to water bodies; viewsheds; open space; other non-market services and attributes	Cultural, spiritual, archaeological and historic sites; roads, bridges, fences, signs and gates; special forest products; nursery stock; recreation sites; recreation trails
Grazing lands	Ecosystems and components; wildlife and habitat; animal corridors; soils; wetlands; oxygen-carbon exchange systems; threatened, endangered and sensitive species; surface and ground waters; access to water bodies; viewsheds; open space; other non-market services and attributes	Cultural, spiritual, archaeological and historic sites; roads, bridges, fences, signs and gates
Natural area lands (including non-access Natural Area Preserves, public access and limited public access Natural Heritage Sites, and Natural Resource Conservation Areas)	Ecosystems and components; plants and trees; fish and aquatic habitat; wildlife and habitat; animal corridors; soils; wetlands; oxygen-carbon exchange systems; threatened, endangered and sensitive species; old growth; biodiversity; potential medicinal plants; access to water bodies; viewsheds; open space; other Non-market services and attributes; these are reported by DNR to be the best examples of Washington's natural heritage	Cultural, spiritual, archaeological and historical sites; roads, bridges, fences, signs and gates; recreation sites; recreation trails

Source: Deloitte & Touche LLP



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Deloitte Touche LLP

PASSIVE NON-MARKET VALUES

This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

DESCRIPTION OF PASSIVE NON-MARKET VALUE

Non-use, or *passive*, values refer to the satisfaction (or lack thereof) that people derive from goods and services not immediately used or consumed. Common illustrations include the value that a person places on knowing that something like an endangered species, if saved, will continue to *exist*, even if that person never sees it. Another illustration is knowing that a wild river or deep canyon will be available for others to see in the future, referred to as a *bequest value*. In the present instance, the resource to be valued is the knowing that an area of outstanding beauty and environmental importance has been preserved, so as to protect habitat and enhance the diversity of plant and animal life in the State of Washington. Washington State citizens may also value their *opportunity* to use these lands in the future, should they want to, as a result of any current preservation decision.

This analysis was performed by the application of a form of *contingent value* survey methodology, appropriate for passive non-market analyses. It was based on a timberland reference scenario, and the results could possibly be extended to represent such values for other types of *natural areas*, such as aquatic, grazing or agriculture. However, reliability would increase significantly if additional individually designed and implemented surveys were undertaken for each of the other land types. As a result, the passive

non-market values estimated herein have not been allocated to spec DNR-managed asset classes.

VALUE CONCLUSION

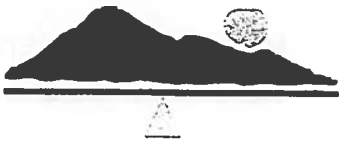
The estimated Passive Non-Market (non-use) value for 100,000 acres of the highest quality environmental/ecological DNR-managed land is $1.3 billion. While the statistical reliability of this limited-scope Survey falls off very quickly beyond the maximum 100,000 acres considered therein, the passive non-use value for all DNR-managed land could possibly be ascertained, with a much lower level of reliability if extrapolated for the entire five+/- million acres.

LIMITING CONDITIONS

See Introduction for limiting conditions and assumptions. None additionally identified, except those limitations inherent to a contingent valuation surv of this kind of such diverse land holdings.

PASSIVE NON-MARKET VALUE METHODOLOGY

A common feature of analyzing non-use values for resources is the difficulty in determining their monetary value inasmuch as the market place provides no clue to such value. Methods to determine these values essentially use a system of questioning people to determine just what the value is that they place on some aspect of the resource. An economic tool known as the "stated preference" method is one of the ways to ask these questions, and this methodology substitutes for a "market" in the valuation of the non-use aspects of a resource. The basis of the methodology is a survey designed



to elicit the economic value that representative citizens place on the natural resource in question. In our analysis, a stated preference-based survey (the "Survey") was taken in the State to determine what importance its people placed on non-use values.

Stated preference methods are controversial. This has given rise to a set of desirable features known as the NOAA Panel Criteria.[8] They include, for example, posing valuation questions using a willingness-to-pay ("WTP") formulation. In the establishment of the criteria, the Panel argued that they would view unreliable a study which:

- had a high non-response rate;
- showed inadequate responsiveness to the scope of the environmental insult;
- showed a lack of task understanding by the respondents; or
- revealed that many respondents did not believe the restoration scenario.

None of these failures occurred in the context of the present study conducted in connection with the DNR resources, and thus, the survey is determined to be reliable within reasonable expectations.

8 Arrow, K., R. Solow, E. Meamer, R. Radner and H. Schuman (1993), "Report of the NOAA Panel on Contingent Valuation," 58 F. R. 4602-4614. Other such criteria included minimization of non-response, careful pre-testing of the survey instrument, and accurate description of the current program and the respondent's new options, checks on the perceptions and understanding of the survey document by the respondents and timing and other features of the remedial actions explained.

The reliability of economic values from stated preference studies is enhanced by being very specific about the aspect being valued. Our Survey directly values the non-use value of forest land that amounts to about 2.0 million acres out of a total of 5.0+ million acres of upland and aquatic lands managed by the DNR. The Survey directly values the non-use value of only a relatively small number of high-quality acres of forest land.

Survey Process - Design

1. A preliminary survey was designed, and a random sample of five respondents were contacted by Decision Data, Inc., a professional survey research corporation in the Seattle area.

2. Verbal protocols were conducted with them. In the process, each respondent reads the survey instrument and verbalizes the thought process that leads to each answer given.

3. A revised survey instrument was then prepared to correct for confusion and misunderstandings revealed by the respondents.

4. A focus group was held, in which ten randomly selected people were assembled and asked to fill out the revised survey instrument and

discuss it thereafter.

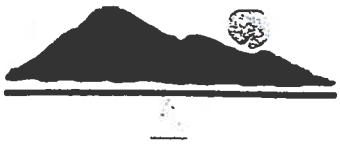
5. The final survey instrument was prepared in light of their concerns and to correct related questions.

The final survey instrument was mailed to 1,400 randomly chosen residents in Washington. A postcard reminding non-respondents to return the survey was mailed three weeks after the first mailing.

The Survey

The Survey instrument has three parts: 1) lead-in questions; 2) an "active" section in which substantive evaluations and opinions of value are elicited; and 3) a section dealing with demographic issues. Most of the Survey design is routine. The first phase gradually narrows the focus to the specific issue of valuing approximately 24,000 acres of Natural Area Preserves. These areas are identified to be reserved for non-use, such as research and habitat for the preservation of biodiversity. Recreation is not permitted. The respondent sees a map of Natural Area Preserves throughout the state and learns that, if active timber stands are transferred into this status, any foregone timber revenue must be made up from revenues from other sources, principally revenues from the sales taxes.

In the Survey, respondents were asked to choose among four policy



options[9], and associated with each option was a cost in terms of a one-ti change in the sales tax. The policy options are to:

a. reduce the acres in preservation status by a given amount;

b. status quo - no change in area preserved;

c. double the area preserved; or,

d. triple the area preserved.

Survey Results

Of the 1,400 surveys mailed, more than 600 usable surveys were returned by the end of the first wave. The response rate, net of undeliverable surveys, was 46% and is considered to be a relatively high rate. After the postcard reminder was sent, the aggregate response rate was quite good, at 54%.

A standard form of analysis was used to derive an estimated marginal non-use per household lump-sum value for the timberland to be preserved[10] equal to $6.60 per household per thousand acres. The estimated non-use values associated with approximately 100,000 acres of the highest quality DNR-managed land were substantial, approximately $1.3 billion in the aggregate, assuming two million households currently in the State of

[9] This form of survey design, the contingent ranking method, is fairly novel in applied economics, but has been used routinely in other social sciences.

[10] A multinominal logit model was used with a household's non-use value of land entered linearly and acres preserved entered non-linearly in an indirect utility function.

Washington.

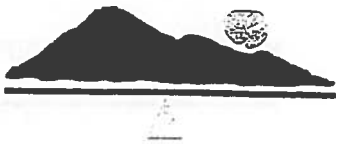
Not all land managed by DNR is of the same quality. Some is very high quality, such as that of the preservation areas dealt with directly in the Survey. Aesthetic and similar qualities of other lands may be lower and result in a lower non-use value for that land. Some land in highly commercial areas may have almost no "non-use" value. It is therefore reasonable to assume, and the statistical analysis confirms, that the values associated with the remainder of the lands decrease rapidly.

The contingent valuation procedure is controversial. DNR's intention to obtain an estimate of non-use values for all its land is unique. Thus, there are no comparables to provide guidance. It is interesting to note that the results of the Survey showed that the non-use unit-value indicated by the respondents was relatively high for the identified existing 24,000 acres of Natural Area Preserves at $28,000 per acre and declined rapidly for subsequent additional blocks of similar lands to be preserved ($10,000 per acre for the next 48,000 acres and $6,000 per acre for the next 28,000 acres). The Survey resulted in an average indicated value of $13,200 per acre for 100,000 acres of the highest quality environmentally significant

[11] Values for individual attributes of certain DNR-managed lands, such as those associated with use of lands as habitats for wildlife or the value of land's assimilative properties and capacities could be substantial. The scope of the Economic Analysis did not permit assigning specific values to these attributes.

lands in the Trust portfolio.

It is also important to note that the statistical reliability of the data gathered by this limited-scope Survey falls off very quickly if an attempt is made to apply it beyond the 100,000 acres for which it was designed. In this context, the total computed non-use value for approximately five million acres of DNR-managed lands could be as high as $2.6 billion without discounting for any changes in the quality or type of land or the statistical constraints in the estimates. For example, beyond the 100,000 acres included in the Survey, the quality and value of natural environments, eco-systems, and habitats is expected to fall off rapidly. This is especially the case as more actively used properties are considered, such as agricultural, grazing, and commercial real estate uses. As such, the $6,000 per acre identified as the survey value placed on the last 28,000 of the 100,000 acres surveyed would likely fall rapidly to very little or no "passive non-use value" for the greatest balance of the Trust portfolio. Hypothetically, such an extrapolation might produce up to $1.3 billion passive non-market value for the balance of the Trust portfolio beyond the highest quality 100,000 acres. It is only a coincidence that the value placed on the highest quality 100,000 acres and the balance of the Trust portfolio is equal (rounded) to the possible extrapolated value indicated for the balance of the Trust portfolio.



A prudent estimate of the non-use value of the entire approximately five million acres under DNR stewardship would likely be closer to the $1.3 billion for the high-quality land than the upper end of the range of $2.6 billion. The scope of the Survey instrument did not permit the breakdown of the total non-use values into individual classes[11].

Survey Interpretation

Here are some ways these values can be interpreted, and some ways they should not be interpreted:

1. The context in which the Survey was designed and the response was elicited suggested that the existing areas in preservation status were special. In fact, DNR-managed timberland varies in quality from stand to stand with respect to its value for unique habitat for plants and species preservation. Arguably, only the best stands will be valued by residents in total at the Survey-determined values. Thus it would be inappropriate to apply per-thousand value numbers to all the 2 million acres of DNR-managed timberland without some appropriate downward adjustment of the unit value.

2. Based on the Survey results, it can be stated with confidence that the households in this state place considerable value on preserving natural areas.

3. The Survey results suggest that a policy of modestly increasing the acreage in preservation areas might be in order, but further research is necessary to increase confidence in any such public policy initiative.

4. The values in this section refer to non-use values for high-quality timberland. It is speculative to assume that these non-use values can be assigned to non-timberland, including grazing lands in Eastern Washington and tidelands along the coast. A single contingent value study to value lands as ecologically disparate as timberlands, grazing lands and tidelands would likely not yield very accurate values. The above, however, represents an acceptable order-of-magnitude number for non-use values for all DNR-managed lands within the state.

FUTURE NON-MARKET VALUE & BENEFIT TRENDS

This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

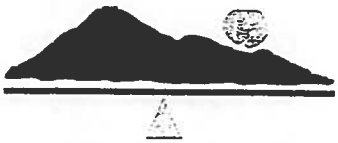
FUTURE NON-MARKET ACTIVE ANNUAL BENEFIT TRENDS

Washington has become synonymous with the outdoor, eco-conscious, recreation-intensive lifestyle. Residents take great pride in and derive a great deal of psychological enjoyment from the natural beauty the state offers. Although no quantitative data is readily available, there is no reason to believe that there will be any abatement in the strong attitudes toward the maintenance of the Washington lifestyle. This, coupled with trends toward more leisure time, may lead to more user-days per resident in the long term.

Furthermore, the aesthetic qualities of the State are among the significant factors that draw new residents to it and fuel population growth. Even if the DNR-managed land base were to remain static, more people mean more user-days for all types of activities on the lands/asset classes evaluated above. An argument can be made that growth in the value of annual active non-market benefits will be the combination of growth in population (expected to be 1.2% per year), inflation in user-day unit values and an increase in the proclivity of residents to enjoy user days on DNR-managed lands. Clearly, all of these trends point toward a long-term increase in the ongoing active non-market benefits.

FUTURE NON-MARKET PASSIVE VALUE TRENDS

For many of the reasons stated above, it is likely that the value of non-market passive benefits will rise in the future as well. The same attitudes and lifestyle preferences that cause Washington residents to enjoy a weekend of camping will cause these residents to appreciate the value of having their children or grandchildren see a preserved wild river or deep canyon. Also, residents may be more willing to pay for the enjoyment of Washington's resources if more tax revenues are available from an increased population. These factors suggest an upward, long-term trend in the non-market value of passive benefits.



ECONOMIC IMPACTS

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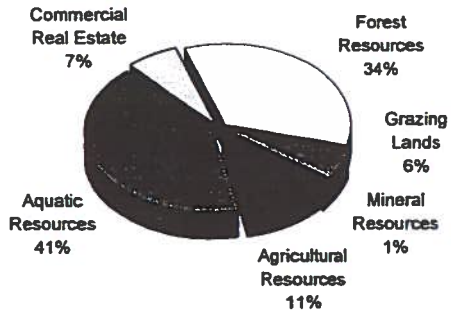
INTRODUCTION

The purpose of this portion of our study is to investigate and understand the extent to that activities on DNR-managed lands contribute to the community and state through the creation of jobs, through the wages and salaries (income) that are created by those jobs, and the state and local taxes which result.

TYPES OF ECONOMIC IMPACTS

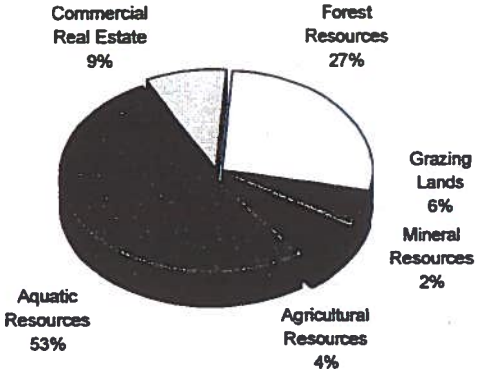
For the purposes of this study, the types of economic impacts that were reviewed include job creation, incomes from associated employment and state and local tax revenues. In this analysis, we distinguish between those commercial activities that result in jobs, incomes and tax payments (generally, the "market" activities) from those that result from "non-market" activities (generally the recreational, social, cultural and environmental activities on DNR-managed lands). While the sources of employment and income vary between these two sub-sets, they represents common units of measure that may be combined for analytical purposes. Our analysis also differentiates between economic impact benefits and direct benefits such as rents, profits, etc. Economic impacts are experienced by all residents of a community or regional area, and are therefore "indirect", while rents or profits like those from timber sales or agricultural leases are "directly" distributed to the Beneficiaries (see Chapter 3 for discussion of Trust Distribution Income).

Exhibit 5-1
Indirect Market and Active Non-Market Benefits Summary



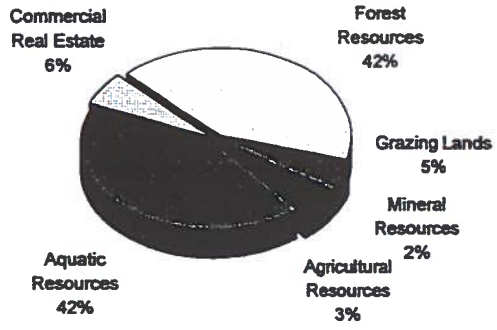
Jobs Generated

ASSET CLASS	TOTAL	NON-MARKET	MARKET
Agricultural Resources	4,570	70	4,500
Commercial Real Estate	2,800	-	2,800
Forest Resources	14,240	6,340	7,900
Grazing Lands	2,510	510	2,000
Mineral Resources	400	-	400
Aquatic Resources	17,280	2,080	15,200
Nat.Preserve / Conser.Areas	50	50	-
Totals	41,850	9,050	32,800



Wage & Salary Income Earned

ASSET CLASS	TOTAL	NON-MARKET	MARKET
Agricultural Resources	$32,398,300	$432,300	$31,966,000
Commercial Real Estate	$70,395,000	$0	$70,395,000
Forest Resources	$224,970,600	$54,597,600	$170,373,000
Grazing Lands	$45,495,600	$5,009,600	$40,486,000
Mineral Resources	$18,312,000	$0	$18,312,00
Aquatic Resources	$434,233,700	$20,245,700	$413,988,000
Nat.Preserve / Conser. Areas	$488,100	$488,100	$0
Totals	$826,293,300	$80,773,300	$745,520,000



Taxes Paid

ASSET CLASS	TOTAL	NON-MARKET	MARKET
Agricultural Resources	$3,300,100	$238,100	$3,062,000
Commercial Real Estate	$6,742,000	$0	$6,742,000
Forest Resources	$47,002,000	$21,638,000	$25,364,000
Grazing Lands	$5,630,600	$1,752,600	$3,878,000
Mineral Resources	$1,754,000	$0	$1,754,000
Aquatic Resources	$47,348,100	$7,099,100	$40,249,000
Nat.Preserve / Conser. Areas	$184,400	$184,400	$0
Totals	$111,961,200	$30,912,200	$81,049,000

Source: Deloitte & Touche LLP

MARKET INDIRECT JOB, WAGE & TAX BENEFITS

This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

INTRODUCTION

Indirect market benefits are the employment generated, wage and salary income earned, and tax revenues paid to state and local governments as a result of economic activity taking place on DNR-managed lands. Employment is defined as the number of wage and salary jobs ("Jobs"). Wage and salary income ("Income") is defined as the total amounts paid to employees, before taxes and excluding benefits (benefits are considered a non-income form of employee compensation). Tax revenues paid ("Taxes") include sales and use taxes, business and occupations taxes, leasehold taxes and severance taxes. Leasehold taxes are levied on the payments for any leased lands. Severance taxes are a constant 5% tax on the value of anything harvested from forest land and are imposed at the time of harvesting.

Total indirect benefits include both "*first round*" indirect benefits and "*interindustry*" indirect benefits.

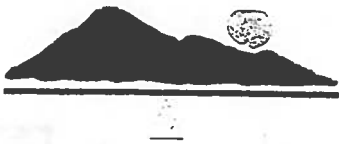
First round indirect benefits are the result of actual activity taking place on DNR-managed lands. For example, it is the number of jobs created, wages and salaries earned by employees and taxes paid to state and local governments by forest products establishments harvesting logs on DNR-

managed lands.

First round indirect benefits are estimated from (a) data on leases, contracts and/or agreements between DNR and private companies or individuals to engage in economic activity on DNR-managed lands; (b) data on detailed (4-digit Standard Industrial Classification or "SIC" codes) industry wages, salaries, employment and number of establishments obtained from Washington Department of Employment Security; and (c) data on sales, usage and business and occupation (B&O) tax rates, tax collections, retail sales and business income obtained from the Washington Department of Revenue. Before applying the relevant tax rates, taxable retail sales and gross business income were derived from data on wage and salary income.

For the forest products industry, data on the number of logging jobs per million board feet (MMBF) harvested was obtained from the 1994 *Forest Products Economic Impact Study* by Richard Conway, and data on the number of silviculture workers per acre tended was obtained by our survey of DNR contractors. Severance and leasehold taxes and rates were provided by DNR.

Interindustry indirect benefits are the economic activities that support or result from the first round benefits. They are sometimes referred to as "*multiplier*" effects and include two different types of impacts. Continuing



the logging example used above, the first effect comes from the linkage between logging and other types of production, such as the manufacture of logging saws and axes (backward linkages) or the production of dimensional lumber and wood pulp (forward linkages). Together, these interindustry forward and backward linkages are called "type I" multiplier effects. The second effect comes from the consumer spending produced by workers who earn wage and salary income logging trees on DNR-managed land. These effects are called "type II' multiplier effects.

Total indirect benefits are the sum of first round and interindustry indirect benefits and are, in practice, calculated directly by applying multipliers to the first round benefits, while interindustry benefits are defined as the difference between total and first round benefits. The combined type I and type II multiplier effects for Jobs and Income were calculated from Washington State specific input-output (IO) multipliers obtained from the Bureau of Economic Analysis, U.S. Department of Commerce's regional input-output multiplier system (RIMS). The most recent revision of the system was used, i.e., RIMS II, that is based on 1987 benchmark IO accounts for the U.S. economy and 1992 Washington State data, and was released in 1995.

MARKET INDIRECT BENEFITS SUMMARY

The Market Indirect Benefits are summarized on the following page:

EXHIBIT 5-2
SUMMARY OF INDIRECT MARKET BENEFITS
GENERATED BY ACTIVITY OCCURRING ON DNR-MANAGED LANDS

	Wage & Salary Income Earned			Taxes Paid			Jobs Generated		
	Total Impact	1st Round Impact	Interindustry (multiplier) Impact	Total Impact	1st Round Impact	Interindustry (multiplier) Impact	Total Impact	1st Round Impact	Interindustry (multiplier) Impact
TOTAL	**$745,520,000**	**$295,655,000**	**$449,865,000**	**$81,049,000**	**$37,962,000**	**$43,087,000**	**32,800**	**10,800**	**22,000**
Agricultural Resources	$31,966,000	$14,286,000	$17,680,000	$3,062,000	$1,368,000	$1,694,000	4,500	1,500	3,000
Commercial Real Estate	$70,395,000	$42,542,000	$27,853,000	$6,742,000	$4,075,000	$2,667,000	2,800	1,900	900
Communication Resources	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forest Resources	$170,373,000	$47,126,000	$123,247,000	$25,364,000	$13,560,000	$11,804,000	7,900	1,600	6,300
Grazing Lands	$40,486,000	$19,569,000	$20,917,000	$3,878,000	$1,875,000	$2,003,000	2,000	1,200	800
Monetary (Permanent Fund) Assets	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mineral Resources	$18,312,000	$10,241,000	$8,071,000	$1,754,000	$980,000	$774,000	400	200	200
Aquatic Resources	$413,988,000	$161,891,000	$252,097,000	$40,249,000	$16,104,000	$24,145,000	15,200	4,400	10,800
Natural Preserve/ Conservation Areas	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Administrative Resources	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

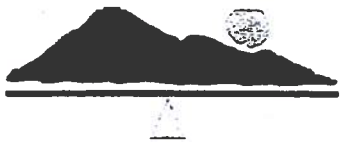
Source: Deloitte & Touche LLP

ASSET CLASSES NOT EVALUATED

COMMUNICATION RESOURCES
MONETARY (PERMANENT FUND) ASSETS
NATURAL PRESERVE/CONSERVATION AREAS
ADMINISTRATIVE RESOURCES

Generally, economic activities related to Administrative assets were considered part of the on-going public administration of state government. The employment of over 1,300 DNR personnel constitutes part of the expenses that contribute to the delivery of the products and services that DNR provides. The contribution of DNR employment to first round and interindustry direct and indirect benefits is already counted in the revenues received by DNR. Any additional or next-tier effects that might be identified in conjunction with DNR employees are beyond the scope of this analysis. As such, activities related to Administrative Assets were not included in our analysis of indirect market benefits related to DNR-managed lands.

The exception was those instances where DNR employees worked at land related tasks such as planting trees or fertilizing forest lands – tasks that could (and usually are) contracted out to independent businesses. In such instances, the DNR employees and the wages and salaries they earned were counted as part of the first round indirect market benefits. These impacts were included under the asset class in which they were working (e.g., forest assets) and not under Administrative assets.



Monetary (Permanent Fund) Assets are investments managed by the Washington State Investment Board and represent only a small part of WISB investment management activities. It is assumed that these funds do not require additional stock brokers or fund managers.

Communication Resources consist of communication relay stations that operate without onsite employment during normal operations. These sites are generally maintained by DNR staff.

Agricultural Resources Asset Class

DESCRIPTION

The indirect market benefits of DNR-managed Agricultural Resources assets are derived from growers who lease lands from DNR and use them for the production of cash grains, other field crops, vegetables, fruits, melons, tree nuts, horticultural specialty crops and others. The benefits of Jobs, Income and Taxes are summarized below:

MARKET INDIRECT BENEFITS CONCLUSIONS

Exhibit 5-3
Agricultural Resources
Market Indirect Benefits Valuation

	Total Indirect Benefits	First Round Indirect Benefits	Interindustry (Multiplier) Indirect Benefits
Jobs Generated	4,500	1,500	3,000
Wage & Salary Income Earned	$31,966,000	$14,286,000	$17,680,000
Taxes Paid	$3,062,000	$1,368,000	$1,694,000

Source: Deloitte & Touch LLP

MARKET INDIRECT BENEFITS ESTIMATION PROCESS

The indirect market benefits from DNR-managed Agricultural Resources lands were estimated as follows:

(1) The list of agricultural leases and sharecropping agreements provided by DNR was consolidated by lessee establishment to eliminate multiple leases/agreements;

(2) The ratios of Jobs and Income per establishment in Washington State were calculated from Washington State Employment Security

(WSES) data at the 4-digit SIC level and multiplied by the agricultural establishments from step (1) to obtain first round indirect market Jobs and Income;

(3) First round indirect market Jobs and Income from step (2) were reduced by a factor of 0.75 based on an analysis of the 1992 Census of Agriculture and an estimate that growers in Washington State, on average, lease no more than 25% of the land they farm;

(4) Adjusted first round indirect market Jobs and Income were multiplied by the RIMS II multipliers (3.0496 and 2.2376, respectively) to obtain total indirect market benefits for Jobs and Income; and

(5) Taxes (first round and total) were estimated by: (a) applying the appropriate sales and use tax rates to the applicable portion of household Income (first round and total); and, (b) applying the appropriate business and occupation (B&O) tax rates to gross business revenues, determined as a multiple of Income (first round and total).

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

None Noted.

Commercial Real Estate Asset Class

DESCRIPTION

The indirect market benefits of DNR-managed Commercial Real Estate assets are derived from businesses that lease lands from DNR and use them to provide commercial services. The benefits of Jobs, Income and Taxes are summarized below:

MARKET INDIRECT BENEFITS CONCLUSIONS

Exhibit 5-4
Commercial Real Estate
Market Indirect Benefits Valuation

	Total Indirect Benefits	First Round Indirect Benefits	Interindustry (Multiplier) Indirect Benefits
Jobs Generated	2,800	1,900	900
Wage & Salary Income Earned	$70,395,000	$42,542,000	$27,853,000
Taxes Paid	$6,742,000	$4,075,000	$2,667,000

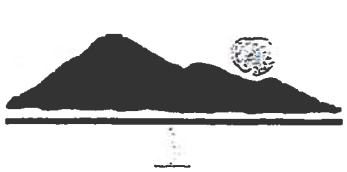
Source: Deloitte & Touche LLP

MARKET INDIRECT BENEFITS ESTIMATION PROCESS

The indirect market benefits from DNR-managed Commercial Real Estate lands were estimated as follows:

(1) The list of Commercial Real Estate leases and agreements provided by DNR was consolidated by lessee establishment to eliminate multiple leases/agreements;

(2) First round indirect market Jobs and Income were calculated from the ratio of Jobs and Income per establishment in Washington



State, as reported by the Washington State Employment Security Department (WSES), at the 4-digit SIC level, multiplied by the Commercial Real Estate establishments from step (1);

(3) Total indirect market benefits were calculated by multiplying the first round indirect market Jobs and Income by the RIMS II multipliers (1.4959 and 1.6547, respectively); and

(4) Taxes (first round and total) were estimated by: (a) applying the appropriate sales and use tax rates to the applicable portion of household Income (first round and total); and, (b) applying the appropriate business and occupation (B&O) tax rates to gross business revenues, determined as a multiple of Income (first round and total).

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

None noted.

Forest Resources Asset Class

DESCRIPTION

The indirect market benefits of DNR-managed Forest Resources assets are derived from establishments that purchase the rights to harvest timber from DNR, as well as establishments that receive DNR contracts to engage in silviculture activities (forest management activities, such as thinning, fertilizing, planting and spraying). The benefits of Jobs, Income and Taxes are summarized below:

MARKET INDIRECT BENEFITS CONCLUSIONS

Exhibit 5-5
Forest Resources
Market Indirect Benefits Valuation

	Total Indirect Benefits	First Round Indirect Benefits	Interindustry (Multiplier) Indirect Benefits
Jobs Generated	7,900	1,600	6,300
Wage & Salary Income Earned	$170,373,000	$47,126,000	$123,247,000
Taxes Paid	$25,364,000	$13,560,000	$11,804,000

Source: Deloitte & Touche LLP

MARKET INDIRECT BENEFITS ESTIMATION PROCESS

The indirect market benefits from DNR-managed Forest Resources lands were estimated as follows:

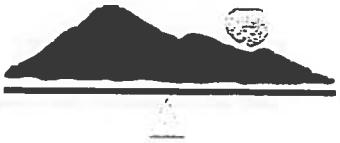
(1) The list of Forest Resources contracts and agreements provided by DNR was consolidated by establishment to eliminate multiple agreements and stratified into two classifications—logging and silviculture activities;

(2) First round indirect market Jobs and Income were calculated in tw ways. For the logging strata, they were calculated as the ratio of Jobs (wages and salaries) per million board feet (MMBF) harvested, multiplied the average annual MMBF harvested on DNR-managed lands. For the silviculture activities strata, they were calculated as the ratio of Jobs (wages and salaries) per acre of forest tended times the average annual number of forest acres tended;

(3) Total indirect markets benefits were calculated by multiplying first round indirect market Jobs and Income by the RIMS II multipliers on the following page:

	Jobs	Income
Logging	5.1072	3.7329
Silviculture activities	1.5397	1.9910

(4) Taxes (first round and total) were estimated by: (a) applying the appropriate sales and use tax rates to the applicable portion of household Income (first round and total); and, (b) applying the appropriate business and occupation (B&O) tax rates to gross business revenues, determined as a multiple of Income (first round and total). Timber severance taxes were directly from DNR's tax collection records for its Forest Resources timber sale contracts.



LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

DNR accomplishes forest silviculture activities such as thinning, fertilizing, planting and spraying on its lands by: (a) doing the work under contract; (b) using DNR employees; and, (c) using state prisoners who have been assigned to forest work camps. The indirect market benefits for Forest Resource lands contained in the analysis include the Jobs, Income and Taxes paid only for the first two categories of workers. State prisoners are clearly an indirect market benefit. However, it was not clear whether the value of the benefit should be calculated as the opportunity cost of the work they perform or the value to the prison system of the work therapy they receive. The analysis of indirect market benefits attributable to prisoner work time was beyond the scope of this analysis.

Exhibit 5-6
Forest Resources
Market Benefits Indirect Valuation

	Total Indirect Benefits	First Round Indirect Benefits	Interindustry (Multiplier) Indirect Benefits
Total Jobs Generated	**7,900**	**1,600**	**6,300**
Logging	7,600	1,500	6,100
Silviculture	300	100	200
Total Wage & Salary Income Earned	**$170,362,000**	**$47,126,000**	**$123,236,000**
Logging	$164,039,000	$43,944,000	$120,095,000
Silviculture	$6,323,000	$3,182,000	$3,141,000
Total Taxes Paid	**$25,364,000**	**$13,560,000**	**$11,804,000**
Logging	$24,758,000	$13,255,000	$11,503,000
Silviculture	$606,000	$305,000	$301,000

Source: Deloitte & Touche LLP

Grazing Lands Asset Class

DESCRIPTION

The indirect market benefits of DNR-managed Grazing Land assets are derived from establishments such as farms, ranches and dairies engaged in the keeping, grazing and feeding of livestock. The benefits of Jobs, Income and Taxes are summarized below:

MARKET INDIRECT BENEFITS CONCLUSIONS

Exhibit 5-7
Grazing Lands
Market Indirect Benefits Valuation

	Total Indirect Benefits	First Round Indirect Benefits	Interindustry (Multiplier) Indirect Benefits
Jobs Generated	2,000	1,200	800
Wage & Salary Income Earned	$40,486,000	$19,569,000	$20,917,000
Taxes Paid	$3,878,000	$1,875,000	$2,003,000

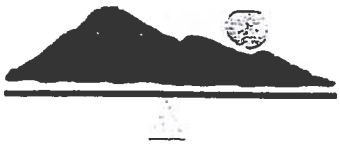
Source: Deloitte & Touche LLP

MARKET INDIRECT BENEFITS ESTIMATION PROCESS

The indirect market benefits from DNR-managed Grazing Lands were estimated as follows:

(1) The list of Grazing Lands leases and agreements provided by DNR was consolidated by lessee establishment to eliminate multiple leases/agreements;

(2) The ratios of Jobs and Income per establishment in Washington State were calculated from Washington State Employment Security (WSES) data at the 4-digit SIC level and multiplied by the Grazing



Lands establishments from step (1) to obtain first round indirect market Jobs and Income;

(3) First round indirect market Jobs and Income from step (2) were reduced by a factor of 0.75 based on an analysis of the 1992 Census of Agriculture and an estimate that establishments in Washington State that engaged in the keeping, grazing and feeding of livestock own at least 75% of the land they operate;

(4) Total indirect markets benefits were calculated by multiplying first round indirect market Jobs and Income by the RIMS II multipliers (1.7020 and 2.0689, respectively); and

(5) Taxes (first round and total) were estimated by: (a) applying the appropriate sales and use tax rates to the applicable portion of household Income (first round and total); and, (b) applying the appropriate business and occupation (B&O) tax rates to gross business revenues, determined as a multiple of Income (first round and total).

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

None noted.

Mineral Resources Asset Class

DESCRIPTION

The indirect market benefits of DNR-managed Mineral Resources assets are derived from companies engaged in the exploration, development and extraction of minerals from the ground. The term is also used to include quarrying, milling and other preparations customarily done at the mine site or as part of mining activity. The benefits of Jobs, Income and Taxes are summarized below:

MARKET INDIRECT BENEFITS CONCLUSIONS

Exhibit 5-8
Mineral Resources
Market Indirect Benefits Valuation

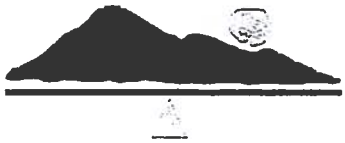
	Total Indirect Benefits	First Round Indirect Benefits	Interindustry (Multiplier) Indirect Benefits
Jobs Generated	400	200	200
Wage & Salary Income Earned	$18,312,000	$10,241,000	$8,071,000
Taxes Paid	$1,754,000	$980,000	$774,000

Source: Deloitte & Touche LLP

MARKET INDIRECT BENEFITS ESTIMATION PROCESS

The indirect market benefits from DNR-managed Mineral Resources lands were estimated as follows:

(1) The list of Mineral Resources leases and agreements provided by DNR was consolidated by lessee establishment to eliminate multiple leases/agreements;



(2) First round indirect market Jobs and Income were calculated fr the ratios of Jobs and Income per establishment in Washington State (obtained from Washington State Jobs Security at the 4-digit SIC level) and multiplied by the number of Mineral Resources establishments from step (1);

(3) Total indirect market Jobs and Income were calculated by multiplying the first round indirect market Jobs and Income by the RIMS II multipliers (1.9863 and 1.7880, respectively); and

(4) Taxes (first round and total) were estimated by: (a) applying the appropriate sales and use tax rates to the applicable portion of household Income (first round and total); and, (b) applying the appropriate business and occupation (B&O) tax rates to gross business revenues, determined as a multiple of Income (first round and total).

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

None noted.

Aquatic Resources Asset Class

DESCRIPTION

The indirect market benefits of DNR-managed Aquatic Resources assets are derived from establishments that lease lands from DNR and use them for the production of goods and services. Such establishments include marinas, boat building and repair companies, companies engaged in the harvesting of geoducks and other shellfish, gravel and fill mining companies, water transportation services companies, and miscellaneous companies using aquatic lands. The benefits of Jobs, Income and Taxes are summarized below:

MARKET INDIRECT BENEFITS CONCLUSIONS

Exhibit 5-9
Aquatic Resources
Market Indirect Benefits Valuation

	Total Indirect Benefits	First Round Indirect Benefits	Interindustry (Multiplier) Indirect Benefits
Jobs Generated	15,200	4,400	10,800
Wage & Salary Income Earned	$413,988,000	$161,891,000	$252,097,000
Taxes Paid	$40,249,000	$16,104,000	$24,145,000

Source: Deloitte & Touche LLP

MARKET INDIRECT BENEFITS ESTIMATION PROCESS

The indirect market benefits from DNR-managed Aquatic Resources were estimated as follows:

(1) The list of aquatic leases, contracts and agreements provided by

DNR was consolidated by lessee establishment to elimina multiple leases/agreements and stratified into the following classifications: (a) marinas; (b) boat building and repair; (c) geoducks and other shellfish; (d) gravel and fill mining companies; and, (e) transportation services and miscellaneous companies;

(2) First round indirect market Jobs and Income were calculated as the ratio of Jobs and Income per establishment in Washington State, multiplied separately for each of the strata of aquatic establishments from step (1), from data at the 4-digit SIC level obtained from Washington State Employment Security (WSES);

(3) Total indirect market Jobs and Income were calculated by multiplying the first round benefits by the following RIMS II multipliers:

	Jobs	Income
Marinas	3.7373	2.6364
Boat building/repair	2.1339	1.6591
Geoducks/other shellfish	2.9582	2.0487
Gravel/fill mining	2.0130	1.8675
Transportation services/misc.	3.7373	2.6364

(4) Taxes (first round and total) were estimated by: (a) applying the appropriate sales and use tax rates to the applicable portion of household Income (first round and total); and, (b) applying the appropriate business and occupation (B&O) tax rates to gross

business revenues, determined as a multiple of Income (first round and total). Leasehold taxes came directly from DNR data on its aquatic leases.

Exhibit 5-10
Aquatic Resources
Market Indirect Benefits Valuation

	Total Indirect Benefits	First Round Indirect Benefits	Interindustry (Multiplier) Indirect Benefits
Total Jobs Generated	**15,200**	**4,400**	**10,800**
Marinas	3,700	1,000	2,700
Boat Building/Repairing	400	200	200
Geoducks/Other Shellfish	200	100	100
Gravel/Fill Mining	600	300	300
Transportation Services & Misc.	10,300	2,800	7,500
Total Wage & Salary Income Earned	**$413,988,000**	**$161,891,000**	**$252,097,000**
Marinas	$44,925,000	$17,040,000	$27,885,000
Boat Building/Repairing	$9,246,000	$5,573,000	$3,673,000
Geoducks/Other Shellfish	$1,027,000	$501,000	$526,000
Gravel/Fill Mining	$17,197,000	$9,209,000	$7,988,000
Transportation Services & Misc.	$341,593,000	$129,568,000	$212,025,000
Total Taxes Paid	**$40,249,000**	**$16,104,000**	**$24,145,000**
Marinas	$4,303,000	$1,632,000	$2,671,000
Boat Building/Repairing	$886,000	$534,000	$352,000
Geoducks/Other Shellfish	$99,000	$48,000	$51,000
Gravel/Fill Mining	$1,647,000	$882,000	$765,000
Transportation Services & Misc.	$32,717,000	$12,410,000	$20,307,000

Source: Deloitte & Touche LLP

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

The Washington legislature has established a formula to be used in charging rent for most aquatic land leases. It generally assumes that the aquatic land value is 30% of the assessed value of the adjacent upland parcel. This may represent an indirect market benefit to the DNR leaseholder depending on the assessed value and on how much of the below-market-value cost saving is passed forward to consumers. While recognizing the potential value of this indirect market benefit, the estimation of its dollar value is beyond the scope of this analysis.

NON-MARKET INDIRECT JOB, WAGE & TAX BENEFITS

This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

INTRODUCTION

Non-market benefits are activities or experiences which people value, but for which they do not pay a fee. There are two types of non-market benefits:

Active non-market benefits are derived from activities that involve traveling to or through DNR-managed lands without paying a user fee, for the purpose of engaging in some type of recreational activity, such as fishing, hunting, camping, backpacking or sightseeing.

Passive non-market benefits are derived from a *state of well being* that is enhanced by the existence of lands and waters managed by DNR, such as the pleasure a Washington State resident might experience from knowledge that old growth forests still exist or the enjoyment a business traveler driving across the state might experience when passing through DNR-managed lands.

For these purposes, the critical difference between active and passive non-market benefits is that passive non-market benefits do not involve purposeful behavior (driving to an area to hunt or fish, buying equipment to

camp or backpack, staying overnight at a hotel/motel while on a sightseeing trip) and, consequently, do not generate spending attributable to a benefit producing experience. Business travelers would behave the same way and spend the same amount of money whether or not they experience the enjoyment of passing through DNR-managed forest lands on the way to visiting a customer. Since indirect benefits include employment, Income, and taxes paid to state and local governments specifically as a result of activity that takes place on DNR-managed lands, these benefits only occur with respect to activity associated with active non-market benefits.

As such, the methodology for estimating active non-market benefits is similar to that for market benefits. The only difference is that the impacts on Jobs, Income and Taxes are derived from the relationships among these variables and the number of user-days occurring on DNR-managed land for recreational use (non-market) rather than economic use (market). Data on these relationships was obtained from the Washington State Department of Community, Trade and Economic Development (CTED).

NON-MARKET INDIRECT BENEFITS SUMMARY

The Market Indirect Benefits are summarized on the following page:

EXHIBIT 5-11
SUMMARY OF NON-MARKET INDIRECT BENEFITS
GENERATED BY ACTIVITY OCCURRING ON DNR-MANAGED LANDS

	Wage & Salary Income Earned			Taxes Paid			Jobs Generated		
	Total Impact	1st Round Impact	Interindustry (multiplier) Impact	Total Impact	1st Round Impact	Interindustry (multiplier) Impact	Total Impact	1st Round Impact	Interindustry (multiplier) Impact
TOTAL	**$80,773,300**	**$44,479,200**	**$36,294,100**	**$30,912,200**	**$17,022,600**	**$13,889,600**	**9,050**	**5,880**	**3,170**
Agricultural Resources	$432,300	$238,100	$194,200	$238,100	$131,100	$107,000	70	50	20
Commercial Real Estate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Communications Resources	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forest Resources	$54,597,600	$30,065,000	$24,532,600	$21,638,000	$11,915,700	$9,722,300	6,340	4,120	2,220
Grazing Lands	$5,009,600	$2,758,600	$2,251,000	$1,752,600	$965,100	$787,500	510	330	180
Monetary (Perm. Fund) Assets	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mineral Resources	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aquatic Resources	$20,245,700	$11,148,700	$9,097,000	$7,099,100	$3,909,200	$3,189,900	2,080	1,350	730
Natural Preserve/ Conservation Areas	$488,100	$268,800	$219,300	$184,400	$101,500	$82,900	50	30	20
Administration Resources	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: Deloitte & Touche LLP

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS	None Noted.
ASSET CLASSES NOT EVALUATED	COMMERCIAL REAL ESTATE COMMUNICATION RESOURCES MONETARY (PERMANENT FUND) ASSETS MINERAL RESOURCES ADMINISTRATIVE RESOURCES

Agricultural Resources Asset Class

DESCRIPTION

The indirect non-market benefits of DNR-managed Agricultural Resources assets are derived from persons who visit DNR-managed agricultural lands for purposes of scenic viewing or nature photography and the resultant user-days of activity. The benefits of Jobs, Income and Taxes are summarized below:

NON-MARKET INDIRECT BENEFITS CONCLUSIONS

Exhibit 5-12
Agricultural Resources
Non-Market Indirect Benefits Valuation

	Total Indirect Benefits	First Round Indirect Benefits	Interindustry (Multiplier) Indirect Benefits
Jobs Generated	70	50	20
Wage & Salary Income Earned	$432,300	$238,100	$194,200
Taxes Paid	$238,100	$131,100	$107,000

Source: Deloitte & Touche LLP

NON-MARKET INDIRECT BENEFITS ESTIMATION PROCESS

The indirect non-market benefits from DNR-managed Agricultural Resources lands were estimated as follows:

(1) The list of user-days on DNR-managed land, by type of activity, was obtained from the analysis of non-market benefits contained in Chapter 4 of this analysis;

(2) The Jobs, Income and Taxes paid per user-day, by type of activity, were obtained from the Washington State Department of Community, Trade & Economic Development (CTED); *Washington*

Travel Impacts & Visitor Volume (1994); and the U.S. Census *National Survey of Fishing, Hunting and Wildlife* (1991, updated for price level changes);

(3) User-days were then multiplied by the factors in (2) above to obtain first round Jobs, Income and Taxes; and

(4) First round indirect non-market Jobs, Income and Taxes were multiplied by their respective composite RIMS II multipliers (1.40, 1.87 and 1.87) to obtain total indirect markets benefits. The composite multipliers incorporated the different multiplier effects for the various types of activities.

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

None noted.

Forest Resources Asset Class

DESCRIPTION

The indirect non-market benefits of DNR-managed Forest Resources assets are derived from persons who have visited DNR-managed forest lands for purposes of fishing, hunting, camping and other outdoor recreational activities. The benefits of Jobs, Income and Taxes are summarized below:

NON-MARKET INDIRECT BENEFITS CONCLUSIONS

Exhibit 5-13
Forest Resources
Non-Market Indirect Benefits Valuation

	Total Indirect Benefits	First Round Indirect Benefits	Interindustry (Multiplier) Indirect Benefits
Jobs Generated	6,340	4,120	2,220
Wage & Salary Income Earned	$54,597,600	$30,065,000	$24,532,600
Taxes Paid	$21,638,000	$11,915,700	$9,722,300

Source: Deloitte & Touche LLP

NON-MARKET INDIRECT BENEFITS ESTIMATION PROCESS

The indirect non-market benefits from DNR-managed Forest Resources lands were estimated as follows:

(1) The list of user-days on DNR-managed forest preserve lands, by type of activity, was obtained from the analysis of non-market benefits contained in Chapter 4 of this analysis;

(2) The Jobs, Income and Taxes paid per user-day, by type of activity, were obtained from the Washington State Department of

Community, Trade & Economic Development (CTED); *Washington Travel Impacts & Visitor Volume* (1994); and the U.S. Census, *National Survey of Fishing, Hunting and Wildlife* (1991, updated for price level changes);

(3) User-days were then multiplied by the factors in (2) above to obtain first round Jobs, Income and Taxes; and

(4) First round indirect non-market Jobs, Income, and Taxes were multiplied by their respective composite RIMS II multipliers to obtain total indirect markets benefits. The composite multipliers incorporated the different multiplier effects for the various types of activities.

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

None noted.

Grazing Lands Asset Class

DESCRIPTION

The indirect non-market benefits of DNR-managed Grazing Land assets are derived from persons who have visited DNR-managed grazing lands for purposes of fishing, hunting (except on active pasture/grazing land) and other outdoor recreational activities. The benefits of Jobs, Income and Taxes are summarized below:

NON-MARKET INDIRECT BENEFITS CONCLUSIONS

Exhibit 5-14
Grazing Lands
Non-Market Indirect Benefits Valuation

	Total Indirect Benefits	First Round Indirect Benefits	Interindustry (Multiplier) Indirect Benefits
Jobs Generated	510	330	180
Wage & Salary Income Earned	$5,009,600	$2,758,600	$2,251,000
Taxes Paid	$1,752,600	$965,100	$787,500

Source: Deloitte & Touche LLP

NON-MARKET INDIRECT BENEFITS ESTIMATION PROCESS

The indirect non-market benefits from DNR-managed Grazing Lands were estimated as follows:

(1) The list of user-days on DNR-managed grazing lands, by type of activity, was obtained from the analysis of non-market benefits contained in Chapter 4 of this analysis;

(2) The Jobs, Income and Taxes paid per user-day, by type of activity, were obtained from the Washington State Department of

Community, Trade & Economic Development (CTED); *Washington Travel Impacts & Visitor Volume* (1994); and the U.S. Census, *National Survey of Fishing, Hunting and Wildlife* (1991, updated for price level changes);

(3) User-days were then multiplied by the factors in (2) above to obtain first round Jobs, Income and Taxes; and

(4) First round indirect non-market Jobs, Income and Taxes were multiplied by their respective composite RIMS II multipliers to obtain total indirect markets benefits. The composite multipliers incorporated the different multiplier effects for the various types of activities.

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

None noted.

Aquatic Resources Asset Class

DESCRIPTION

The indirect non-market benefits of DNR-managed Aquatic Resources are derived from persons who have visited DNR-managed aquatic lands for purposes of fishing, hunting and other outdoor recreational activities. The benefits of Jobs, Income and Taxes are summarized below:

NON-MARKET INDIRECT BENEFITS CONCLUSIONS

Exhibit 5-15
Aquatic Resources
Non-Market Indirect Benefits Valuation

	Total Indirect Benefits	First Round Indirect Benefits	Interindustry (Multiplier) Indirect Benefits
Total Jobs Generated	2,080	1,350	730
Total Wage & Salary Income Earned	$20,245,700	$11,148,700	$9,097,000
Taxes Paid	$7,099,100	$3,909,200	$3,189,900

Source: Deloitte & Touche LLP

NON-MARKET INDIRECT BENEFITS ESTIMATION PROCESS

The indirect non-market benefits from DNR-managed Aquatic Resources lands were estimated as follows:

(1) The list of user-days on DNR-managed aquatic lands, by type of activity, was obtained from the analysis of non-market benefits contained in Chapter 4 of this analysis;

(2) The Jobs, Income and Taxes paid per user-day, by type of activity, were obtained from the Washington State Department of Community, Trade & Economic Development (CTED); *Washington*

Travel Impacts & Visitor Volume (1994); and the U.S. Census *National Survey of Fishing, Hunting and Wildlife* (1991, updated for price level changes);

(3) User-days were then multiplied by the factors in (2) above to obtain first round Jobs, Income and Taxes; and

(4) First round indirect non-market Jobs, Income and Taxes were multiplied by their respective composite RIMS II multipliers to obtain total indirect markets benefits. The composite multipliers incorporated the different multiplier effects for the various types of activities.

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

The Washington legislature has established a formula to be used in charging rent for most aquatic land leases. It generally assumes that the aquatic land value is 30% of the assessed value of the adjacent upland parcel. This may represent an indirect market benefit to the DNR leaseholder depending on the assessed value and on how much of the below-market-value cost saving is passed forward to consumers. While recognizing the potential value of this indirect market benefit, the estimation of its dollar value is beyond the scope of this analysis.

Natural Preserve/Conservation Areas Asset Class

DESCRIPTION

The indirect non-market benefits of DNR-managed Natural Preserve/Conservation Areas assets are derived from persons who have visited DNR-managed Natural Resource Conservation Area (NRCA) lands for purposes of camping, sightseeing and other outdoor recreational activities. Natural Area Preserves (NAP) are generally restricted from public access. The benefits of Jobs, Income and Taxes are summarized below:

NON-MARKET INDIRECT BENEFITS CONCLUSION

Exhibit 5-16
Natural Preserve/Conservation Areas Class
Non-Market Indirect Benefits Valuation

	Total Indirect Benefits	First Round Indirect Benefits	Interindustry (Multiplier) Indirect Benefits
Jobs Generated	50	30	20
Wage & Salary Income Earned	$488,100	$268,800	$219,300
Taxes Paid	$184,400	$101,500	$82,900

Source: Deloitte & Touche LLP

NON-MARKET INDIRECT BENEFITS ESTIMATION PROCESS

The indirect non-market benefits from the NRCA portion of DNR-managed Natural Preserve/Conservation Areas lands were estimated as follows:

(1) The list of user-days on DNR-managed NRCA lands, by type of activity, was obtained from the analysis of non-market benefits contained in Chapter 4 of this analysis;

(2) The Jobs, Income and Taxes paid per user-day, by type of activity were obtained from the Washington State Department of Community, Trade & Economic Development (CTED); *Washington Travel Impacts & Visitor Volume* (1994); and the U.S. Census, *National Survey of Fishing, Hunting and Wildlife* (1991, updated for price level changes);

(3) User-days were then multiplied by the factors in (2) above to obtain first round Jobs, Income and Taxes; and

(4) First round indirect non-market Jobs, Income and Taxes were multiplied by their respective composite RIMS II multipliers to obtain total indirect markets benefits. The composite multiplier incorporated the different multiplier effects for the various types of activities.

LIMITING CONDITIONS & SPECIAL ASSUMPTIONS

Natural Area Preserves (NAP) are generally not accessible to the public. NRCA's are limited to low-impact recreation.

PORTFOLIO MANAGEMENT ISSUES

This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

INTRODUCTION

In this section of our study, we review a number of issues related to the management of DNR-managed lands as a financial portfolio. Identified areas of review include an inventory of relevant department management strategies, a review of the historic return on State permanent funds, the potential for enhanced tax revenues on land which is now regarded as "low income producing", and finally, a portfolio analysis, intended to provide a general overview of the performance of the Trust portfolio, and opportunities and challenges to enhancing the financial performance of the portfolio.

MANAGEMENT STRATEGIES

In the inventory of management strategies, an overview of existing policy documents is presented for the purpose of identifying those strategies which are either common or unique to specific classes of assets.

RETURN ON STATE PERMANENT FUNDS

Our review of the investment experience of the Washington State Investment Board (WSIB) in its Monetary (Permanent Fund) Assets occurs here. The purpose of this review is to understand how State investments have been performing, and the extent to which they establish a performance benchmark which may be beneficial in assessing overall portfolio performance, opportunities and challenges.

STATE & LOCAL TAX REVENUE POTENTIAL

An overview analysis of the State and local tax implications of public versus private ownership of DNR-managed lands currently viewed by DNR as low-income-producing is presented. Lands in the Grazing Lands and Agriculture Resources asset classes have been identified by the DNR for this consideration.

PORTFOLIO ANALYSIS

Portfolio theory is generally applied to eight of the DNR and WSIB-managed assets generating returns, excluding Administrative Resources and Natural Preserve/Conservation Areas. Individual asset class investment characteristics, values and returns previously discussed herein, along with the implications of the Economic Trend Analysis in the following chapter, formed the basis for this analysis of the DNR-managed portfolio of assets.

ASSET CLASS MANAGEMENT STRATEGIES

INTRODUCTION

An organization's strategic planning process begins with a mission statement. A mission statement describes and defines the purpose, goals and values of an organization and provides the foundation of an organization's strategic plan. The strategic plan outlines the specific management strategies and actions required to fulfill the organization's mission. It is a detailed, action-oriented document outlining the specific steps and performance objectives to be used by the organization as it moves into the future. Operating policies and procedures would then be established for directing the actual implementation of the strategic plan. An overview of the DNR's management policies, as reflective of strategic planning, is contained herein.

In recent years, DNR management has undertaken a series of strategic planning processes in order to define its overall mission and specific management strategies for the various categories of DNR-managed assets. In the process, DNR management has produced various "policy plans" and "strategic plans" over the past seven years that form the basis for this analysis. The elements of the DNR strategic plan and related management strategies are briefly summarized in the following sections.

MISSION STATEMENT The DNR has crafted its Mission Statement generally as follows:

- Generate long-term sustainable revenue for designated public trust beneficiaries and assure healthy resources so future generations of beneficiaries and residents will enjoy the benefits that we enjoy today.[1]

- Set overall directions for statewide resources management and resource protection in keeping with policies adopted by the Legislature and the independent boards.[2]

- Provide additional management and services in conjunction with various asset-related matters and issues mandated by State statutes and policies for the overall protection, preservation and benefit of the State's natural resources. This includes a wide variety of tasks in addition to basic resource asset management, such as: i) environmental and eco-system maintenance and preservation programs; ii) wildfire prevention, training and suppression efforts; iii) watershed restoration projects; iv) aquatic land enhancement programs; v) clean air programs; and, vi) other similar programs.[3]

ASSET CLASSES The following is our understanding of the specific goals that the department staff has established for each asset class, based on the various strategic and policy plans reviewed for this analysis. A recitation of the specific

[1] "Our Lands - Our Future," DNR Asset Stewardship Planning Forum, January 1996.
[2] ibid.
[3] Department of Natural Resources, 1995 Annual Report.

action items that DNR uses to achieve each of these goals is beyond the scope of this report, so these items are not presented.

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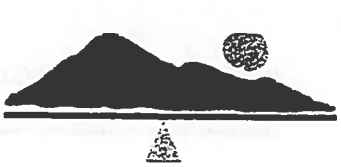

Agricultural Resources & Grazing Lands Asset Classes

Agricultural Resources and Grazing Lands Asset Classes are treated by DNR within the same management program. Key combined management strategies[4] are summarized as follows:

- **Management of the Land Base:** Manage lands through leasing or other means to balance both short- and long-term incomes and to optimize asset values and opportunities, within acceptable levels of risk, that benefit the trusts. Alter the composition and location of the land base when the transition benefits the trusts. Maintain a broad and diversified land base by acquiring lands to replace disposed properties.
- **Land Use Conversion:** Change the use of property to highest and best use when the capitalized value of expected net lease revenues and asset values are substantially greater than those of the current use.
- **Capital Investments by the Department and Others:** Make or authorize capital investments on agricultural and grazing lands to enhance the income and asset value when such investments are in the best interest of the trust beneficiaries and meet acceptable financial and risk criteria.
- **Lease Management**: Offer Agricultural and grazing lands for lease in a manner that is cost-effective, provides public notice and opportunity to acquire, and results in awarding the lease to those who will optimize the

[4] Agricultural and Grazing Lands Program, Final Policy Plan, December, 1988.

long-term return to the trust beneficiaries and enhance the productivity the resource base.

- **Woodland Grazing:** Integrate forage and timber management to provide the most favorable short- and long-term economic return to the trust beneficiaries. Employ a cost-effective, flexible woodland grazing management system to provide sustained optimum resource production and protection.
- **Environmental Review and Resource Protection:** Comply with the State Environmental Policy Act (SEPA) by managing activities on trust agricultural and grazing lands through a phased review process, including management of soil, vegetation, water resources, riparian zones, critical species (endangered, threatened and sensitive) and archeological and cultural resources.
- **External Relations and Staff Development:** Actively promote and maintain long-term relationships with public and private organizations that affect the agricultural and grazing program.

Commercial Real Estate Asset Class

The Commercial Real Estate Asset Class consists of two distinct property types:

1. **Leased Land and Buildings, and Undeveloped Urban Lands** Management strategies for this property type were not reviewed as part of our analysis However, they are assumed to be appropriate for the type of relatively passive ground-lease activities or undeveloped urban lands that represent the bulk of non-transition lands in this asset class.
2. **Undeveloped Rural "Transition" Lands** Beginning in the 1960's, public concern arose regarding commercial management proposals on State-owned trust lands. By 1976, DNR had established a responsive transition land management program and identified certain rural acreage (mostly forest lands) as having urban development potential within the next 10 to 40 years and, therefore, began to manage related forestry activities accordingly to avoid harvest activity conflicts. More recently, the Growth Management Act (GMA) has identified the applicable planning period as 20 years. In order to meet longer-term (up to 20 years) enhanced urban land use goals for transition lands, DNR employs key related Transition Lands management strategies[5] are summarized as follows:

[5] Transition Lands, Final Policy Plan, June, 1988.

- **Transition Land Management:** Seek interim uses that will fully utilize the current potential of the property yet preserve and enhance the qualities that will attract higher and better future uses. Promote, explore and develop new market opportunities.

- **Capital Investment Program:** Identify levels and types of capital expenditures that will maximize current interim financial returns and enhance future financial returns within specifically established reasonable risk/return guidelines.

- **Environmental and Resource Management:** Provide for environmental protection and management of natural resources on transition lands in a manner consistent with the intended future us of the lands.

Communication Resources Asset Class

The Communication Resources Asset Class is a relatively new category in the longer-term DNR prospective and does not have extensive written strategic planning documentation. However, based on discussions with relevant staff and limited available documentation[6], key management strategies are summarized as follows:

- **Communication Site Strategy:** Utilize otherwise unusable portions of mountain-top trust lands to satisfy the demand for mountain-top communication sites resulting from increased public awareness and commercial applications of two-way radio, microwave, TV, FM and cellular communications.

- **Capital Investment:** Provide ground sites and in some instances buildings and towers that are designed to meet the needs of available users.

- **Lease Management**: Offer communication sites for lease in a manner that is cost-effective, provides industry and individual opportunities to acquire, and results in awarding the lease to those who will optimize the long-term return to the trust beneficiaries and enhance the productivity of the resource base.

[6] Department of Natural Resources Mountain Top Communication Sites, June 1993

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Forest Resources Asset Class

The Forest Resources Asset Class is by far the largest and most significantly productive Upland Trust asset. While there were several earlier versions, the most recent July 1992 Forest Resources Policy Plan provides good insight into the key management strategies[7], which are summarized as follows:

- **Summary Management Strategy:** The primary strategy of the Forest Resources Plan is to conserve and enhance the natural resources of state forest land while producing long-term, stable income from these lands.

- **General Management:** The department seeks to create and/or maintain its holdings in large, contiguous blocks, rather that in small, isolated tracts, so as to allow the department to plan more efficiently, reduce costs and establish more compatible uses with neighbors. The department will maintain a diversified base of Federal Grant Lands and perpetuate a productive forest base of Forest Board Lands. In deciding whether to sell (except Forest Board Lands), exchange or acquire lands, the department will balance economic returns and trust benefits with future expected returns and benefits.

[7] Forest Resource Plan, Final Policy Plan, July 1992.

- **Harvest Regulation:** The department will: i) manage state forest la to produce a sustainable, even-flow harvest of timber, subject to economic, environmental and regulatory considerations; ii) calculate harvests based on volume rather that acreage or other considerations; and, iii) establish sustained, even-flow harvest levels within specified Western and Eastern Washington "ownership groups."

- **Trust Asset Protection:** The department will: i) incorporate forest health practices into the management of state forest land to bring about a net benefit through the reduction or prevention of significant forest resource losses from insects, diseases, animals and other similar threats to trust assets; and, ii) supplement the state's fire protection program to bring about a net benefit through the reduction of signific resource losses from wildfire on department-managed land.

- **Financial:** The department will manage on-base forest lands at different levels of intensity depending on biological productivity and economic potential. Investment decisions will be made according to expected returns.

- **Special Lands:** The department will identify state forest lands with special ecological features that fill critical gaps in ecosystem diversity and seek legislation and funding to remove these lands from trust ownership. Limitations on harvesting selected "old growth research stands" in Western Washington and "a diverse gene pool of native trees" on state forest lands will allow ongoing timber management research.

- **Aquatic Systems:** The department will consider the effects timber cutting and related road construction and other activities have on: i) watersheds, including water quality and quantity; ii) riparian areas, including water quality, fish, wildlife habitat and sensitive plant species; and iii) wetlands, allowing no overall net loss of naturally occurring wetland acreage and function.

- **Wildlife Habitats and Endangered Species:** The department will: i) provide wildlife habitat conditions that have the capacity to sustain native wildlife populations or communities; ii) meet federal and state statutory and regulatory requirements to protect endangered, threatened and sensitive species and their habitats; and, iii) voluntarily participate in efforts to recover and restore such species to the extent it is consistent with trust obligation.

- **Historic and Archaeological Sites:** The department will establish a program to identify and inventory historic and archaeological sites and

protect them at a level which, at a minimum, meets regulato requirements.

- **Public Access and Rights-of-Way:** The department will: i) provide public access for multiple uses on state forest lands, ii) grant rights-of-way to private individuals or entities when there is an opportunity for enhancing trust assets and when any detriments are offset, and, iii) acquire right-of-way access across private or other public lands to department-managed land when this access is needed to increase the value of trust assets or for management purposes.

- **Forest Recreation:** The department will allow recreation on state forest land when compatible with the objectives of the forest Resource Plan.

- **Silviculture:** The department will: i) plan and implement silviculture activities to meet trust responsibilities; ii) select the harvest method that produces the best mix of current and long-term income, achieves reforestation objectives and integrates non-timber resource objectives intended in the Forest Resource Plan; and, iii) reduce the impacts of clearcutting and certain even-aged silvicultural systems by generally limiting the size of harvest areas to a maximum of 100 acres, requiring "green-up" of adjacent areas before harvesting timber and employing other techniques to blend harvested areas into the landscape.

- **Implementation:** The department will: i) solicit comment from the

public, tribes and government agencies; ii) attempt, within budget constraints, to meet the key elements of the Policy Plan; and, iii) conduct applied research to monitor and evaluate silvicultural activities, test current practices and, where appropriate, initiate process for change.

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Monetary (Permanent Fund) Assets Class

The Monetary (Permanent Fund) Assets Class is managed by the Washington State Investment Board (WSIB), along with other similar funds invested by the State. In this context, key management strategies[8] of the WSIB are summarized as follows:

- **Returns:** The permanent funds' fixed income investments are to be managed to achieve the highest return possible consistent with the desire to emphasize high current yield to maturity opportunities and to add value through active management.

- **Stability of Income**: The permanent funds' fixed income investments are to emphasize stability of income to support the operations of each irreducible trust. The permanent funds' fixed income investments are to be actively managed to exceed the return of the Lehman Aggregate Bond Index. Fixed income assets are to be allocated across the various fixed income sectors based upon: 1) the strategic (long-term) allocation to each fixed income sector; and, 2) the available yield spreads relative to Treasuries versus historical norms.

[8] Washington State Investment Board Profile.

- **Added Value:** The fixed income assets are to be managed to add value principally through credit, valuation and interest rate level analysis. Value at the macro level is to be added through the allocation of cash flow to fixed income segments that offer the highest current yield to maturity spreads relative to their historical norms.

- **Internal Management:** Internal management is to be used unless special expertise is required or a special opportunity exists that can only be accessed by contracting with external managers.

- **Management Approach:** A two-tier macro/micro management approach is to be used to implement the portfolio strategies. The "macro" component is to include strategic, and some tactical, decision processes such as the allocation among different fixed income segments. The "micro" component will address security selection within each fixed income segment utilizing credit, duration and valuation analysis.

- **Bond Purchases:** Within fixed income segments, value is to be added by purchasing bonds where the yield spread over the U.S. Treasury yield curve is such that the expected risks of not realizing the promised yield spread, either from credit or call risk, do not materially reduce the expected yield benefit.

- **U.S. Treasury Issues:** Only when value cannot be found should U.S. Treasury issues be purchased. Under most market circumstances the fixed income segment will have a Treasury allocation well below its public market representation.

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Mineral Resources Asset Class

The Mineral Resources asset class does not have extensive written strategic planning documentation. However, based on discussions with relevant DNR staff, management strategies for the Mineral Resources asset class are as follows:

- **Known Deposits**: Monitor activities on existing deposits and periodically market new extraction activities.
- **Exploration**: Identify additional (currently unknown) deposits on land acquisitions and dispositions.

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Aquatic Resources Asset Class

The Aquatic Resources Asset Class is somewhat unique since it is made up mostly of submerged lands and is managed for the benefit of the general public at large, rather than for the specific Upland Trust Beneficiaries. Key management strategies[9] are summarized as follows:

- **Summary Management Strategy:** Aquatic lands will be managed: i) for current and future citizens of the state; ii) to sustain long-term ecosystem and economic viability; and, iii) to ensure access to the aquatic lands and the benefits derived from them.
- **Public Access:** Encourage public use and enjoyment of aquatic lands and waters for navigation, fishing and recreation.
- **Appropriate Resource Values:** Ensure fair compensation for use of, removal of resources from, or damage to state-owned aquatic lands and resources.
- **Cumulative Effects:** Meet stewardship responsibilities by limiting activities that, if repeated over time or geographic areas, may cause a negative cumulative effect to aquatic lands or asset values and actively encourage enhancement, mitigation and restoration of aquatic lands and resources.
- **Aquatic Lands Use Allocation:** Develop and implement comprehensive regional plans that establish the most appropriate use of

[9] Aquatic Lands, Strategic Plan, December 1992.

state-owned aquatic lands.

- **Asset Management:** Practice state-of-the-art property management with: i) an effective risk-management program; ii) defined management costs; iii) environmentally sound economic development; iv) a program to eliminate unauthorized use of state-owned aquatic lands in order to protect the state from liability claims; and, v) a program to actively assert the state's interests in pertinent legal cases affecting aquatic lands.
- **Contaminated Sediments:** Pursue clean-up of aquatic lands that have been highly ranked by EPA, Ecology and/or DNR as areas of concern, with minimum expense to the state. Prevent state-owned aquatic lands and associated resources from future contamination by implementing protective programs and policies.
- **Physical Improvements:** Clarify the state's policy for management of improvements on state-owned aquatic lands.
- **Stable Funding for Aquatic Lands Management:** The department will: i) seek funds for public services rendered to all citizens of the state, such as habitat protection measures, providing information from public land records, research and other management activities; ii) establish a program to evaluate potential grant funding sources and apply for applicable funding; iii) continue to define alternative funding sources and obtain funding; and, iv) coordinate funding actions with other available funding sources to maximize the public benefits.

Natural Preserve/Conservation Areas Asset Class

The Natural Preserve /Conservation Areas Asset Class is managed for the benefit of the general public at large, rather than for the specific Upland Trust Beneficiaries, and consists of two somewhat distinct property types:

1. **Natural Area Preserves (NAPs)** provide the highest level of protection for excellent examples of unique or typical natural features of Washington State. NAPs are generally restricted from public use.
2. **Natural Resource Conservation Areas (NRCAs)** are established to protect outstanding examples of native eco-systems, habitat for endangered, threatened and sensitive plants and animals, and scenic landscapes. NRCAs allow low-impact public use consistent with resource protection.

Key NRCA management strategies[10] are summarized as follows:

- **Summary NRCA Management Strategy:** The primary strategy of the NRCA Statewide Management Plan is to: i) protect outstanding examples of native eco-systems and habitat for endangered, threatened and sensitive plants and animals, and scenic landscapes; ii) give priority to areas with multiple features, such as geological and scenic areas, cultural resources and threatened sites; iii) provide opportunities

[10] Natural Resource Conservation Areas, Statewide Management Plan, September 1992.

for environmental education and low-impact public uses where su uses do not adversely affect the resource values the area was intended to protect; iv) make acquisitions with willing sellers only, with provisions for ample buffer areas so as not to impact adjacent lands; and, v) give natural resource-oriented purposes prevailing priority over public-oriented purpose.

- **Protection/Enhancement/Restoration, Low-Impact Use and Outdoor Environmental Education:** Prior to identifying areas with potential for low-impact public and environmental educational uses, the significant resources to be conserved and long-term maintenance, enhancement and restoration issues shall be addressed. Following such considerations, those areas with potential for low-impact public uses and outdoor environmental education, that do not detract from long-term ecological process, shall be identified.
- **Commodity-Based Activities:** Commodity-based activities, such as agricultural, grazing, aquaculture and certain mining and related activities, may be allowed within an NRCA if they are consistent with applicable conservation purposes and compatible with resource protection, authorized low-impact public use and environmental education
- **Stewardship Activities:** Activities and opportunities, such as weed control, forestry activities, fire management and fire protection, that enhance the protection, restoration, low-impact public use and outdoor

education of a site will be encouraged.

- **Cultural Resources:** Site management plans will consider what cultural resources (including historic and contemporary cultural use and archaeological resources) may be present on the NRCA and methods to protect those resources.
- **Other Activities:** Other activities, not identified as commodity based or stewardship, may be allowed if they enhance or are consistent with the NRCA Program's goals. Examples include: roads and parking areas; temporary leases and permits; fire/storm/flood damage mitigation; insect control; and program facilities.

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Administrative Resources Asset Class

The Administrative Resources Asset Class is generally managed for the purpose of supporting and facilitating the DNR mission of trust asset management and, as such, related management strategies are not within the scope of this analysis.

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RETURN ON STATE PERMANENT FUNDS

INTRODUCTION

The following summarizes the investment restrictions and constraints placed on the Washington State Investment Board (WSIB) in its management of the five permanent funds. All funds are to be invested in permissible securities, as defined later in this section. The five permanent funds are:

1. Fund 601 - Agriculture Permanent Fund: This is a permanent and irreducible fund. All interest earned from these investments must either be reinvested or used exclusively for the benefit and support of the Agricultural College at Washington State University.
2. Fund 604 - Normal School Permanent Account Fund: This is a permanent and irreducible fund. All interest earned from these investments must either be reinvested or used exclusively for the benefit and support of the normal schools: Eastern Washington University, Western Washington University, Central Washington University and The Evergreen State College.
3. Fund 605 - Permanent Common School Account Fund: This is a permanent and irreducible fund in the state treasury. Income derived from the fund is used for the support of the common schools.
4. Fund 606 - Scientific Permanent Account Fund. This is a permanent and irreducible fund. All interest earned from these investments must either be reinvested or used exclusively for the benefit of the scientific

school at Washington State University.

5. Fund 607 - State University Permanent Account Fund: This is a permanent fund; all interest earned from investments must either be reinvested or used exclusively for the benefit of the University of Washington.

GENERAL RESTRICTIONS

The WSIB funds are governed by state statute and all assets are to be invested to maximize return at a "prudent level of risk" (RCW 43.33A40). Furthermore, all of the funds, except for Fund 605 (Permanent Common School Account Fund), are restricted from investing in an ownership share of a private corporation. As such, these funds (601, 604, 606, 607) are limited to investment in bonds or other permissible non-corporate ownership securities. Fund 605 is also invested under the same "non-corporate ownership" guidelines in accordance with WISB policy. Included in the investment policies is the statement that no corporate fixed income issue shall exceed three percent (3%) of the cost or six percent (6%) of the market value of the fund (RCW 43.84.150).[11]

GENERAL INVESTMENT CRITERIA

Within the general restrictions noted above, there are ten permissible fixed income segments and instruments that the Washington State Investment Board may invest in on behalf of the five permanent funds. All must be investment grade, which is defined as rated BBB or higher by Standard and

[11] State Investment Board Adopted Policies: 2.25.100 (11/18/93).

Poor's and Baa3 or higher by Moody's. If rated by only one of those agencies, investment grade is defined as rated BBB or higher by Standard and Poor's or Baa3 or higher by Moody's.[12]

The ten permissible investment segments and instruments are:

1. U.S. Treasuries and Government Agencies, including derivative securities whose deliverable instrument is a U.S. Treasury or government obligation.
2. Investment Grade Corporate Bonds.
3. Investment Grade Publicly-Traded Mortgage-Backed Securities, including derivative securities whose deliverable instrument is a U.S. mortgage-backed security.
4. Privately-Placed Mortgages, including loans secured by single family residences, commercial whole loans and privately-placed, mortgage-backed securities.
5. Private Placement of corporate debt.
6. Investment Grade Asset Backed Securities.
7. Investment Grade Convertible Securities.
8. Yankee Bonds.

[12] ibid.

9. Eurodollar Bonds.

10. Non-Dollar Bonds.

Other fixed income segments and instruments may be added from time to time as they are developed or deemed appropriate. However, any additions must meet the "prudent level of risk" requirements and other restrictions at both the management and individual fund level, imposed by statute. Given the narrow parameters dictated by the legislation, investments that meet the guidelines are likely to be part of the above list.

RETURN ON INVESTMENT - PERMANENT FUNDS

The following table provided by the Bank of New York details the annual return on investments by fund. The table indicates that the range of the return on investments for the various funds within a given year is fai narrow, with the average spread over the past four years less than one hundred fifty basis points.

Exhibit 6-1
Bank of New York's Individual Permanent Fund Annual Returns

Period Ended	Fund 601	Fund 604	Fund 605	Fund 606	Fund 607
Jun-92	13.84%	13.13%	14.89%	13.18%	13.86%
Jun-93	10.24%	10.39%	13.03%	10.69%	11.52%
Jun-94	-1.51%	-1.50%	-1.27%	-1.43%	-1.86%
Jun-95	13.50%	13.20%	13.38%	13.04%	13.60%
Avg. Annual Return	8.83%	8.63%	9.80%	8.70%	9.08%

Source: Bank of New York

According to the Washington State Investment Board (WSIB) the method of calculating the annual rates of return above includes both income and capital appreciation, as follows:

- The investment base to which the annual income is compared (denominator of the return equation) is taken as the market value of the Permanent Fund at the beginning of the period (June 30th end of the prior fiscal year).
- The total annual investment income to be compared (numerator of the return equation) is taken as the interest/dividend income and capital appreciation realized by the fund over the fiscal year period.

- The interest/dividend income is all income received from fund investments before adjustment for amortization of net capital losses deferred in prior years.
- Capital appreciation (or depreciation) is the combined change in market value of the fund over the period (July 1 through June 30) less the amount of any capital contributions made to the fund from timber and land sales over the year. Any realized capital gains are added to the principal balances of the funds and are not part of this calculation.

Because of the narrow range of annual returns indicated above, a simple average of those reported annual rates of returns on investments provides meaningful information about the overall performance of the entire Monetary (Permanent Fund) Asset Class of the past few years. The following table is the average of the Bank of New York's reported annual rates of return.

Exhibit 6-2
Permanent Fund Historic Annual Rates of Return

Fiscal Year End	Permanent Funds*
June 1992	13.78%
June 1993	11.17%
June 1994	-1.51%
June 1995	13.34%
Average Annual Return	9.01%

* These estimations of annual rates of returns are before any reduction for prior years loss amortization.

Source: Deloitte & Touche LLP

The table above indicates the average annual return for the Monetary Assets class of the past four years reflects a variation of more than 1,500 basis points over the period (from nearly 14% positive to 1.5% negative) and averages approximately 9%.

POTENTIAL FUTURE RETURNS

Past returns are a reasonably good indicator of future returns and may be indicative of future performance.

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STATE & LOCAL TAX REVENUE POTENTIAL

INTRODUCTION

The purpose of this analysis is to identify DNR-managed land that is currently viewed as low-income-producing land, and to consider the potential future tax revenues from private ownership of such land, in accordance with the requirements of RCW 79.01.095. This analysis is performed in accordance with specific DNR instructions.

Currently, DNR manages approximately 534,000 acres of grazing land; this grazing land generates nearly $500,000 of gross revenue. With nearly all of the grazing land used during the course of the year, the indicated per acre average gross revenue is only $0.94 per acre per year. Lessees also pay an additional lease tax of approximately 12.84% of the lease rate, which in this case totals approximately $64,000 per year, or an average $0.12 per acre per year. In the market value analysis of the grazing land asset class elsewhere in this report, the average estimated market value for grazing land is approximately $250 per acre. There are numerous factors that influence and control the grazing lease rates that DNR may charge lessees, but the ratio of gross revenues to estimated market values indicates that grazing land is a low-income-producing asset.

Therefore, this analysis will measure the potential tax revenue from potential private ownership of grazing land. However, two analyses will be performed. The first analysis will examine the financial impact of converting

State-owned grazing land to private ownership. The second analysis will examine the financial impact of developing grazing land into irrigated annual row-crop acreage and then comparing the public ownership of the converted acreage to private ownership. Under both analyzes, the primary focus will be on the incremental tax revenues generated.

PUBLIC VERSUS PRIVATE GRAZING LAND

The following table outlines the assumptions and calculations under the first analysis: publicly owned grazing land versus privately owned grazing land.

Exhibit 6-3
Public versus Private Grazing Land

Property Type Property Owner	Grazing Land DNR-Managed (Public)	Grazing Land Private Ownership
Property Size (Acres)	1	1
Estimated Market Value per Acre	$250	$250
Assessed Value (100%)	N/A	$250
DNR Average Rent per Acre	$0.94	N/A
Real Estate Tax Mil Rate (per $000)	N/A	11.4
Lease Tax Rate	12.84%	N/A
Estimated Real Estate Tax	N/A	$2.85
Estimated Lease Tax	$0.12	N/A
Estimated Total Tax	$0.12	$2.85

Source: Deloitte & Touche LLP

The analysis above indicates the potential annual incremental tax increase from the conversion of public grazing land to private grazing land is $2.73 per acre per year.

PUBLIC VERSUS PRIVATE IRRIGATED AGRICULTURAL LAND

The DNR manages approximately 26,000 acres of irrigated annual row crop land; this land generates nearly $1,500,000 of gross revenue. The indicated per acre average gross revenue is approximately $60.00 per acre per year. Lessees also pay an additional lease tax of approximately 12.84% of the lease rate, which in this case totals approximately $200,000 per year or an average $7.70 per acre. In the market value analysis of the agricultural asset class elsewhere in this report, the average estimated market value for row crop land is approximately $1,300 per acre.

This analysis makes two assumptions: 1) grazing land is physically developed for irrigated row crop production, and 2) the cost of such conversion is equal for both the public sector and the private sector developers. As result, there is no incremental difference associated with the physical conversion. The following table outlines the assumptions and calculations under this analysis:

Exhibit 6-4
Public versus Private Irrigated Row Crop Agricultural Land

Property Type Property Owner	Row Crop DNR-Managed (Public)	Row Crop Private Ownership
Property Size (Acres)	1	1
Estimated Market Value per Acre	$1,300	$1,300
Assessed Value (100%)	N/A	$1,300
DNR Average Rent per Acre	$60	N/A
Real Estate Tax Mil Rate (per $000)	N/A	11.4
Lease Tax Rate	12.84%	N/A
Estimated Real Estate Tax	N/A	$14.82
Estimated Lease Tax	$7.70	N/A
Estimated Total Tax	$7.70	$14.82

Source: Deloitte & Touche LLP

The analysis above indicates the potential annual incremental tax increase from the conversion of public-owned grazing land to public-owned row-cr acreage, and private owned row crop acreage is $7.12 per acre per year.

PORTFOLIO ANALYSIS

INTRODUCTION

DNR requested a portfolio analysis based on the various asset classes that it manages on behalf of trust beneficiaries. This analysis is consistent with the current management practices of the agency that includes managing the various assets (Forestry Resources, Agricultural Resources, etc.) with a program that generally does not differentiate assets within an asset classes by underlying trust beneficial interest or "ownership."

DNR is a unique entity for a variety of reasons. It is a government agency that has been charged with a variety of duties, including the management of assets for the benefit of specific Trust Beneficiaries, supporting public uses on the DNR-managed lands consistent with the multiple-use statute, etc. Its predominant asset is Forest Resources, that gives it some of the characteristics of a single-asset company. The perpetual nature of the Forest Resources assets differentiates it from normal private trusts, and makes it more like a pension fund or perpetual trust.

There are a variety of bases for comparison that could be used in carrying out a portfolio analysis, such as:

- Institutional/Insurance Investment Portfolios or Public/Private Pension Fund Portfolios - mixed portfolios of cash-equivalents, securities, real estate and other assets.

- Real Estate Investment Trusts (REIT) - a specialized corporation that holds real estate for income or capital appreciation purposes, and which is subject to special federal tax regulation.
- Private Land Trusts - any private trust holding land for resource management, income and capital appreciation purposes.
- Institutional Real Estate Investment Manager - an investment and asset management firm that specializes in investment real estate, and who manages real estate investments on behalf of others, usually pension funds.
- Single-Asset Companies - companies that are devoted to the ownership and operation of complex single properties.
- Other State Land/Resource Management Agencies - self explanatory.

Selection of a particular perspective or basis of comparison is usually done for the purpose of establishing a "benchmark" or performance standard against which the structure and financial performance of the managed portfolio may be measured, or for the purposes of establishing a target or peer that management can emulate. ***For this unique portfolio of assets, there is no existing and established benchmark that is an appropriate basis for comparison***. The selection of a "target" or peer, for comparison purposes, can only be accomplished with detailed analysis of strategies, goals, objectives which conform with relevant statutory and regulatory

mandates and which meet the needs of the trust beneficiaries[13]. However, the benchmarking analyses is clearly beyond the scope of this analysis.

PORTFOLIO ANALYSIS METHODOLOGY

Modern portfolio theory dictates that rational portfolio investment decisions are based on estimated risk-return relationships and efficient diversification. A risk-return relationship occurs when an incremental increase in risk leads to or generates an incremental increase in expected returns. Conceptually, the higher concentration of risk of an asset, the greater the expected return. Assuming a positive relationship between risk and return, there can be an estimated measurement of expected returns for an asset with a quantified, or estimated measurement of risk. Likewise, there must be a measurement of return for an asset with zero risk. The financial community commonly defines a risk-free asset as an asset with an assured rate of return, and an asset with risk as an asset with an uncertain rate of return. The risk-free asset is generally measured against U.S. Treasury Securities (i.e., Treasury Bills, Notes, or Bonds)[14], and other assets are generally compared with or measured against financial instruments with risk, such as common stocks, small stocks, corporate bonds and other securities.

Once the relationship is quantified between the measurement of returns and the measurement of risk for both the risk-free asset and an asset with risk,

[13] In this context, it may also be appropriate to analyze the portfolio of trust assets on the basis of beneficial interest or "ownership."

[14] US Government notes may be converted to cash at any time, without delay or material cost, and because the U.S. government has never defaulted on its financial obligations, risk of default is considered nil.

the risk-return relationships for all assets can be examined. See Exhibit 7.

Modern portfolio theory utilizes this concept in conjunction with the concept of diversification of assets. Generally speaking, the risk-return-relationship can be improved through diversification of a portfolio's assets. Conceptually, the risk associated with a single asset can be reduced or offset through the addition of a second asset with a different pattern of income, basis for value or inherent risk. Consequently, the expected return from a single asset can be increased, or risk mitigated through the additional of a second asset with a different risk and return profile. This theory is fundamental to all investment portfolio management.

The same general concepts of portfolio management of financial assets can be applied to the management of tangible assets, like real estate, within a portfolio. Tangible assets, including real estate, land and timber, can be evaluated in terms of their inherent risk-return relationships. A portfolio analysis can then be conducted in order to evaluate how these assets perform in a risk-return framework.

ASSET DIVERSIFICATION

In the Asset Description portion of this analysis, DNR-managed asset classes were identified with various industry groups, which either described the industry to which the asset class belongs or which influences its value, management strategies and income. Generally, DNR-managed assets

were found to fall into one of four industry groups:

1. **Commodity-Driven Land Assets**. Those land assets that are held to produce various market commodities, such as food, timber or mineral products. It is noted that "transition land" is put in this classification due to its current productive use.
2. **Undeveloped Land Assets.** Those large land assets that are held specifically for future or undetermined economically productive use.
3. **Real Estate Development Assets.** Those assets that are held specifically for current or future real estate development
4. **Other Assets.** Those assets that are either monetary or relatively small assets which do not fit into the other classification.

The following exhibit illustrates that 88% of DNR-managed assets fall in the "commodity-driven" classification. While it may be viewed that a certain amount of product diversification occurs within this classification, generally the DNR-managed portfolio is considered as non-diversified and almost exclusively in one area or group. Note that Commercial Real Estate and Aquatic Resources asset classes have significant portions on their assets in more than one group or area.

The great majority of the portfolio has a long investment cycle, exposure to volatility of market price and demand for resource-based products, and is comparatively illiquid. Timber provides an excellent inflation hedge, but

requires a high degree of specialized knowledge and has all of th attendant environment and land management risks. Real estate assets and undeveloped land, comprising about 4% of the portfolio is less liquid, and will require significant capital to achieve value growth. The balance of the land assets are highly illiquid and long-term prospects for income and appreciation are uncertain.

Exhibit 6-5
Classification of DNR-Managed Assets

CLASSIFICATION OF DNR-MANAGED ASSETS
$6.97 billion Trust Value = 100%

Commodity-Driven Land Assets	Undeveloped Land Assets	Real Estate Development Assets	Other Assets
$6,177 million Trust Value 88%	$131 million Trust Value 2%	$111 million Trust Value 2%	$547 million Trust Value 8%
Forest Resources $5,883 million Tr. Val. 84.4%			**Communication Resources** $9 million Tr. Val. 0.1%
Agricultural Resources $84 million Tr. Val. 1.2%			**Monetary (Perm. Fund) Assets** $513 million Tr. Val. 7.4%
Grazing Lands $100 million Tr. Val. 1.4%			**Natural Preserve /Conservation Areas** na
Mineral Resources $10 million Tr. Val. 0.1%			**Administrative Resources** $25 million Tr. Val. 0.4%
Unimproved Rural Land (Transition Lands, currently producing resources in above asset classes) 29,176 Acres $82 million Tr. Val. 1.2%	**Commercial Real Estate** Undeveloped Urban Enhanced & Unimproved Land 3,352 Acres $8 million Tr. Val. 0.1%	Leased Land & Leased Land/Buildings 15,672 Acres $56 million Tr. Val. 0.8%	
Commercial Geoduck/Shellfish Beds $19 million Tr. Val. 0.3%	**Aquatic Resources** Unleased Non-Harbor Areas $123 million Tr. Val. 1.8%	Leased Harbor/Non-Harbor Areas, Port. Mgt. Agreements & Unleased Harbor Areas $55 million Tr. Val. 0.8%	

Source: Deloitte & Touche LLP

YIELD-RISK COMPARISON

The above portfolio theory was applied to the DNR-managed portfolio[15] for the eight asset classes generating monetary returns, excluding Administrative and Natural Preserves/Conservation Areas. Individual asset class yields (Trust Distribution Income plus Trust Capital Appreciation) derived from our analysis of revenues were plotted against the risk associated with the industry or activity in the exhibit below.

As a very simple performance comparison to the other investment options, in Exhibit 6-7 we have also plotted the one-month Treasury Bills (no-risk) and a common stock average yield (market risk & assumed to represent a moderate level of risk in this context). Exhibit 6-6 is a restatement of Trust Investment at 6/30/94, Total Trust Income for fiscal year 1995 and To Return on Investment, presented here again for the reader's convenience.

[15] The Washington State Investment Board manages Monetary (Permanent Fund) Assets.

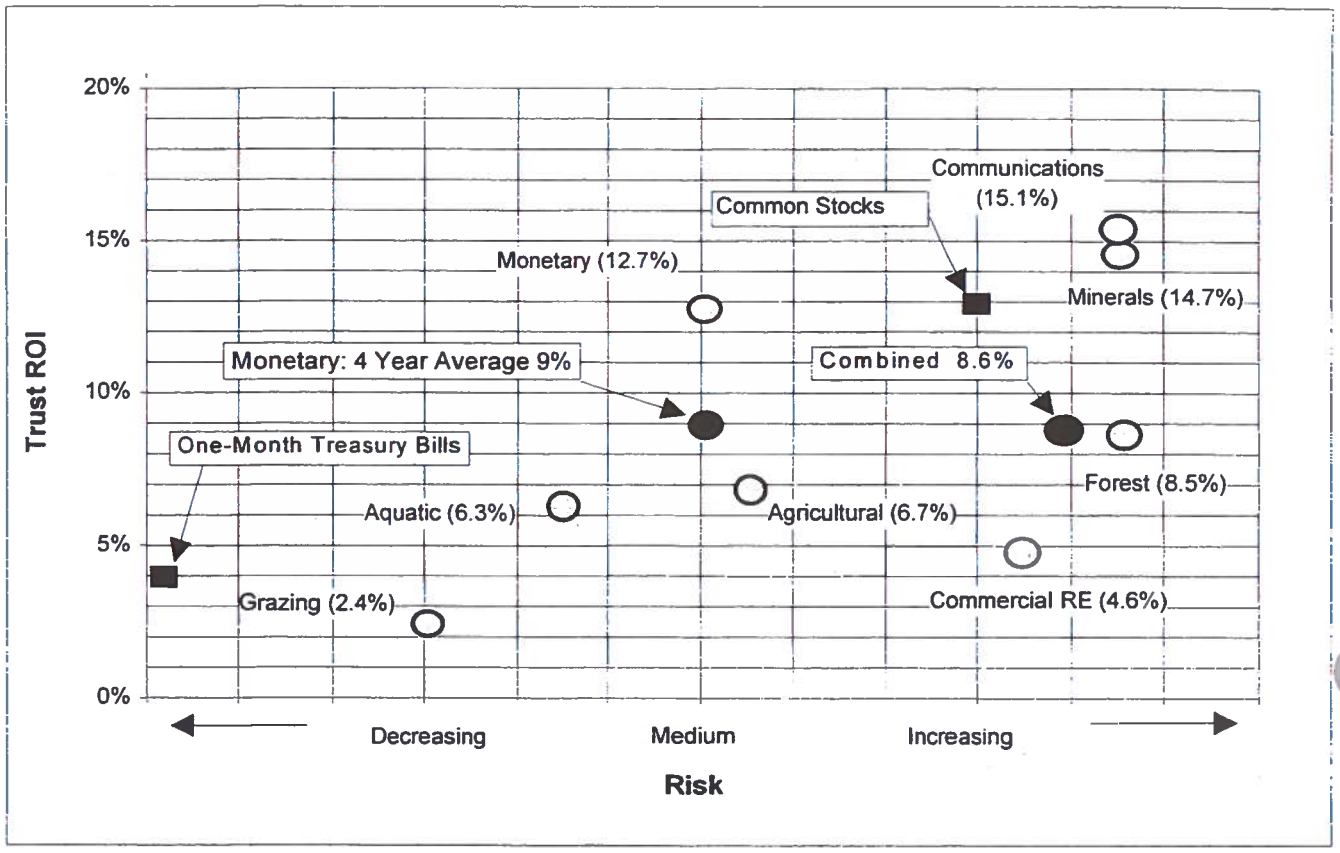
Exhibit 6-6
Total Return on Investment By Asset Class - Fiscal Year 1995

	Trust Investments ($ millions)	Trust Total Income ($ millions)	Total ROI
Agricultural Resources	$82.4	$5.6	6.7%
Commercial Real Estate*	$142.0	$6.5	4.6%
Communication Resources	$8.8	$1.3	15.1%
Forest Resources	$5,550.0	$472.8	8.5%
Grazing Lands	$97.6	$2.3	2.4%
Monetary (Permanent Fund) Assets	$468.2	$59.4	12.7%
Mineral Resources	$9.2	$1.4	14.7%
Aquatic Resources*	$190.5	$12.0	6.3%
NAP/NRCA	N/A	N/A	N/A
Administrative Resources	$24.7	N/A	N/A
Combined	$6,573.4	$561.3	8.6%

* These asset classes include land areas that are not income producing, and that have a Trust Value greater than 50% of the asset class. This results in the reported Return on Investment for the class not being representative of the income returns associated with only the income-producing lands.

Source: Deloitte & Touche LLP

Exhibit 6-7
Comparison of Trust Total ROI (Yield) and Moody's Risk Rating for Related Industries - Fiscal 1995



Source: Deloitte & Touche LLP

Risk measures were taken from available Moody's ratings for four industries: 1) paper and forest products (Forest Resources), 2) U.S. food (Agriculture Resources), 3) telecommunications (Communications Resources) and 4) oil (a proxy for Mineral Resources). In the exhibit, the vertical segmentations represent a different Moody's debt ratings ranging from Aaa1 (the lowest risk) to Baa3 (highest risk). For the four asset classes above, the yield was plotted against the corresponding Moody's

rating level.

Monetary (Permanent Fund) Assets were assumed to have a medium level of risk. Since data for a four year period was available for the Permanent Funds, that number was also plotted. It is interesting to note, from the "Return on State Permanent Funds" portion of this chapter, that the 1992 to 1995 four-year average return of 9% (before reduction for prior year loss amortization) for Permanent Fund Assets was similar to the overall Trust ROI of 8.6%

Risk measures for the other three asset classes—Grazing Lands, Aquatic Resources and Commercial Real Estate—were interpolated from the other asset types. Aquatic Resources was viewed as less risky than Agriculture Resources, Grazing Lands, less risky than Aquatic Resources and Commercial Real Estate more risky than common stock but less risky than forest products. In this context, it is noted that the Trust assets represent only one segment of the related industries that are Moody's rated, and, therefore, specific Trust asset class ratings may vary from those industry ratings.

The analysis demonstrates that, as a whole, the portfolio exhibits a positive relationship between risk and return. It should be noted that for the commodity-driven land assets, including Forest Resources, Agriculture Resources, a portion of Aquatic Resources (Geoduck) and Grazing Lands,

the risk-return relationship reflects the statutory and regulatory restrictions imposed on the assets and on DNR trust-asset management activities.

This analysis does not address the possibility that counter-cyclical correlations between the risk attributes of the individual DNR-managed assets may improve or deteriorate the risk-return characteristics of the overall portfolio. Other factors to be considered in the management of the portfolio are volatility, diversity and liquidity.

INVESTMENT FACTORS

With 85% of the total portfolio Trust Value in the Forestry Resources asset class and 88% in the more general "Commodity-Driven Land Assets" category, the overall portfolio naturally takes on the characteristics of those asset classes in general, and Forest Resources in particular. The non-commodity-driven assets, excluding Monetary (Permanent Fund) Assets, represent approximately 5% of the total portfolio Trust Value and, as such, are far less relevant in this broad overview of portfolio investment factors.

As described in the Asset Description portion of this analysis, commodity-driven land assets are generally characterized as having:

- mature market conditions with well established market participants;
- low-liquidity and not readily converted into cash;
- value change potential fairly slow and predictable;
- income (from commodity production) varying from somewhat volatile for

timber to fairly stable for DNR-managed minerals (sand and gravel);

- end-user and investor demand varying from somewhat moderate to high for timberland to low for grazing and mineral land; and,
- opportunities for creating additional "premium" value varying from reasonably good for timber to virtually non-existent to mineral (sand and gravel).

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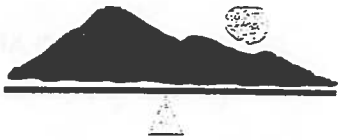


ECONOMIC TREND ANALYSIS

This investigation, analysis and report are subject to important limiting conditions and assumptions that affect the findings and conclusions. The reader should review the limiting conditions and assumptions in this report before utilizing or relying upon the conclusions and findings.

INTRODUCTION

The goal of the economic trends analysis was to identify those long-term economic trends which could influence the investment performance of the portfolio of assets over time. Such identification will assist portfolio and asset managers in making appropriate "economic" - as opposed to resource or habitat management - decisions. This part of the Economic Analysis consists of a review of existing data and studies about the economic impact of ten important issues or concerns which were jointly selected by the DNR and D&T. After consultation with the DNR, the economic trends analyzed in this chapter include:

- demographics,
- environmental issues,
- product demand,
- technological advances and product substitution,
- competing resource supply,
- commodity prices,
- recreation/tourism/lifestyle issues,
- government/jurisdictional controls and restrictions,
- water uses/access, and
- upgraded land uses.

Time Frame Considered

The time interval to be considered is from 10 years in the future to 30 years in the future (2006 through 2026). One purpose for the selection of this time interval is that information is readily available for the near-term, five-to ten-year horizon. The end of the horizon is established by the following: 1) it represents essentially one generation; 2) the historic perspective of 30 years represents an appropriate "look back" for purposes of trend analysis; and 3) it falls at the low end of the Asset Stewardship Plan horizons.

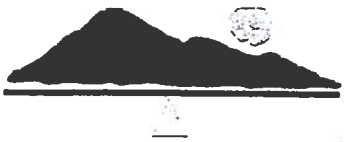
Interaction Among Trends

Clearly there will be some overlapping and interdependence among the various types of trends. For example, a technological advance that creates a cost-effective substitute for dimensional lumber will also have an impact on the demand for that wood product. Falling commodity prices may make new technologies for product substitutes unnecessary or infeasible.

KEY ECONOMIC TRENDS

- *Demographics*, and more specifically *population growth*, is by far the most important trend affecting management of DNR-managed lands. Washington State's 1995 population of 5.4 million is the result of an average annual growth rate of 1.8% over the past 25 years. According to the Office of Financial Management, population growth is expected to slow to an annual average of 1.2% per year through the year 2020. A key component of the OFM forecast is a slowdown in migration to the state from 45,200 per year over the last 25 years, to 39,300 per year over the next 25 years. Furthermore, the age distribution of the population is expected to shift, with the median age forecast to increase from its 1995 level of 33.7 years to 37.1 years in 2020.

- *Environmental issues* have been and will continue to be a critical driving force affecting land management in the state of Washington. The listing of the northern spotted owl as a threatened species has had and will continue to have a dramatic impact on harvesting old-growth timber and timber prices. Public concern for the environment is likely to grow and to continue to put pressure on the conservation/preservation of land, water and forest resources.



- Of all the trends affecting *demand for products* produced on DNR managed lands, trends related to forest products are most worthy of attention. The demand for forest products harvested is closely tied to the domestic construction industry, which is characterized by short-term cycles and will continue to be so. An underlying, long-term trend of only moderate growth in the construction industry will likely be the result of the aging of the baby boom generation, stable or mildly declining family formation rates and moderate to slow growth of median household income. The full implementation of NAFTA will contribute to a long-term trend of increasing foreign demand for Washington agricultural products.

- Trends in *technological advances and product substitution* have the potential to significantly impact products produced on DNR-managed lands. The technological advances in the development of substitute products such as steel 2x4s, I-beams and oriented strand board have a very real potential to displace demand for conventional wood building materials, especially if higher forest product prices and price volatility make these advances more economically feasible.

- Significant *competing resource supply* trends for forest products include the potential delivery to market of Russian timber, harvested in Siberia and sold along the Pacific Rim. A second trend with possible long-term implications is for large timber companies operating in the state to

acquire lands in eastern Canada for their low-density hardwood forests. Agricultural products are likely to face supply competition from South America (for orchard crops) and Asia (for wheat and other grains).

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Deloitte & Touche LLP

KEY INDUSTRIES OVERVIEW

Of the ten asset classes addressed in this analysis, Forest Resources contributes the lion's share of market revenue, with much smaller but significant contributions from Aquatic and Agricultural Resources. The following are industry overviews for these major sectors.

FOREST PRODUCTS INDUSTRY

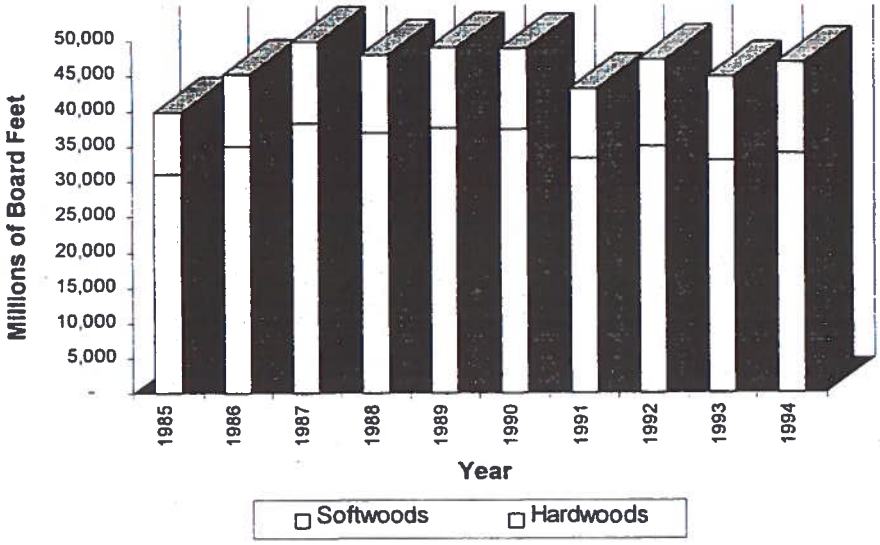
The U.S. forest products industry is concentrated in the Pacific Northwest and Southeast and encompasses establishments that engage in the cutting and subsequent processing of timber into other products. The industry is generally segregated into wood, paper and pulp sectors, with wood and wood products being of most concern to DNR.

Shipments in the industry have been relatively stable over the past ten years. (See Exhibit 7.1). In 1994, U.S. firms shipped 46.8 billion board feet of lumber, of which 73% was softwoods and 27% was hardwoods. Major suppliers in the industry are Weyerhaeuser, Georgia-Pacific and Louisiana-Pacific.

The demand for forest products is closely related to the domestic residential construction industry, which is the primary end-use market for the industry's products. As noted above, the U.S. construction sector is highly cyclical

and sensitive to interest rate fluctuations. Due mostly to favorable interest rates, U.S. housing starts increased 13% in 1994 to 1.46 million units.

Exhibit 7-1
U.S. Lumber Shipments



Source: Department of Commerce, National Forest Products Association

Historically, prices in the forest products sector have been extremely volatile, buffeted by swings in supply and demand. In early 1994, lumber prices, as measured by spruce, pine and fir 2x4s, peaked at approximately $500 per thousand board feet. As a result of the U.S. housing slowdown, which was in turn brought about by higher interest rates, these same prices plunged to $210 per thousand board feet in early 1995. Between the end of 1994 and May 1995, plywood prices dropped from $400 to $315 per thousand square feet.

AGRICULTURAL INDUSTRY

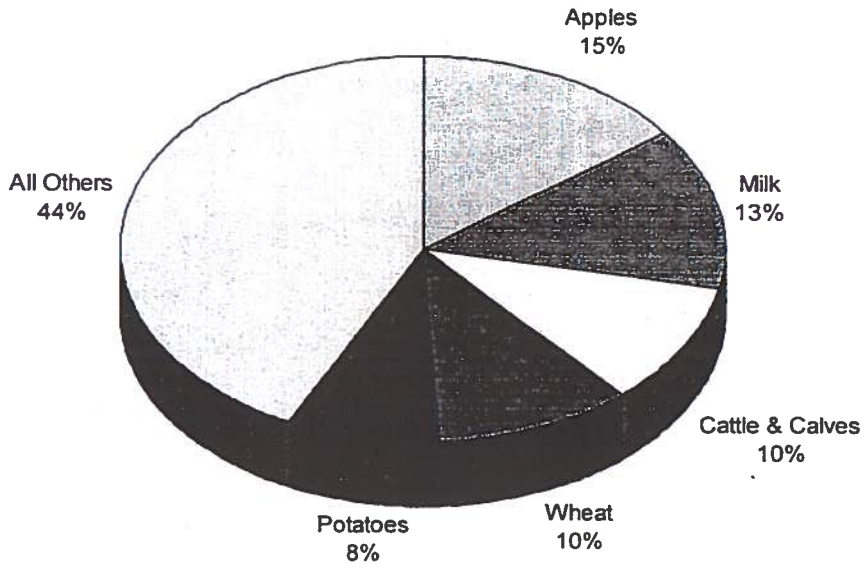
Washington State's agricultural sector involves the commercial production of a wide variety of plants and animals. Western Washington's cool, moist climate allows the production of milk cows, berries, nursery products and flowers. Eastern Washington is dry and relies on irrigation to produce vegetables, potatoes and onions in the lowlands and apples, pears, cherries and other tree fruit in the foothills. Southeast Washington specializes in wheat production and regularly achieves some of the highest yields per acre in the U.S.

Measured in terms of their value of production, the top five agricultural commodities in the state in 1994 were apples ($756.8 million), milk ($681.2 million), cattle & calves ($532.7 million), wheat ($530.8 million) and potatoes ($422.4 million). In total, Washington produced over $5.1 billion in crops in 1994, with about half of the total concentrated in apples, wheat, potatoes, farm forest products, hay, nursery and greenhouse products. Export markets are important, with almost 90 percent of Washington's soft white wheat crop destined for Pacific Rim markets.

Washington's vegetable, berry and grape products are sold primarily in domestic U.S. markets. The state accounts for half (50 percent) or more of total U.S. production of hops, red raspberries, dry edible peas, spearmint oil, Concord grapes and lentils. It accounts for between 40 and 50 percent

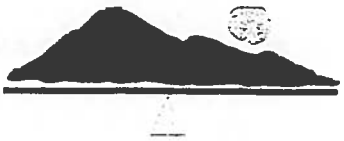
of total U.S. production of asparagus, pears, sweet cherries and apples.

Exhibit 7-2
Washington State: Distribution of Agricultural Commodities by Value of Production in 1994



Source: DNR

Agricultural product prices are prone to significant volatility. Wholesale beef prices have been on a slight upward trend since the mid-1980s. However, prices spiked from about $0.67 per pound to $0.87 per pound over the last year before settling down to approximately $0.77 per pound in 1995. Wheat prices have also shown wide swings, increasing from approximately $3.40 per bushel in 1993 to $4.35 per bushel in 1995.



DEMOGRAPHICS

How will demographic trends, particularly those in Washington, affect the portfolio of assets?

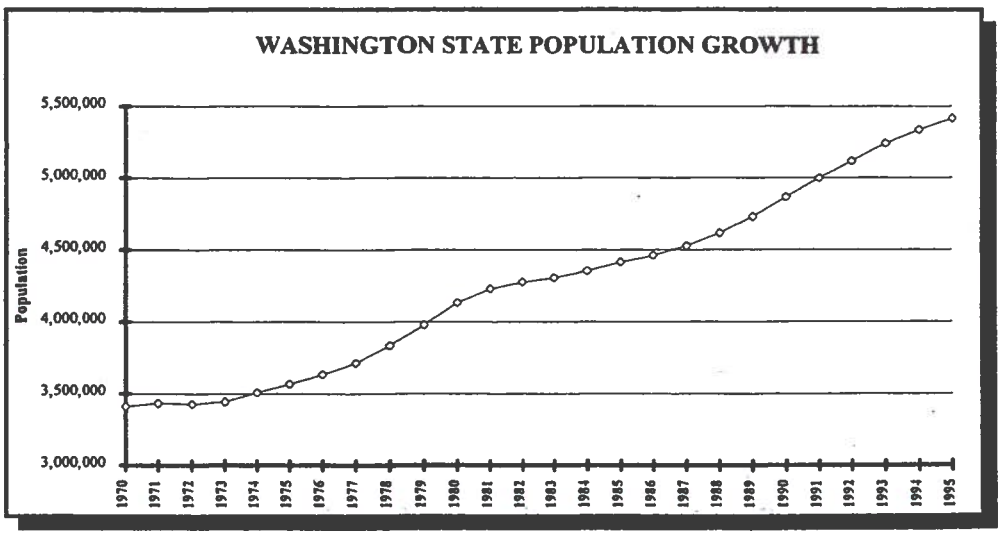
Asset Classes Affected

Demographic trends, of course, affect all economic activity and are among the most important long-term factors influencing demand for products, goods and services. In this study, however, the primary interest lies in questions surrounding urban and rural growth patterns and demand for land for urban and suburban expansion throughout Washington, particularly in the western portion of the state. With this focus, particular emphasis is focused on the Commercial Real Estate asset class, as it contains "transitional lands" surrounding communities throughout the state, and designated through the Growth Management Act (see following discussion). To a lesser extent, all of the other categories of assets are influenced by demographic change. Monetary (Permanent Fund) Assets, Aquatic Resources, Administrative Resources and Natural Preserves and Conservation Areas are among the least influenced by demographic change.

Historic and Current Demographic Trends

As shown in Exhibits 7-3 and 7-4, Washington State has exhibited steady growth from 1970 to 1995, and the peaks and troughs of Washington's population growth over the past 25 years have been spaced approximately a decade apart – roughly corresponding to the 10-year production cycle *Aviation Week & Space Technology* magazine reported as dominating the civilian aerospace industry since the end of World War II. While births, deaths, retirement living patterns and military relocations all affect the state's population growth in a fairly predictable manner, employment growth is the driver underlying net migration patterns, and net migration patterns are the volatile component of population change. Exhibit 7-8 provides a statistical summary of population change over the period 1970 to 1995.

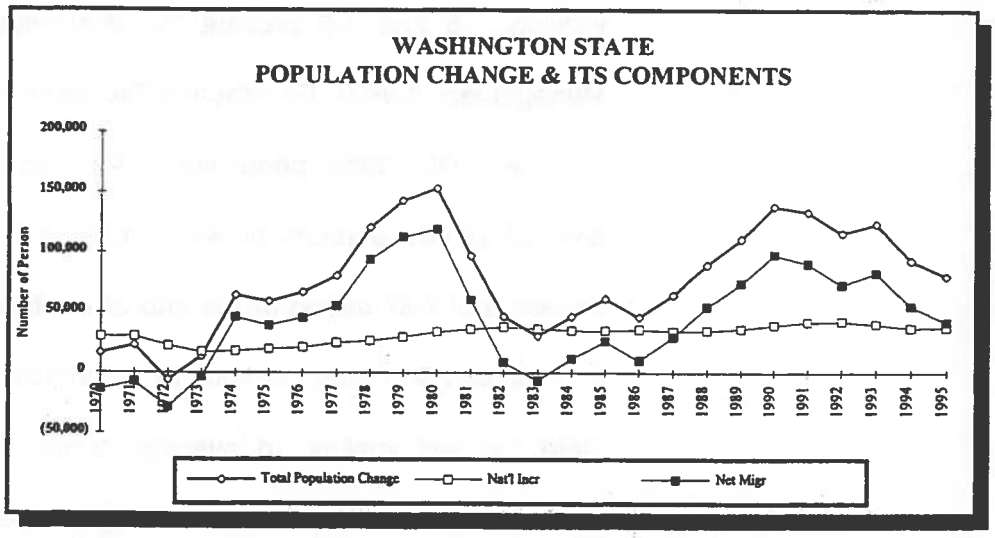
Exhibit 7-3
Washington State Population Growth 1970-1995



Source: Washington State Office of Financial Management (OFM)

Richard Conway reported at this year's (1996) Washington State Forecast Luncheon that the Boeing downturn of the last two years is the first time the state's major employer has had a period of sustained lay-offs, and the local economy has not slipped into a recession. In large part, this reflects the growth and importance of Microsoft and other high-end, high-tech employers in the state's economy. As these employers become more important, they lend an element of stability to the state's overall pattern of employment and population growth.

Exhibit 7-4
Washington State Population Change 1970 - 1995



Source: Washington State Office of Financial Management (OFM)

Exhibit 7-9 presents the growth and distribution of population in Washington's urban counties, defined as counties with: (1) a central city; and, (2) a population of at least 150,000 persons in 1990. The percentage

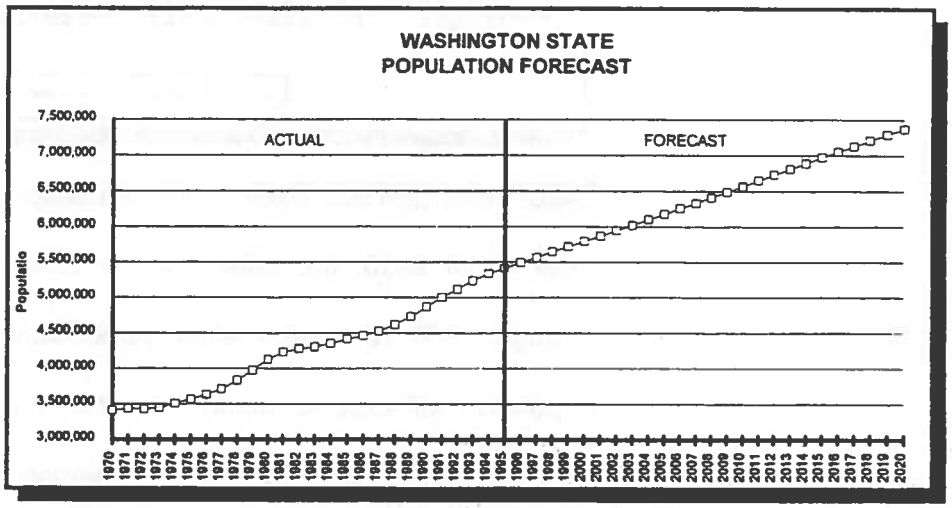
of the state's total population contained in these urban counties w virtually flat at 76% between 1970 and 1990. This was primarily due to the decline in Boeing employment in the early 1970s, which resulted in a net out migration of population from King County and a slowing down of population growth in Pierce and Snohomish Counties between 1970 and 1975. Between 1980 and 1990, all of the urban counties in western Washington grew at rates equal to or greater than the state as a whole, while the two urban counties in eastern Washington (Spokane and Yakima) lagged behind the state's aggregate population growth rate.

Projected Demographic Trends

Exhibits 7-5 and 7-6 present the Washington State Office of Financial Management (OFM), Forecasting Division's forecast of state population the year 2020. State population is forecast to grow at an average annual level of 78,000 persons between 1995 and 2020, reaching a population threshold of 7.37 million at the end of the forecast period. This implies the addition of 1.96 million persons to the state's current population base. The OFM forecast implies an average annual rate of growth in the state's population of 1.2% over the entire forecast period – a rate about 1/3 slower than the state's 1.8% experience between 1970 and 1995. The OFM forecast also includes a slowing down of migration to the state – actual migration averaging 45,200 a year between 1970 and 1995 but falling to an average of 39,300 a year over the forecast period.

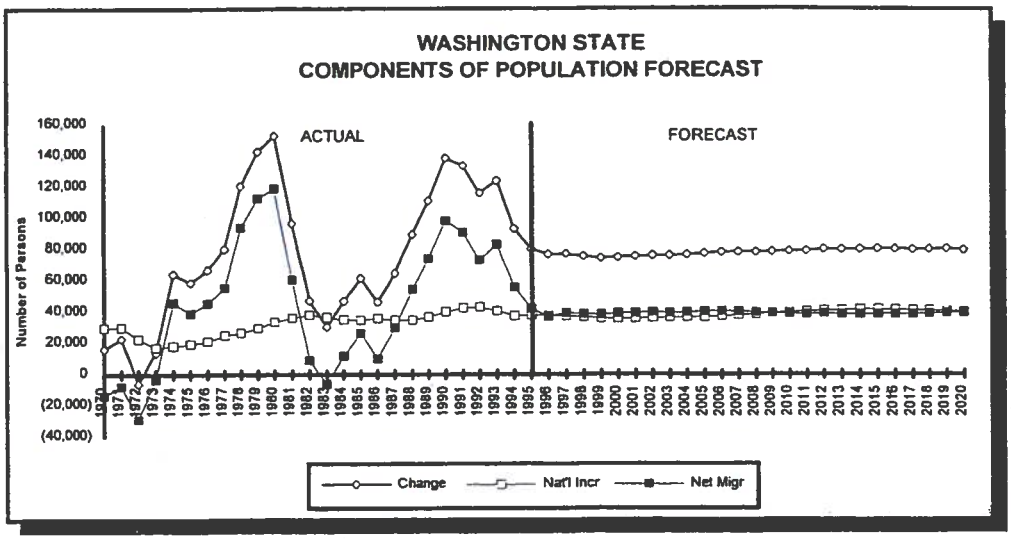
The age structure of the population will be mainly determined by two broad trends. First, life expectancy will continue to improve, but at a distinctly slower rate than in the past. Second, the growth of the elder population (persons 75 years and older) will likely slow down as the small cohort born between 1930 and 1945 reaches this age category.

Exhibit 7-5
Washington State Population Forecast 1970 - 2020



Source: Washington State Office of Financial Management: Forecasting Division

Exhibit 7-6
Washington State Population Forecast - Components



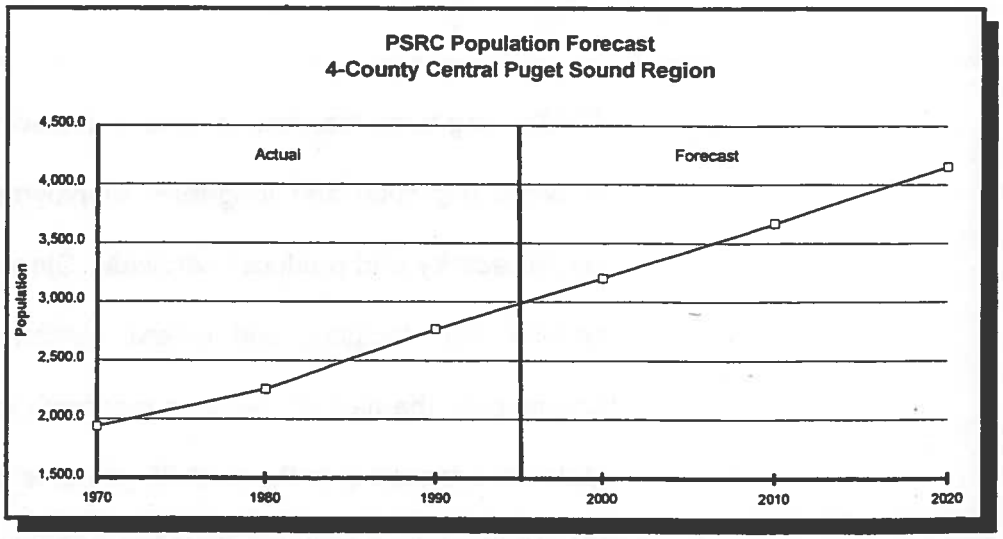
Source: Washington State Office of Financial Management: Forecasting Division

After about 2015, the baby boomer cohort born during the years 1945 through 1960 will reach elder population status, and this part of the population will expand rapidly. Overall, the age distribution of the state's population is expected to shift, with median age forecast to increase from a 1995 level of 33.7 years to a 2020 level of 37.1 years. This trend will give rise to an increased demand for retirement living facilities. Professor Richard Morrell, in his presidential address to the Western Regional Science Association in 1994, reported that if past trends continue, younger retired persons will leave the cities of the central Puget Sound and locate in areas to the east (e.g., Kittitas County) and west (e.g., Clallam County) around the peripheries of those cities.

Exhibit 7-7 presents the Puget Sound Regional Conference's (PSRC's) population forecast for the four-county (King, Kitsap, Pierce and Snohomish Counties) central Puget Sound Region. It is a "step down" from OFM's state forecast and holds the percentage of state population in the central Puget Sound area roughly constant – going from 56.9% in 1990 to 56.3% in 2020.

Using the same trends and functional relationships embodied in the state's population forecast, the PSRC also produced a forecast of employment, income and household size. Employment is forecast to grow at an average yearly rate of 1.7% between 1990 and 2020 – compared with 5.2% between 1960 and 1990.

Exhibit 7-7
Puget Sound Region Population Forecast - To 2020

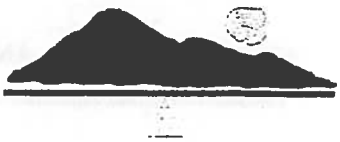


Source: Puget Sound Regional Conference

Total personal income (in constant-value dollars) is forecast to grow at an average yearly rate of 0.8% between 1990 and 2020 – compared with 1.7% between 1960 and 1990 – and earned labor income is expected to fall from 76% of total personal income in 1990 to 71% in 2020. Average household size is forecast to decline from 2.58 in 1990 to 2.39 in 2020.

Overall, the demographic trends forecast for Washington State are for continued growth, but at a diminished rate. The slowing of population growth, particularly the component coming from migration, will mean that increases in population pressure on Washington's land and natural resources will ease in the future. At the same time, a slowdown in the growth of employment, incomes and output in the state economy implies slowdown in the growth of the tax base available to state and local governments.

OFM's long-term forecast is mainly based on the historical relationship between migration and long-term employment in manufacturing, federal civilian activity and producer services. Since two of these three economic sectors (manufacturing and federal civilian employment) are forecast to decline over the next 25 years, a moderate rate of growth, slower than the state experienced over the past 25 years, is projected. As OFM points out, their methodology captures the historic relationship between migration and activity in different economic sectors but cannot anticipate new, emerging



patterns. Consequently, certain trends which run counter to the patterns contained in the OFM and PSRC forecasts are worth tracking.

OFM forecasts that the proportion of Washington's population that is of school age (5 through 19 years) will decline slightly from 22% in 1995 to 20% in 2020. However with the state's rising population, this will increase the actual number of school age residents in Washington by 332,500 persons.

Opportunities & Challenges

There appears to be a trend for Washington State to become a center for telecommunications and biotechnology companies – particularly in the western part of the state. Should this trend continue, job growth could easily be more robust than the pattern underlying the state's demographic forecast; and net in-migration would be greater than forecast. If net in-migration relative to natural population increases is constant (rather than declining) over the next 25 years, the state's population would grow by an additional 7% to 10% (about 400,000 to 500,000 persons) by 2020, representing accelerated average annual growth in the 1.4% to 1.6% range. Such an outcome would create all of the challenges associated with faster-than-expected population growth.

In-migrants attracted by job opportunities tend to be younger women of

child-bearing age. This type of population growth and the commensura shift in age distribution would likely put additional pressure on the need for educational and/or child care services. At the same time, it implies an expansion of the state's economy and a growth in the tax base available to state and local governments.

Another trend that may be emerging is for economic activity to relocate outside the counties of the central Puget Sound as a result of rising land values and increased traffic congestion. If the economy both grows more rapidly and disperses away from the central Puget Sound region, significant pressure would be placed on the state's rural land and water resources. Washington's Growth Management Act (GMA) requires that cities and counties establish *Urban Growth Area* (UGA) boundaries to prevent urban sprawl and insure appropriate infrastructure is in place when the impacts of demographic and economic growth occur. Most GMA planning in the state has been based on OFM's (moderate) growth forecast. If strong market forces produce greater than expected growth, it will be difficult for GMA planning to be effective in directing the growth's locational patterns. Should this occur, increased pressure would be placed on the conversion of Washington's rural lands and waters into residential, commercial and industrial uses.

The key to monitoring future demographic trends will be to track: (1) how

closely the net migration component of OFM's population forecast follows actual experience; and, (2) how closely the state's population is being dispersed into non-urban counties. Significant departures should become evident by tracking both of these demographic components annually using a five-year moving-average indicator.

The projected statewide slowdown in Washington's rate of population growth would reduce DNR opportunities to exchange or convert its forest, agricultural and grazing lands into alternative commercial or industrial uses. However, the expected aging of the state's population, combined with the trend for older Washingtonians to live in communities peripheral to the central Puget Sound's metropolitan areas, may provide DNR with increased opportunities to swap or convert lands in these areas into alternative uses that yield higher rates of return.

Exhibit 7-8
WASHINGTON STATE
POPULATION LEVELS AND COMPONENTS OF POPULATION CHANGE

	Population	Annual Population Change		Components of Population Change		% of Population Change Attributable to	
		Actual	%	Natural Increase	Net Migration	Natural Increase	Net Migration
1970	3,413,300	16,300	0.48%	30,000	(13,700)	184.0%	-84.0%
1971	3,436,300	23,000	0.67%	30,300	(7,300)	131.7%	-31.7%
1972	3,430,300	(6,000)	-0.17%	22,700	(28,700)	-378.3%	478.3%
1973	3,444,300	14,000	0.41%	17,300	(3,300)	123.6%	-23.6%
1974	3,508,700	64,400	1.87%	18,200	46,200	28.3%	71.7%
1975	3,567,900	59,200	1.69%	19,800	39,400	33.4%	66.6%
1976	3,634,900	67,000	1.88%	21,200	45,800	31.6%	68.4%
1977	3,715,400	80,500	2.21%	25,100	55,400	31.2%	68.8%
1978	3,836,200	120,800	3.25%	26,800	94,000	22.2%	77.8%
1979	3,979,200	143,000	3.73%	30,100	112,900	21.0%	79.0%
1980	4,132,400	153,200	3.85%	34,000	119,200	22.2%	77.8%
1981	4,229,300	96,900	2.34%	36,300	60,600	37.5%	62.5%
1982	4,276,500	47,200	1.12%	38,300	8,900	81.1%	18.9%
1983	4,307,200	30,700	0.72%	36,900	(6,200)	120.2%	-20.2%
1984	4,354,100	46,900	1.09%	35,200	11,700	75.1%	24.9%
1985	4,415,800	61,700	1.42%	35,100	26,600	56.9%	43.1%
1986	4,462,200	46,400	1.05%	36,200	10,200	78.0%	22.0%
1987	4,527,100	64,900	1.45%	34,900	30,000	53.8%	46.2%
1988	4,616,900	89,800	1.98%	35,000	54,800	39.0%	61.0%
1989	4,728,100	111,200	2.41%	37,000	74,200	33.3%	66.7%
1990	4,866,700	138,600	2.93%	40,100	98,500	28.9%	71.1%
1991	5,000,400	133,700	2.75%	42,500	91,200	31.8%	68.2%
1992	5,116,700	116,300	2.33%	43,100	73,200	37.1%	62.9%
1993	5,240,900	124,200	2.43%	40,900	83,300	32.9%	67.1%
1994	5,334,400	93,500	1.78%	37,700	55,800	40.3%	59.7%
1995	5,414,900	80,500	1.51%	38,100	42,400	47.3%	52.7%

Source: Washington State Office of Financial Management (OFM).

Exhibit 7-9
POPULATION GROWTH AND DISTRIBUTION IN WASHINGTON STATE'S URBAN COUNTIES

POPULATION

	Washington State	Urban Counties	Central PSR[1]	King	Kitsap	Pierce	Snohomish	Clark	Thurston	Spokane	Yakima
1970	3,413,300	2,576,744	1,938,644	1,159,400	101,700	412,344	265,200	128,500	76,900	287,500	145,200
1975	3,567,900	2,670,200	1,963,100	1,155,300	116,100	421,600	270,100	156,800	90,500	304,300	155,500
1980	4,132,400	3,071,300	2,240,500	1,269,900	147,200	485,700	337,700	192,200	124,300	341,800	172,500
1985	4,415,800	3,315,500	2,436,200	1,356,600	168,700	529,800	381,100	206,700	139,700	351,400	181,500
1990	4,866,700	3,698,200	2,748,800	1,507,300	189,700	586,200	465,600	238,100	161,200	361,300	188,800

FIVE-YEAR POPULATION GROWTH RATES

	Washington State	Urban Counties	Central PSR	King	Kitsap	Pierce	Snohomish	Clark	Thurston	Spokane	Yakima
1970											
1975	4.5%	3.6%	1.3%	-0.4%	14.2%	2.2%	1.8%	22.0%	17.7%	5.8%	7.1%
1980	15.8%	15.0%	14.1%	9.9%	26.8%	15.2%	25.0%	22.6%	37.3%	12.3%	10.9%
1985	6.9%	8.0%	8.7%	6.8%	14.6%	9.1%	12.9%	7.5%	12.4%	2.8%	5.2%
1990	10.2%	11.5%	12.8%	11.1%	12.4%	10.6%	22.2%	15.2%	15.4%	2.8%	4.0%

DISTRIBUTION OF POPULATION

	Washington State	Urban Counties	Central PSR	King	Kitsap	Pierce	Snohomish	Clark	Thurston	Spokane	Yakima
1970	100.0%	75.5%	56.8%	34.0%	3.0%	12.1%	7.8%	3.8%	2.3%	8.4%	4.3%
1975	100.0%	74.8%	55.0%	32.4%	3.3%	11.8%	7.6%	4.4%	2.5%	8.5%	4.4%
1980	100.0%	74.3%	54.2%	30.7%	3.6%	11.8%	8.2%	4.7%	3.0%	8.3%	4.2%
1985	100.0%	75.1%	55.2%	30.7%	3.8%	12.0%	8.6%	4.7%	3.2%	8.0%	4.1%
1990	100.0%	76.0%	56.5%	31.0%	3.9%	12.0%	9.6%	4.9%	3.3%	7.4%	3.9%

[1] Puget Sound Region

Source: Washington State Office of Financial Management (OFM),

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ENVIRONMENTAL TRENDS

How will environmental trends affect the lands in the portfolio and the products which come from those lands?

Asset Classes Affected

All asset classes except Communication Resource Assets and Monetary (Permanent Fund) Assets will be affected to greater or lesser degree by environmental trends. The primary impact of environmental trends is on the following asset classes: (a) Administrative Resources; (b) Agricultural Resources; (c) Forest Resources; (d) Grazing Lands; and, (e) Natural Preserve/Conservation Areas. Lesser impacts will be on: (a) Aquatic Resources; (b) Commercial Real Estate; and, (c) Mineral Resources.

Historic and Current Environmental Trends

Washington State was one of the first places in the country where environmental concerns, ecological planning, high technology production and politics converged. Metro's clean-up of Lake Washington began in the 1960s; and by 1981, Joel Garreau was referring to Washington as part of "Ecotopia" in his book, *The Nine Nations of North America.*

Most recently, the spotted owl issue focused conservation efforts toward old growth timber. In June 1990, the U.S. Fish and Wildlife Service listed the

northern spotted owl as a threatened species. The ruling eliminated harvesting from approximately 9 million acres of land in the Pacific Northwest—areas that contain the majority of the nation's old-growth trees, which comprise most of the industry's commercially valuable sources of wood. A ripple effect of the ruling was the closing of 240 lumber and panel plants in the Northwest since 1989.

In general, public concern for the environment is likely to be a force that puts pressure on the conservation/preservation of land, water and forest resources in the state. Reduced federal and state timber sales on public lands to protect the northern spotted owl were the main reason for decline in western timber harvests. Currently, the Clean Water Act (CWA) and Endangered Species Act (ESA) are examples of legislation that limits the ability to harvest timber from DNR-managed land.

A certain amount of rethinking about regulatory controls over the environment is currently going on -- for example, recent experience in Canada suggests that projected decreases in timber production may have been overstated and that the annual allowable cut (AAC) may be able to be increased. Nevertheless, the major issues currently affecting the forest products industry's return on investment (ROI) are: (a) preservation of old growth forests and ecosystems through focus on rare and endangered species; and, (b) other environmental legislation. Because the spotted owl

issue focuses on old growth timber and private timber investments are largely confined to second growth, private timber holdings are minimally affected. Some harvesting adjacent to old growth may be delayed or constrained, but the major spotted owl impact is on public lands' harvesting -- and this has raised prices and increased the ROI on private timberland investments.

There has been some anti-environmental regulation reaction in the state, as there has been nationally. However, the defeat of recent initiatives that would have required state and local governments to compensate property owners for all "regulatory takings," combined with apparent negative voter reaction to proposals significantly altering most environmental protection laws, makes it reasonably probable that changes occurring will be in the nature of "mid-course corrections." They will be centered mainly on issues of equity for small land holders and small communities facing significant economic disruptions, but there likely will be no general pull back from concern with, and regulation for, environmental quality in Washington State.

There are very few hard-rock and metallic mines in the State of Washington, with sand and gravel mines being the major part of mining in the state, and few advances are being made in the types of mining operations planned in the state. Environmental regulations have increased the cost and time required to permit new mines, which tends to decrease

the number of new operations and increase the value of existing mines. Lands available for mineral extraction may be reduced as more emphasis is placed upon protection of habitat and eco-systems and upon the cleanup and prevention of toxic waste.

Projected Environmental Trends

Public concern for the environment is likely to grow and put pressure on the conservation/preservation of land, water and forest resources. At the national level, this concern will probably focus on the warming of the earth's atmosphere attributed to the greenhouse effect and could lead to pressures to (a) reduce the use of fuels producing carbon dioxide, (b) develop more energy efficient technologies and (c) combat deforestation.

In the Northwest, environmental concerns may result in pressure to link sustainable rates of resource utilization with sustainable rates of economic development. Pressures may grow for the promotion of clean, high technology industries, such as software development and bio-genetics, that create high paying jobs while using few of the region's biological and physical resources. These industries will likely concentrate in the central Puget Sound Region where they are close to universities, a major international airport and the state's highest concentration of professionally and technically skilled workers.

Public concern for lifestyle sustainablity within Washington State also will focus on the levels of land and water utilization compatible with maintenance of the Northwest's traditional quality of life. One of the ways this concern may be manifested is in pressure to charge full market prices for the use of public land and water by farmers and ranchers. There is beginning to be movement in this direction by environmental activists in Idaho and Montana, and similar pressures may occur in Washington during the next decade.

Environmental regulations directed toward the preservation/conservation of land and water may increase costs of production and put upward pressure on prices of goods that are heavy users of land and water resources. At the same time, resource recovery along the lines of recycling, reclamation and re-manufacturing will likely become routine, and the need to extract virgin materials by logging, mining and drilling may be dramatically reduced. The need to harvest new resources will be attenuated, while revenues per unit of new resources that are harvested will be high.

In general, therefore, environmental issues appear to be contributing to the following long term trends: (a) a reduction in the economic use of virgin land and water resources, (b) an increase in productive outputs per unit of new resource inputs used, and (c) significant increases in prices for products harvested from land and water resources in the state.

Opportunities & Challenges

The key challenge for DNR's asset management derives from the relationship between the trend toward reductions in resource harvesting relative to the trend toward higher resource prices. In the shorter-term (5 to 10 years out), the transition from current market practices to more environmentally/ecologically based market practices could lead to harvest reductions that are not fully off set by rising prices, with a resultant decline in revenues. In the longer run (10 to 25 years out), it appears that the current trend toward decreased resource harvests will be more than off set by increases in resource prices leading to increased revenues.

PRODUCT DEMAND

How will changes in end-user demand for products from DNR-managed lands affect the asset portfolio?

Asset Classes Affected

The primary impact of product demand trends is on the following asset classes: (a) Agricultural Lands; (b) Aquatic Resources; (c) Commercial Real Estate; (d) Forest Lands; and, (e) Grazing Lands. The remaining asset classes will not be affected by product demand trends.

Historic and Current Product Demand Trends

The demand for forest products harvested from DNR-managed lands is closely related to the domestic residential construction industry and to foreign demand for logs exported from the U.S. Although logs from state-owned lands cannot be exported. In 1994, U.S. firms shipped 46.8 billion board feet of lumber, of which 73% was softwoods and 27% was hardwoods. Due mostly to favorable interest rates, U.S. housing starts increased 13% in 1994 to 1.46 million units.

In the long run, the U.S. residential construction industry is influenced primarily by population growth and secondarily by both the rate of household formation and growth of median household income. The aging of the baby boom generation, stable or mildly declining family formation

rates, and moderate to slow growth of median household income ha produced a trend of only mildly increasing demand for forest products on the part of the U.S. domestic residential construction industry.

Foreign demand for logs harvested in Washington has remained firm and, combined with the significant harvest reductions made to protect the northern spotted owl's habitat, has resulted in a rise in stumpage prices. Higher stumpage prices in turn may induce higher-cost producers to harvest from marginal lands, increasing market supply. The net result of these trends on product prices and Trust Revenues will depend on the interaction of these changing supply and demand forces.

Washington State annually exports about $3.8 billion of food and agricultural products grown and processed in the state. Major exports include $0.48 billion in wheat, $0.33 billion in fresh apples and $1.06 billion in processed foods. Over 67% ($2.5 billion) of Washington's agricultural and food exports are to Asia, with Japan the state's largest single market at 40% ($1.5 billion) of all exports. Canada is the state's second largest market for food and agricultural products, accounting for approximately 21% ($0.78 billion) of Washington's total food and agricultural exports. Latin American markets have been buying about 7% ($0.26 billion) of Washington international sales of food and agricultural products. With full implementation of NAFTA, the Latin American market for Washington

agricultural products should increase, particularly for tree fruits and grains.

Northwest wheat and other agricultural products are gaining increased acceptance in Asia as (a) trade barriers against Northwest wheat are being eliminated, (b) wheat is replacing rice as the staple food of Asia and (c) the recent weakness of the dollar against Asian currencies has given local agricultural producers a competitive edge in world markets. On the other hand, China, Pakistan and other Asian countries are expanding their domestic wheat production and beginning to supply a higher proportion of their own internal needs.

The primary product produced on DNR-managed Grazing Lands is beef cattle. Measured in terms of total revenues, cattle and calf sales are the third most important agricultural activity in Washington. In the U.S., beef consumption per capita has been declining since 1980, but appears to have stabilized somewhat in recent years. Among Pacific Rim nations, Japan, Korea and Taiwan have all been strong and growing markets for U.S. beef exports. In North America, Mexico and, to a lesser degree, Canada have been good export markets for U.S. beef.

The major products produced on Washington's Aquatic Resources are geoducks and other shellfish, although they represent a very small portion of total U.S. production. Geoducks are only grown off the coasts of

Washington, Alaska and British Columbia, giving the Pacific Northwest monopoly over the world supply. The annual statewide harvest ceiling for geoducks on a maximum sustained yield basis is three million pounds, as calculated by the Washington State Department of Fish & Wildlife. Washington's Treaty Tribes have claim to up to one-half this amount, and DNR auctions the rights to harvest the other half. DNR reports that during the first quarter of 1996, four contracts for a total of 500,000 pounds of harvested geoducks were in effect (average price, $5.83 per pound). DNR reported it expects to issue eight geoduck harvesting contracts, for a combined total of about 1.0 million pounds, during the last half of 1996. The Asian market for geoducks is strong and expected to grow, and both production and prices are expected to rise.

Projected Product Demand Trends

Long-term trends in the market for forest products is for equilibrium to be constrained by limits on supply (harvesting restrictions) rather than any significant reductions in product demand. A related issue is product substitution and the likely, commensurate shift in forest product demand. Most of the increased uses of alternative building materials will likely be the result of higher prices, not from direct, technological or economic displacement of wood products.

The U.S. is one of the world's most efficient producers of high-end

agricultural crops, and its exports to the rest of the world should grow as (a) agreements such as GATT and NAFTA act to reduce trade barriers and (b) per capita incomes grow world wide. It is likely that human food consumption will be more diverse over the next quarter of a century as a result of plant genetics, allowing farmers to engage in prescription farming through the use of sophisticated growing techniques to raise crops designed for specific market niches. These trends in the growing of agricultural crops should benefit Washington's agricultural sector and keep demand for its products strong. It is probable that the long-term demand for animal agricultural products (cattle and calves) will show a relative, if not absolute, decline. Although in dispute by industry sources, most forecasts show a decline in per capita consumption of animal products.

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TECHNOLOGICAL ADVANCES AND PRODUCT SUBSTITUTION

How will technological change and product substitution affect the lands in the portfolio?

Asset Classes Affected

Almost all asset classes will be affected to greater or lesser degree by changes in technology. The primary impact of technology will be on the following asset classes: (a) Aquatic Resources; (b) Forest Resources; (c) Grazing Lands; and, (d) Mineral Resources. Lesser impacts will be on (a) Communication Resources (b) Administrative Resources and (c) Agricultural Resources, and the remaining asset classes will be unaffected.

Historic and Current Technological Trends

Forest Products

There is a strong possibility that steel could become competitive with wood and substitute for 2 x 4's in new home construction. Construction industry leaders feel that steel 2 x 4's will become competitive if wood prices rise to the neighborhood of $425 per thousand board feet. The price is currently around $300 to $350 per thousand board feet. The technology for using steel in home construction is easily adopted; and though steel is neither as energy efficient nor as flexible as wood, it may become the builder's choice and substitute for structural wood products after 2005. Recently steel studs have been substituting for 2 x 4's in non-structural walls and capturing an

increasing share of the market.

Oriented strand board (OSB), which has taken over a large share of the market formerly held by plywood produced from softwoods, is produced from fast growing, low density hardwoods, such as poplar and aspen, grown in Canada and the Midwest. OSB, a composite of wood strands, glue and wax, is used for roofing, sub-flooring and exterior walls. OSB uses about the same quantity of wood as plywood, but the manufacturing process can use lumber of generally lesser quality. This gives OSB a competitive advantage over plywood, since it can be produced more readily and inexpensively.

Other new and competitive products, though currently fairly expensive, are expected to fall in price. Products such as laminated veneer lumber and wooden I-beams (which substitute for solid wood floor joists and headers) are expected to increase their market share as prices fall relative to solid lumber. Finger jointed studs are expected to substitute for solid wood studs in a larger part of the U.S. construction industry. Finger jointed studs are gaining acceptance in the southern part of the country although their use outside of the south has been more limited.

As the price of timber rises, substitutes for wood may increase in use. Volatility in timber prices may also hasten the use of substitutes. Volatility

increases uncertainty for contractors and developers and could spur the use of wood substitutes even more than the increase in average prices might indicate.

The University of Washington College of Forestry Center for International Trade in Forest Products is part of the new Consortium for Research on Renewable Industrial Materials (CORRIM), along with other universities and trade associations. The Consortium will be conducting multi-year studies on newly engineered wood products and substitutes. The first results of these efforts should be available within the next year. The detailed research plan should be available within the next year. The results of these studies should be considered by DNR in revising their strategic plans.

Aquatic Resources - Maritime Industry

New technology is supporting the viability of larger container ships, and ships with drafts of up to 50 feet are being planned. These ships require very deep harbors with long piers. The Ports of Long Beach and Los Angeles to the south and the Ports of Seattle and Tacoma will probably have a competitive advantage in attracting these large ships. As a result, construction of extended piers on DNR-managed lands could increase DNR's revenue from its aquatic resources.

Communications Resources

Low earth orbiting (LEO) and mid-level earth orbiting (MEO) satellites are superior to land based, line of sight communications technologies. However these satellite systems must overcome difficult financial, regulatory, technical and commercial hurdles before they are widely used. Mountain top sites cannot compete with satellites for high speed data transmission, however, the satellite band width is filling up and satellite launchings will likely continue to be risky and expensive. The almost 100 mountain top telecommunication sites owned by DNR will probably continue to provide low cost local voice telecommunication services for the foreseeable future.

Grazing Lands - Cattle

Washington State University is experimenting with raising Wagyu cattle, a type of cattle raised in Japan, which is well marbled but with low fat content. If this type of cattle can be commercially raised in the U.S., it would substantially increase the demand for high-end beef products, an example of technology causing product substitution.

Projected Technological Trends

Current trends suggest that, in the longer term, engineering of new wood products should continue to use less wood and lower valued woods as the price of timber continues to rise. Technological change will likely continue

to create new markets for products that can be substituted for today's wood products.

Researchers at Washington State University are experimenting with new types of cattle whose meat will be well marbled but have low fat content. If this, or similar, research is successful in developing new types of beef cattle, the relative demand for beef in the U.S. could increase, resulting in product substitution. In general, technologies such as the mapping out of the DNA structure for most plants and animals, may work to reduce resource requirements while increasing resource values.

In the long-term, the technology for construction of larger container ships should become well established, and thereby increase the demand for DNR-managed harbor areas and for investment in piers and support areas. Finally, satellites and fiber optics may eventually replace line of sight telecommunication sites.

Opportunities & Challenges

Aquatic Resources - Maritime Industry

DNR has an opportunity to capture a portion of the West Coast market for the new deep draft container ships by positioning itself to provide the substantial infrastructure needed for the new ships, given Seattle's and

Tacoma's advantageous positions relative to growing U.S. markets. T impact of these trends is limited by other trends that may lead to slower increases in commodity prices. For example, the supply of timber from Russia to Asian and European markets could depress the expected rise in timber prices, and consequently the expected engineering of new wood products may not take place.

COMPETING RESOURCE SUPPLY

How will competing supplies of natural resources influence the portfolio of lands?

Asset Classes Affected

The primary impact of competing resource supply trends is on the (a) Agricultural Resources, (b) Aquatic Resources, (c) Commercial Real Estate, (d) Forest Resources and (e) Grazing Lands. The remaining asset classes are not expected to be significantly impacted.

Historic and Current Competing Resource Supply Trends

Competing resource supply issues are mainly related to one, or some combination, of three broad classes of trends:

- government regulation, industry collusion or the exhaustion of a resource that results in a supply reduction;
- higher commodity prices that cause higher cost-of-production sources of supply to become economically feasible; and
- changes in transportation and/or production function costs that allow areas previously excluded from world markets by high delivered prices to now compete effectively.

Forest Resources

Current Forest Resource trends are being most affected by supply limitations that increase forest resource prices and allow competitive regions and products into markets once exclusively dominated by wood products. In this sense, the issue of competing resources is that forest products are being priced out of markets by supply limitations related primarily to environmental regulations and concerns. The cost burden of such regulation would primarily fall on the wood products users in the form of higher prices. Current trends are for cutbacks in forest harvesting to be off-set by higher stumpage prices, and therefore are not a threat to Trust Revenues.

Agricultural Resources

Agricultural products produced on DNR-managed lands face resource supply competition from South America (for orchard crops) and Asia (for wheat and other grains). The South American (mainly Chilean) competition follows a growing season which is virtually the mirror image of Washington's agricultural sector. It consequently offers few, if any, opportunities for commodity substitution. The countries of Asia are beginning to produce significant amounts of wheat. However, these countries are also witnessing a shift in household consumption away from rice and to wheat. Further, Asian countries around the Pacific Rim are in the process of shifting from an

export-led to a consumer-led strategy for economic development. Current market trends, consequently, are for little resource supply competition for the agricultural products produced on DNR-managed lands.

Grazing Lands

The major product from DNR-managed Grazing Lands is beef cattle, and recent trends in U.S. per capita beef consumption have been downward. Although the trend in substituting chicken, fish and pork for beef appears to have stabilized in the last few years, some observers are of the opinion that total meat consumption per capita will decline in the next decade. Whether or not such a decline occurs, present trends appear to favor non-beef types of meat. Combined with environmental pressure to increase grazing land fees (and pressures to eliminate all forms of government subsidies), this could lead to a displacement of rancher demands for DNR-managed grazing lands.

Commercial Real Estate

DNR-managed Commercial Real Estate lands face competition that is not based on competing resource supplies but on relative competitive location. DNR-managed inland commercial real estate already reflects the judgment of DNR's leaseholders that the commercial value of these lands will persist. If anything, Washington's expected demographic and economic growth should enhance the value of these lands.

Communication Resources

DNR-managed Communications Resources lands could face possible competition from Low Earth Orbiting (LEO) satellites. However, the competition for communications uses of LEOs is strong; LEO satellite costs are high, and it is unlikely that telecommunications uses of DNR-managed Communications Resources lands will face much competition over the next decade.

Aquatic Resources

The harvesting of geoducks from DNR-managed aquatic resources faces competition only from Alaska and British Columbia, since these three areas of the Pacific Northwest account for the world's entire geoduck harvest. Current trends are for this regional monopoly to continue and the growth in world demand to outstrip the supplies available from the entire region, with a resulting upward trend in prices.

Projected Competing Resource Supply Trends

There are a few major new competing resource supply trends that can be projected into the long-term future. Several of these possible long-term trends involve the forest products sector. The possibility of Russian timber, harvested in Siberia and sold along the Pacific Rim, could offer competition to Washington forest products if: (a) Russian civil government and economic property rights are stabilized: and, (b) transportation costs of

moving goods from inland locations to Pacific ports are reduced. A second trend with possible long-term implications for the state's forest products sector is for large timber companies now operating in the state to acquire lands in eastern Canada for their low density (and therefore relatively fast growing) hardwood forests. These competing hardwoods could displace Washington forest products from some traditional markets in the long run.

Increases in disposable income among persons living in emerging third world countries along the Pacific Rim could provide a long-term trend toward higher demand for Washington's high-end crop and cattle agriculture. These countries will likely expand their own agricultural output as they develop and supply part of their own domestic demand. It is doubtful, however, if they will be able to compete with Washington's efficient agricultural producers for higher-end crops and sources of animal protein.

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COMMODITY PRICES

How will changes in commodity prices (for commodities produced on or from DNR-managed lands) affect the portfolio?

Asset Classes Affected

The primary impact of commodity price trends is on (a) Agricultural Resources, (b) Aquatic Resources, (c) Forest Resources, and (d) Grazing Lands. The remaining asset classes are not expected to be impacted.

Historic and Current Commodity Price Trends

Commodity prices reflect the interaction of all other supply and demand trends which affect commodity markets. Actual prices observed in the various commodity markets, both in the short and long run, will depend on supply-demand equilibrium. As noted throughout this analysis of economic trends, market equilibrium is likely to be constrained or affected by myriad factors, such as government limitations on harvesting and technological change.

Forest Products

For the forest products industry, significant trends include, but are not limited to: (a) supply constraints due to continued public concern with harvesting the state's standing old growth timber; (b) continued high levels of export demand for logs by Pacific Rim countries; (c) a reduction in

derived demand from new home construction as baby boomers of famil formation age are replaced by the next (smaller) generation; and, (d) competitive technologies and new supply areas entering the market as a result of higher timber prices.

Historically, prices in the forest products sector have been extremely volatile, buffeted by swings in supply and demand. In early 1994, lumber prices, as measured by spruce, pine and fir 2x4s, peaked at approximately $500 per thousand board feet. As a result of the U.S. housing slowdown, which was in turn brought about by higher interest rates, these same prices plunged to $210 per thousand board feet in early 1995. Between the end of 1994 and May 1995, plywood prices dropped from $400 to $315 per thousand square feet.

Agricultural Products

For agricultural products, these trends include, but are not limited to, the following: (a) reduced land usage costs due to a lessening in the pressure to convert farm lands into residential and commercial uses; (b) growing export markets for agricultural crops, particularly in Asia and Latin America; and, (c) lower production costs resulting from higher yields per acre. The net effect of these changes will likely be rising agricultural commodity prices.

Agricultural product prices are also prone to significant volatility. Wholesale beef prices have been on a slight upward trend since the mid-1980s. However, prices spiked from about $0.67 per pound to $0.87 per pound over the last year before settling down to approximately $0.77 per pound in 1995. Wheat prices have also shown wide swings, increasing from approximately $3.40 per bushel in 1993 to $4.35 per bushel in 1995.

Grazing Lands

For grazing lands, the important trends are those affecting the demand for beef cattle, which include, but are not limited to the following: (a) falling per capita consumption of beef in the United States; (b) a growing tendency to substitute fish, poultry and/or vegetables for beef in the diet as a source of protein; and, (c) growing pressure to charge ranchers full market prices for leasing grazing lands.

Aquatic Resources

Aquatic resources may face pressures mainly related to a growing demand for geoduck and other shell fish products by Japan and other Asian Pacific Rim countries. These effects should result in higher aquatic commodity prices.

Projected Commodity Price Trends

Forest product prices will likely be affected by a long term trend toward increased resource recovery, product re-manufacturing and a decrease in the harvesting of virgin wood products for first time fabrication. Technological changes and product substitution in the construction industry, such as the use of I-beams, would allow the industry to satisfy its future lumber requirements without the need to harvest as many trees as is currently the case. The result of the interaction of these multiple trends is not totally clear, but it appears that in the long-term, the dominating trend is towards constrained supply, and forest product prices are likely to continue their upward trend.

The long-term trend for geoduck prices is likely to be upward, as worldwide demand is unlikely to fall off, and the chances of cultivating geoducks in other locals is remote.

Opportunities & Challenges

Public concern for sustainability of the Northwest's traditional quality of life will create challenges for appropriate uses of the state's lands and waters. This would put pressure on DNR to: (a) charge full market rates for the use of its lands and resources; (b) conserve the use of Washington's surface waters and aquifers; and, (c) restrict the harvest of remaining old growth forests.

RECREATION, TOURISM AND LIFESTYLE ISSUES

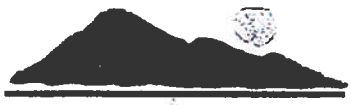
How may the attitudes of Washington residents about recreation, tourism and lifestyle issues change, and what influence will that change have on the asset portfolio?

Asset Classes Affected

The primary impact of recreation, tourism and lifestyle trends is on Natural Preserve/Conservation Areas. The remaining asset classes are not expected to be significantly impacted.

Historic and Current Recreation, Tourism and Lifestyle Trends

Trends in recreation, tourism and lifestyle relevant to the management of DNR's asset portfolio relate to the changing attitudes of Washington State residents about recreation on, commercial uses for, and the preservation of DNR-managed lands. The past several decades have witnessed both a growing appreciation of the Northwest's unique lifestyle and an increased awareness of the importance of access to outdoor recreational areas to its continuance. The 1990 report of the Interagency Committee on Outdoor Recreation (IAC), *Washington Outdoor: Assessment and Policy Plan*, itemized the ten most popular outdoor recreational activities in Washington. Six of the ten (outdoor photography, walking in parks, picnicking, day hiking, bicycling and sightseeing/exploring) have relevance as potential uses of DNR-managed Natural Preserve/Conservation Areas lands. Further, IAC's 1995 *Assessment and Policy Plan* reported that state resource managers



expected walking in parks, picnicking, camping, mountain bicycling a sightseeing/exploring to be among the "high growth" activities in the coming decades.

Tourism is often viewed as a renewable, resource-based industry, in which tourists come to admire— rather than consume— the attractions of an area. However the U.S. Office of Technology Assessment (OTA) has pointed out that the tourist industry, like other resource-using industries, competes for scarce resources and capital; its non-consumptive attributes do not necessarily prevent the erosion or degradation of its attractions. OTA also concluded in its report, *Science & Technology Issues in Coastal Ecotourism*, that nature-based tourism is "one of the fastest growing sectors of tourism worldwide and is fast gaining the attention of developed countries as a potential means to conserve natural resources and support sustainable economic progress."

Projected Recreation, Tourism and Lifestyle Trends

Recreational activity and tourism are evolving in response to changes in Washington's demographic structure, working environments and family organization. Increasing participation of women in the labor force, combined with declining average family size, should result in increased family discretionary income plus greater family flexibility in selection of travel, tourism and recreational activity. The U.S. Department of

Commerce's U.S. Industrial Outlook: 1994 report speculates that recreational trip trends within the United States will be for trips "shorter in duration and in distance traveled." This implies that residents of Washington (and other states and provinces in the Pacific Northwest) will increasingly seek outdoor recreational activity areas closer to home. This could give rise to increased pressures to use DNR forest and other lands for recreational activities.

The ebbing of the baby boom and falling birth rates, combined with a general aging of the population, will likely lead to growing health awareness and health concerns. These trends should produce increased concern with exercise regimes and the demand for opportunities to engage in a variety of less energetic forms of outdoor recreation. A growing preference for recreational activities that can be engaged in simultaneously by an entire family would reinforce this trend. This could increase the demand for use of DNR-managed Natural Preserves /Conservation Areas lands for day hiking, camping and similar activities.

The environmental quality embodied in DNR-managed Natural Preserves/Conservation Areas lands could lead to growing use as part of the state's ecotourism economy. Ecotourism is fast becoming a major factor determining the selection of recreational travel destinations, and could be a major trend in Asia-Pacific recreational travel to the U.S. in the

coming decades. DNR's ability to balance environmental protection w tourism development could enhance its ability to contribute to Washington's future international competitiveness as an ecotourist destination.

Washington has become synonymous with the outdoor, eco-conscious, recreation-intensive lifestyle. Residents take great pride in and derive a great deal of psychic enjoyment from the natural beauty the state offers. Although no quantitative data are readily available, there is no reason to believe that strong attitudes towards the maintenance of the Washington lifestyle will abate. The spotted owl issue provides testimony to the state's as well as the nation's staunch reserve to protect these lands and ecosystems. A generalized implication of this trend is that harvesting and other uses of DNR-managed lands can only become more difficult.

Opportunities & Challenges

Future increases in the demand for use of DNR-managed Natural Preserves/Conservation Areas lands for ecotourism and outdoor recreational activities may not be matched by a willingness on the part of Washington residents to spend public funds to maintain (let alone enhance) the environmental quality of the resource. Without funding for increased infrastructure investment and land management, DNR-managed Natural Preserves/Conservation Areas lands will diminish as a factor contributing to the state's ecotourist economy. DNR might consequently consider the

initiation of fees and charges for recreational uses of its lands, with the revenues from the fees and charges to be used to protect and enhance quality of the resource as well as to support necessary infrastructure investments.

DNR has the opportunity to become a significant contributor to the growth of the ecotourism industry within the state of Washington if it is able to balance the conflicting requirements for environmental protection/enhancement of its lands with the demands of the ecotourism industry.

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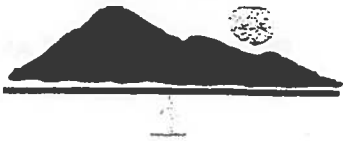


GOVERNMENT AND JURISDICTIONAL CONTROLS & RESTRICTIONS

How will government regulation, particularly trade and land use laws, influence the lands in the portfolio?

Asset Classes Affected

Almost all asset classes will be affected to greater or lesser degree by government and jurisdictional control and restriction trends. The primary impact of government and jurisdictional control and restriction trends is on Forest Resources and Agricultural assets.

Historic and Current Control and Restriction Trends

Trends in governmental and jurisdictional controls and restrictions relevant to the management of DNR's asset portfolio largely fall into two broad categories:

- International trade controls and restrictions, and
- Land use controls and restrictions.

International Trade Controls & Restrictions

International trade controls and restrictions are relevant both for log and agricultural exports from Washington State to the rest of the world and for the import of foreign forest and agricultural products that compete with Washington State products. Land use controls and restrictions relate to state and local regulation of permissible land uses.

The debate over whether to allow raw logs to be exported or require them have some value-added processing is an old one. Over 25 years ago, the U.S. Congress included in *The Foreign Assistance Act of 1968* a prohibition on the export of unprocessed logs from federal lands. The recent controversy over cutting old growth timber, engendered by the application of the Endangered Species Act (ESA) to the Northern Spotted Owl, led to passage of Public Law 101-382, *The Forest Resources Conservation and Shortage Relief Act of 1990*, which required states to issue regulations controlling log exports from state lands. Washington State subsequently enacted regulations, which became effective in January 1991, banning the export of logs from lands managed by DNR.

In her Masters Degree dissertation, *The Economic Effects of the Forest Conservation and Shortage Relief Act on Timber Prices*, Holly Linn Lippke estimated that 62% of DNR timber sales were exported prior to the ban. Recent concerns with job losses in the forest products industry could focus renewed attention on the export of raw logs and bring new initiatives to constrain raw log exports.

At the same time, passage of the North American Free Trade Agreement (NAFTA) and further extensions of the General Agreements on Tariffs and Trade (GATT) are constraining signatory nations from imposing barriers to the free flow of foreign trade goods and services across their borders.

World markets for timber products are generally segmented by type of log, and Washington producers have had little trouble selling their product either in domestic or foreign markets. World markets for agricultural products, on the other hand, tend to be more homogeneous, and trade restrictions have been more important as a barrier limiting Washington growers' ability to penetrate foreign markets. It appears therefore that NAFTA and GATT will be more important for generating export sales for the state's agricultural sector than they will be for the forest products sector.

Land Use Regulations & Controls

With respect to land use regulations and controls, the most important single trend in Washington State is the attempt to preserve the Northwest's traditional quality of life by protecting the rural character of lands surrounding urban communities while simultaneously insuring that adequate infrastructure is provided in areas where rapid economic and population growth occurs. These concerns are the focus of the state's Growth Management Act (GMA), which requires that most counties, in cooperation with their cities, identify Urban Growth Areas (UGAs) where economic and demographic growth will be channeled and where full infrastructure services will be provided.

Areas of the state outside designated UGAs will have only limited infrastructure, and their economic and demographic growth may be

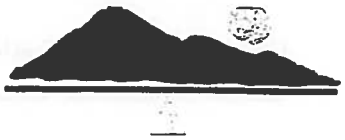
constrained to levels compatible with maintenance of their rural character. GMA requires that most counties (a few counties are exempt because of their slow rates of population growth) develop a Comprehensive Land Use Plan that incorporates the Act's mandates and requirements.

In general, GMA will tend to increase the price of lands contained within the state's UGA boundaries relative to lands outside them. This will be the land market's likely response to directing a majority of economic and demographic growth into relatively few areas of the state. Since GMA requires that all land within UGA boundaries have the full array of infrastructure services available, these lands will normally lie adjacent to cities and towns where water and sewer services already exist. Other places in the state will probably retain their rural character. DNR-managed lands lie mostly outside the state's designated UGAs and will have fewer development pressures than would occur without GMA, and consequently, will likely appreciate in value less rapidly than they would otherwise.

Projected Control and Restriction Trends

International Trade Controls & Restrictions

World trade is expected to continue to grow over the next quarter century. National and international economies will likely become more integrated, and the trade sector (exports plus imports) will likely double in relation to U.S. gross domestic product. There is speculation that large regional



trading blocks (the Americas, Europe, Asia) may arise, and while trade will be unrestricted between nations within a trading block, the movement of goods and services between trading blocks will be constrained by a system of bilateral inter-block trade agreements. Another trend is the growing importance of trade between Pacific Rim nations. This trend indicates a growing integration of production and consumption between the United States, Canada, Mexico, the nations along the western coast of South America and Asia. Whether future trade is organized around individual nations or trading blocks, however, it appears that trade with Pacific Rim countries will become increasingly important for Washington State's economy.

For the forest products industry, the openness of international trade could reduce demand for Washington State timber products in the short to intermediate run if large corporate producers acquire forest lands in developing countries where environmental regulations are less restrictive. In the longer run, however, environmental concerns may bring these nations' regulatory regimes into line with those of more developed countries, causing forest products companies to return to harvest their forest holdings in Washington. This would result in higher stumpage prices for logs cut from DNR-managed lands.

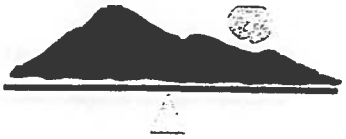
Additional impacts on DNR stumpage prices may come from increased

demand for construction lumber by the rapidly growing economies of E. Asia. Off setting this trend, however, may be an increased supply of logs from Siberia, once the problems of governance and economic organization in Russia are solved.

Open trade would increase the demand for food products from Washington's agricultural sector. This should be true for fruits, vegetables and grain produced for human consumption and for Timothy hay and other agricultural products used as food for livestock. Washington, along with other agricultural producing areas in the United States, is one of, if not the single most cost effective producers of farm products in the world. The demand for food products is steeply inelastic as incomes rise. Consequently, economic and population growth in the U.S. and other developed countries generates little, if any, growth in the demand for agricultural products. As the developing countries of the Pacific Rim experience a growth in per capita incomes while reducing their barriers to imported food products in accordance with GATT and NAFTA, the demand for Washington agricultural products should rise and generate upward price pressures on agricultural land.

Land Use Regulations & Controls

Turning to land use regulations, it appears that adjustments to GMA (such as excluding small land holders who have resided at the same location for



extended periods of time) will be made such that perceived inequities in the Act will be eliminated. State regulations focused on sustaining Washington's quality of life will continue, or be expanded, in the future.

Opportunities & Challenges

The opening of foreign markets to the products produced on DNR-managed lands creates a whole host of opportunities for DNR, not the least of which is the ability to continue to enjoy demand for leases on lands utilized to provide products to these foreign markets. The key challenges that DNR faces center around the restrictions under which it must operate—restrictions such as limits on the size and number of land parcels and timber stands it can sell—that prevent it from taking a strictly economics-oriented approach to portfolio management.

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WATER USES & ACCESS

What impacts, if any, will changes in the use of coastal waters or access to coastal waters have on the aquatic resources in the portfolio?

Asset Classes Affected

The primary impact of water use and access trends is on the Agricultural Resources Lands asset class: Lesser impacts will be on (a) Aquatic Resources assets, (b) Commercial Real Estate Assets, (c) Forest Resources and (d) Grazing Lands. The remaining asset classes are not expected to be significantly impacted.

Historic and Current Water Use and Access Trends

Trends in water use and access relevant to the management of DNR's asset portfolio relate primarily to the importance of water for agricultural productivity and hence land values. Economic and demographic growth in Washington have exerted a huge demand for water and caused conflict among agricultural, industrial and municipal users on the one hand and environmental, fishing and Indian rights groups on the other. Confronted with these competing water rights claims, Washington State government has instituted an approach to allocating new water rights that attempts to take into account both public and private interest points of view and considers legal, hydrological and environmental issues in making its

decisions.

Clearly, recent controversies about issuing water rights permits are just the beginning of a long-term trend in which the availability of water may be the limiting factor for all types of demographic and economic growth in the state. It will be surprising if questions are not raised in the future about the wisdom of using the state's limited water supplies to irrigate marginal agricultural lands.

Recent proposals to remove the dams blocking the return of salmon up the Elwa River indicate another water use and access trend—a reevaluation of past trade-offs between economic development and the health and viability of natural ecosystems. Again, the Elwa River controversy is likely only the "tip of the iceberg."

Projected Water Use and Access Trends

Over the next quarter of a century, the Office of Financial Management (OFM) predicts that Washington State's population will grow by two million people and that economic growth will create a proportional expansion in jobs. The demand for water generated by this demographic and economic growth will almost certainly exceed available supply if current water practices continue. The pressure to reallocate water away from some existing uses may effect DNR management practices with respect to its agricultural lands and, to a lesser degree, its forest lands.

Opportunities & Challenges

A major challenge facing DNR is that land management practices will likely have to be changed to reflect water as the limiting resource for both economic development and environmental quality/ enhancement. As streams, rivers and lakes contained within DNR-managed Natural Preserves/Conservation Areas lands become increasingly valuable for outdoor recreational uses, DNR may be provided with opportunities for potential sources of new revenue in the future.

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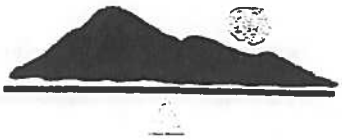


UPGRADED LAND USES

How will the ability of the DNR to increase the intensity of use or development density of some of its managed lands influence the portfolio?

Asset Classes Affected

Upgraded land use trends will have some impact on all of DNR-managed asset classes, with the exception of Administrative Resources Assets, Communications Resources, Monetary (Permanent Fund) Assets and Natural Preserve/Conservation Areas.

Historic and Current Upgraded Land Use Trends

Upgrading land uses refers to DNR reclassifying lands from lower valued, less intensive uses to higher valued, more intensive uses. Primarily this involves: (a) reclassifying agricultural, mining, forest and grazing lands to private commercial and residential uses; and, (b) converting lower valued agricultural lands into such higher value uses as orchards or the growing of ornamental flowers.

The opportunities for such upgrading and reclassification of DNR-managed lands come from either: (a) demographic and economic growth occurring in rural or suburban areas where DNR has land holdings; or, (b) sufficiently large changes in relative prices among different resources that can be

extracted or harvested from the land that the required investments for t new type of production are financially warranted.

Concerning the first of these opportunities for land use upgrading (demographic and economic growth), Washington's Growth Management Act (GMA) will likely be fully implemented over the next several years, and the designated Urban Growth Areas (UGAs) established under the Act would then define the potential for DNR reclassifying and upgrading its lands. Regarding the second opportunity for land use upgrading (relative price changes), the most likely shift in prices will be the relative decline in the value of cattle grazing lands, and to a lesser degree, the value of some types of mining lands.

Projected Upgraded Land Use Trends

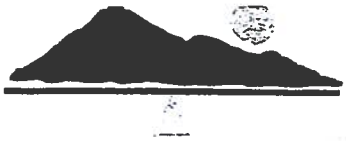
Projected declines in Washington's rate of population growth and net in-migration imply decreased opportunities to convert DNR-managed agricultural, mining, forest and grazing lands to private commercial and residential uses. The opportunities that will exist will most probably occur on DNR-managed land in the state's western corridor—from Vancouver on the south to Blaine on the north. Some demographic geographers project that the shift in the age distribution of Washington's population will increase densities in counties peripheral to the central Puget Sound region, particularly to the east, and counties such as Kittitas may offer opportunities

to convert DNR's agricultural, mining, forest and grazing lands to private residential uses.

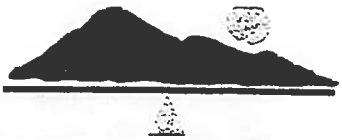
In general, long-term price changes are likely to increase the relative value of forest and agricultural lands while decreasing the relative value of grazing lands and, possibly, lands used for the mining of gravel. Lands offering the greatest potential for upgrading and reclassification are those now used primarily for cattle grazing and gravel mining, and those lying in the state's western corridor or to the immediate east of King County.

Opportunities & Challenges

Future opportunities for upgrading and reclassification of DNR-managed lands would be affected by the following contingencies: (a) if Washington's GMA is repealed or significantly weakened, increased urban demographic and economic sprawl is a likely result, and this should increase DNR's potential for reclassifying agricultural, mining, forest and grazing lands to private commercial and residential uses; (b) if serious water shortages in the state occur, DNR-managed lands which already have access to water will increase significantly in value, and DNR will have the opportunity to realize these values by upgrading and reclassifying these lands for private uses; and (c) if the state's population forecasts are low and there is greater job creation and net in-migration than is now projected, market pressures for the conversion of rural and suburban land to commercial and residential uses will grow, and DNR will have the opportunity to take advantage of



these market pressures by upgrading and reclassifying of some of its land



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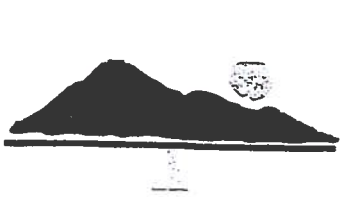

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