Deloitte.

Source: WA STATE DNR

Chapter 10
Mining Resources Asset Class

Table of Contents

Executive Summary

The Mining Resources Asset Class consists of state trust lands with contracts for the extraction of minerals, sand, gravel, and rock or leases for the prospecting of new mining sources. The table below provides a brief summary of the Trust Value for the Mining Resources Asset Class based on the following extraordinary assumptions.

We assume that all lands with contracts and leases for mining uses adhere to proper zoning regulations outlined in local general plans. If not fully compliant, we assume that each property is legally non-conforming to the proper regulations and standards. For the purpose of this analysis, we assume that the ownership interest is non-transferable resulting in the land not being able to be sold. We relied upon information provided by the Trust Manager for all specific data regarding data files, contract and leasing activities, financials, and size and ownership information. We assume that the information provided is accurate and sufficient for the purpose of this valuation.

Importantly, the value appraised is the Trust Value, which is defined earlier in this report. This value type is applicable to all asset classes and subject to specific laws, regulations, and management policies that restrict the use, marketability, or sale of the asset classes.

Mining Resources Asset Class Executive Summary	**Surface & Subsurface Rights**	**Subsurface Rights Only**	**Total**
Contracts / Leases	39	2	**41**
Contracted / Leased Acres	5,684	185	**5,869**
Stabilized Gross Revenues	$1,896,000	$4,000	**$1,900,000**
Operating Cost 30% Deduct	($568,000)	($1,200)	**($570,000)**
Trust Net Operating Income	**$1,327,200**	**$2,800**	**$1,330,000**
Capitalization Rate	8.00%	8.00%	**8.00%**
Value Indication	**$16,600,000**	**$40,000**	**$16,640,000**
Concluded Trust Value (Rounded)	**$16,600,000**	**$40,000**	**$16,640,000**
Concluded Value per Contract / Lease	$425,641	$20,000	**$405,854**
Concluded Value per Acre	$2,921	$216	**$2,835**

Introduction

Leased and contracted sites in the Mining Resources Asset Class are largely situated within the northeast part of the state.

INTRODUCTION

In the portfolio of assets managed by the State of Washington Department of Natural Resources ("Trust Manager" or "Trust Management"), the Mining Resources Asset Class represents areas of state trust lands contracted for the extraction of minerals, rock, sand, gravel, hydrocarbons, and coal or under prospecting lease for potential new mining resources.

As of FY 2018, the Mining Resources Asset Class consisted of 5,869 total acres under lease or contract, the majority of which are located in the northeast part of the state. Spread across these locations are two types of sites with different rights under lease or contract:

- Sites with access to both surface and subsurface rights
- Sites with access to subsurface rights only

As of FY 2018, there are approximately 185 acres with contracts on lands with subsurface rights only and 5,684 acres with leases or agreement on lands with both surface and subsurface rights.

This asset class is limited to land not contained in other asset classes. The land in this asset class is only managed for its mining production or mining potential.

Note that the state retains nearly 800,000 acres of subsurface rights linked to surface lands not managed by the Trust Manager.

The Trust Manager offers several types of agreements in the Mining Resources Asset Class:

- Rock, sand, and gravel contracts
  - These are agreements for the removal of surface materials (rock, sand, and gravel)
  - Contracts for appraised value under $25k of material are "direct sales of valuable materials"
  - Contracts over appraised value of $25k are put up for public auction, and called "Agreement for the removal of rock, sand, and gravel"
  - These are high value contracts with smaller acreages
- Prospecting leases
  - These are leases that allow the lessee to evaluate the potential for subsurface materials that do not allow for commercial extraction of minerals, rock, sand, gravel, hydrocarbons, or coal, etc.
  - These are low value leases that can be for up to 640 acres for a total of no more than seven years
  - They generate little revenue for the amount of administrative oversights required but have the potential to yield valuable data and interpretation of mining resource potential.
  - These leases may also convert to mining contracts

Mining Resources

This asset class consists of areas leased and contracted for both surface and subsurface rights and areas leased for subsurface rights only. There are a variety of potential mining assets within the asset class, including sand, gravel, and rock; metallic and non-metallic minerals, rock direct sales, and mineral prospecting leases. In total, the Trust Manager has prospecting leases, contracts, or agreements on approximately 5,869 acres (3 percent of the lands with subsurface rights only).

- Mining contracts
  - These agreements are for the removal of subsurface materials not including rock, sand, gravel, hydrocarbons, or coal
  - These contracts provide a 5% royalty rate on the materials mined
  - Active mining is not required during the life of the contract. Contractor may also perform development work (exploration, testing, etc.) that would characterize the mining potential
- Oil & gas leases
  - These leases are for the extraction of subsurface oil, gas, and hydrocarbons
  - There are currently no leases of this type
- Coal option contracts
  - These leases are for the extraction of subsurface coal
  - There are currently no leases of this type

Typically, the Trust Manager considers contracts with companies with the mining experience and financial capability to fully explore and develop a property to production, which promotes strong financial returns for trust beneficiaries and supports the company's ability to follow relevant and environmental protection rules and regulations.[1]

There were 41 prospecting leases, contracts, and agreements associated with the Mining Resources Asset Class in FY 2018.

As a general note, all dollar amounts reported in this chapter are nominal and have not been adjusted for inflation. Additionally, note that all years referenced are fiscal years—not calendar years. The fiscal year for state trust lands begins on July 1 and ends on June 30.

Subgroups. For the purposes of this portfolio valuation analysis, the Mining Resources Asset Class has been divided into subgroups based on asset management criteria, asset valuation criteria, or the availability of asset data needed for analysis. We found the segregation of the Mining Resources Asset Class into these subgroups was appropriate given the overall scope of services.

The Mining Resources Asset Class is divided into two subgroups with the following definitions:

1. **Surface & Subsurface Rights**
   a. Trust lands leased or contracted for both surface and subsurface rights for a specified period of time. The Trust Manager had mining contracts, prospecting leases, removal agreements or direct sales on approximately 5,684 acres in FY 2018.
2. **Subsurface Rights Only**
   a. Trust lands only leased or contracted for subsurface rights for a specified period of time. Such contracts comprised a subsurface area of less than 185 acres in FY 2018.

Note that the state retains ownership to subsurface rights on approximately 793,046 additional acres in which the state doesn't have surface rights and that are not currently under lease or contract. The retention of subsurface rights is required by statute in the vast majority of land sales by the state and highly speculative as little or no specific information exists about the presence of subsurface minerals.

[1] https://www.dnr.wa.gov/programsservices/product-sales-and-leasing/mining-and-mineral-leases

Further, we acknowledge the possibility of a third subgroup wherein the Trust Manager enters into an agreement for the removal of aggregate on land whereon the State owns the surface rights but does not own the subsurface mineral rights. However, this potential third subgroup has not been included or further analyzed as the Trust Manager does not contain any such agreements as of the date of value.

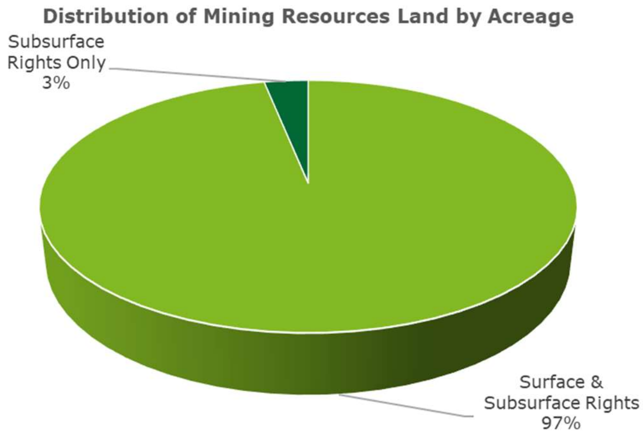
The segregation of agreements and the associated acreage by subgroup is presented in the following figures.

Mining Resources Subgroup Acreage

FIGURE 1

Mining Resources	Agreement Count	Acres
Surface & Subsurface Rights	39	5,684
Subsurface Rights Only	2	185
Totals	**41**	**5,869**

FIGURE 2



The vast majority of acreage in this asset class consists of lands leased or contracted for both surface and subsurface rights, although there are some acres leased for their subsurface rights only.

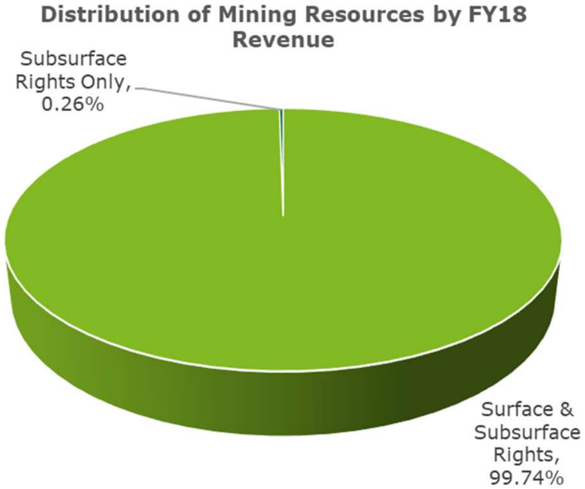
Contracts for subsurface rights only comprise 3 percent of the total acreage, and the revenue received from these contracts in FY 2018 is nominal as presented in the following charts. It is important to note that revenue from these contracts could change significantly if any one of the Trust Manager's mining contracts commences active mining. By statute though, a mining contractor can hold a contract for the 20-year duration of the contract and never mine, or the activity may be limited to exploration activity.

Mining Resources Subgroup Revenue

FIGURE 3

Mining Resources	Agreement Count	Gross Revenue (FY18)
Surface & Subsurface Rights	39	$1,556,000
Subsurface Rights Only	2	$4,000
Totals	**41**	**$1,560,000**

FIGURE 4



Several potential mining assets are included in the identified subgroups. As a whole, the mining assets allowed to be extracted under FY 2018 contracts and leases include:

1. Agreements for the sale of valuable materials with the appraised value over $25,000 such as sand, gravel, and rock
2. Mining contracts for metallic (e.g. gold, silver, zinc, copper) and non-metallic (e.g. silica, talc, clay, lime) minerals
3. Direct sales of rock, sand, and gravel for the appraised value of less than $25,000
4. Mineral prospecting leases a (no commercial extraction is allowed for commercial sale)

In FY 2007 there was a temporary surge in gross revenues. The State had a great many more prospecting leases and mining contracts than it does currently including exploratory searches for oil and gas resources. Since 2013, the state no longer has oil and gas leases because (a) little to no oil and gas resources were found and (b) the state's focus shifted to renewable energy.

The following table summarizes the contract/lease type and acre count associated with each commodity along with its FY 2018 gross revenue (rounded).

Mining Resources Commodity Summary by Subgroup

FIGURE 5

	Contracts / Leases	Acres	Gross Revenue (FY18)
Surface & Subsurface Rights			
Sand, Gravel, & Rock	11	833	$1,527,000
Minerals	5	749	$11,000
Rock Direct Sales	2	2	$12,000
Mineral Prospecting	21	4,100	$6,000
Subsurface Rights Only			
Minerals	2	185	$4,000
Combined Total	**41**	**5,869**	**$1,560,000**

For FY 2018, mineral prospecting leases comprised the highest lease count and acreage totals, but the majority of revenue was received for sand, gravel, and rock mining contracts and agreements. Mineral prospecting leases are not intended to be revenue-producing. They are intended to lead eventually to revenue production if exploration, data collection, and analysis reveal evidence of commercial mining resource potential, in which case the mineral prospecting lease has a preference right to request conversion to a mining contract (RCW 79.14.360).

Mining Resources Asset Class Ownership. The Trust Manager manages and operates state trust lands owned by the State of Washington for the benefit of designated trust beneficiaries. To be concise, this report uses the term "ownership" or "ownership interests" to describe the amount or percentage of gross revenue or land managed by the Trust Manager on behalf of specific trust beneficiaries, even though the land is owned by the State of Washington and not the trust beneficiaries.

The Charitable, Educational, Penal, and Reformatory Institutions (CEP & RI) Transferred Trust has a minimal beneficiary interest in the lands of the Mining Resources Asset Class. However, in FY 2018, a single contract recorded approximately $1,266,000 in gross revenue, which is approximately 81 percent of the gross revenue for the entire asset class for that year.

The Common School and Indemnity Trust has the majority beneficiary interest in lands of this asset class. All other trusts not included in the following beneficiary interest composition charts have minimal or no ownership in the Mining Resources Asset Class.

Mining Resources Asset Class Ownership Composition

FIGURE 6

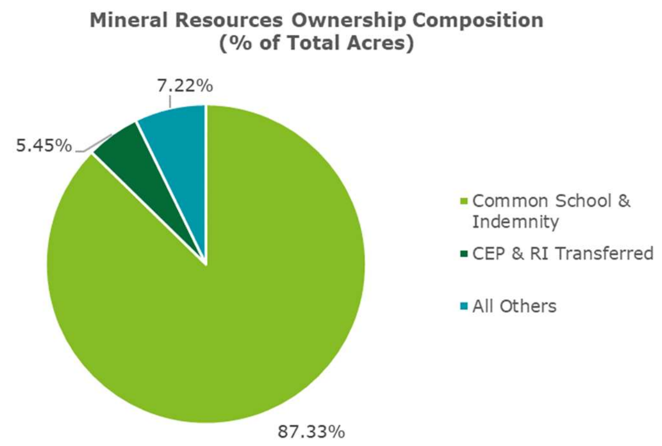
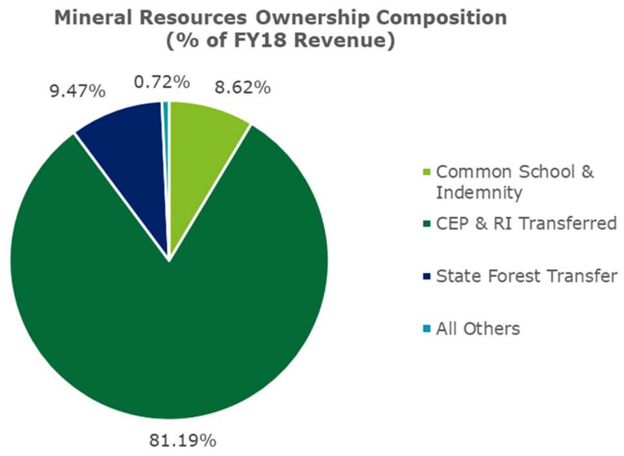


FIGURE 7



Physical Description

In FY 2018, the total acreage under agreement for the Mining Resources Asset Class was approximately 5,869 acres.

FIGURE 8

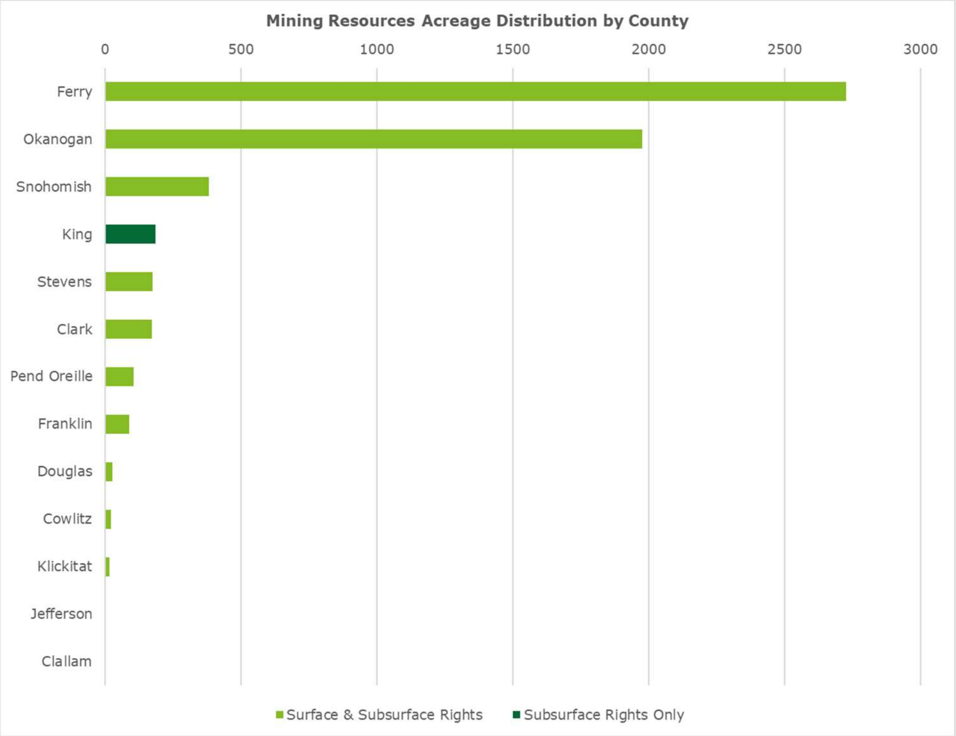


IMAGE SHOWS HIGH ROCK QUARRY IN WASHINGTON. SOURCE: WA STATE DEPARTMENT OF NATURAL RESOURCES

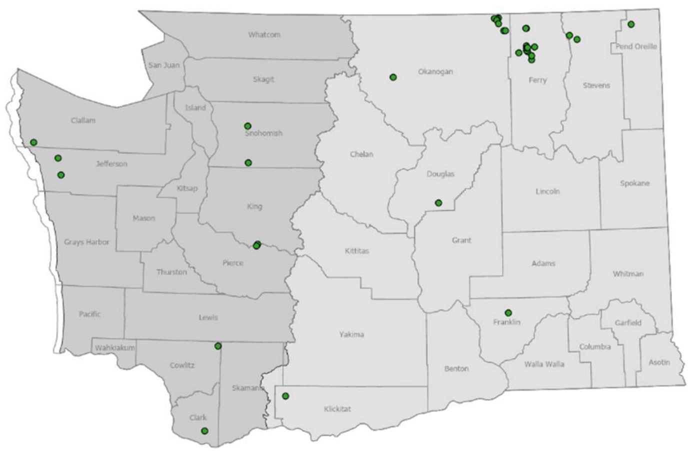
The majority of contracted and leased sites in the Mining Resources Asset Class are located in Ferry County and Okanogan County.

The following map highlights where sites in the Mining Resources Asset Class are located across the state.

The map is configured to represent general locations for sites in the Mining Asset Class for FY 2018 and is presented solely for illustrative purposes.

Mining Resources Asset Class Map of Contracted/Leased Areas

FIGURE 9



Surface and Subsurface Rights

In FY 2018, most of these were prospecting leases in the northeast portion of the state, with 12 leases in Ferry County and 14 leases in Okanogan County. Prospecting leases in the surface and subsurface rights subgroup ranged in size from 1 acre to 640 acres.

The majority of revenue was earned from 11 mining contracts comprising approximately 833 acres for sand, gravel, and rock commodities. Annual gross rent for these 11 mining contracts was approximately $1,527,000. Five additional contracts were for mining metallic and non-metallic minerals. The remaining revenue was from direct rock sales and mineral prospecting.

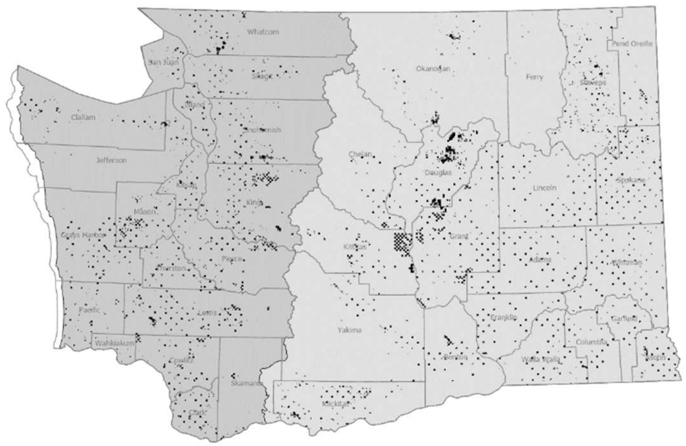
Subsurface Rights Only

There were two mining contracts in FY 2018 to access subsurface rights only. These contracts are both in King County and total 185 acres. Combined, the contracts generated gross rent of approximately $4,000 from mineral extraction (metallic and non-metallic) in FY 2018. Both contracts began in 2014 will continue until 2034.

The state retains ownership of subsurface mineral rights on approximately 793,231 acres that are not under lease or contract and not linked to surface lands managed by the Trust Manager. The following map presents trust lands with subsurface rights only

Subsurface Rights Only Map

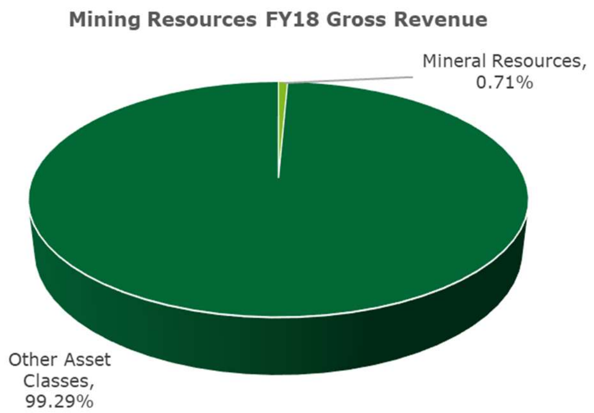
FIGURE 10



Operational History

The Mining Resources Asset Class generally produces between $1 million and $2 million in gross annual revenue.

FIGURE 11

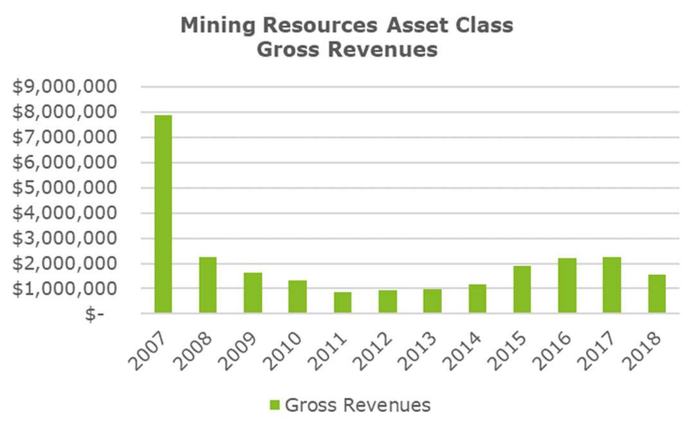


MINING RESOURCES ASSET CLASS REVENUE FROM 2007 TO 2018

For the scope of this project, we analyzed the operational history of each asset class. Operating information has been provided to the analysts for the past 12 fiscal years.

The chart below displays the total gross revenue[2] (before the operating cost percentage deduction) received from mining leases from 2007 to 2018. Revenue amounts were not adjusted for inflation and are presented in this report in nominal values, not real values.

FIGURE 12

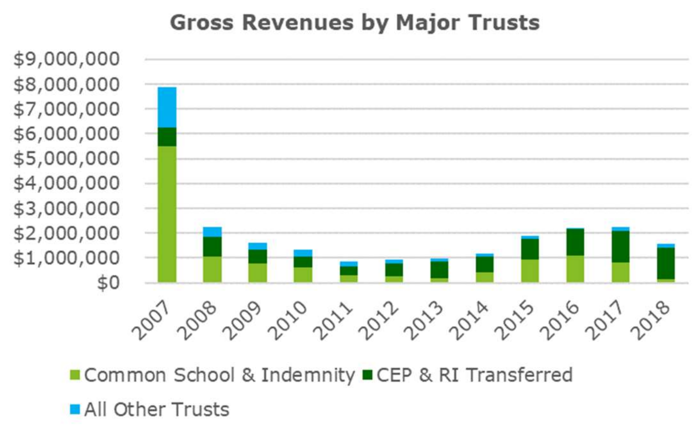


[2] Gross revenues exclude sub-sources 6, 3045, 4005, 5022, 5250, 6022, and 9088 as they are not included in reported operating cost percentage deduction totals.

Gross revenue significantly decreased between the 2007 and 2008 fiscal years. Per discussions with Trust Management, the change in revenue was due to a handful of reasons. Many leases initiated in 2006 and 2007 required the payment of large upfront bonuses which accounts for a large amount of revenue in 2007. Additionally, many of gas and oil prospecting leases were discontinued as little or no gas or oil was found. Since 2009, gross revenue for the Mining Resources Asset Class has fluctuated, but generally remained around $1 million to $2 million annually, with 2018 revenue near the average of the previous five years.

Gross Revenue by Trust Ownership. The Common School and Indemnity Trust and the CEP & RI Transferred Trust have the largest beneficiary interests in the land and revenue received in the Mining Resources Asset Class respectively. We broke out gross revenue by trust ownership in the following chart.

FIGURE 13



Between 2007 and 2018, the majority percentage of gross revenue received shifted from the Common School and Indemnity Trust to the CEP & RI Trust.

OPERATING COST PERCENTAGE DEDUCTION

As gross proceeds are received, an operating cost percentage deduction is applied and paid to the Trust Manager. From the trust beneficiary ownership position, there are no outflows of funds in operating and maintaining the asset class; the Trust Manager budgets for the actual costs and capital expenditures and pays these costs directly from the operating cost percentage deduction received during the year.

The operating cost percentage deduction is legislatively set and typically ranges between 25 percent and 31 percent of total gross revenue, depending on the management account associated with each trust ownership of the land leased. Historical data reported in this analysis reflects actual blended rates deducted. We have used an estimated assumption of 30 percent for the operating cost percentage deduction of this asset class which has been applied in the direct capitalization method.

Operating Cost Percentage Deduction versus Direct Operating Expenses. The operating cost percentage deduction is different than actual operating expenses and capital expenditures incurred to operate and manage the Mining Resources Asset Class assets.

When the total operating cost percentage deduction for all asset classes exceeds actual operating costs and capital expenditures for the year, the excess is held in reserve for future years when the operating cost percentage deduction does not cover actual costs. The reserve balances are reported by fund and held in separate accounts—the Resource Management Cost Account, the Forest Development Account and the Agriculture College Trust Management Account.

The Resource Management Cost Account in the state treasury is created and used solely for the purpose of defraying the costs and expenses incurred by the Trust Manager in managing and administering state trust lands, state-owned aquatic lands, and the making and administering of leases, sales, contracts, licenses, permits, easements, and rights-of-way as authorized.

The Forest Development Account was created in the state treasury (RCW 79.64.100). Money placed in this account is first used for paying interest and principals on specific bonds issued by the Trust Manager. Appropriations made by the legislature from the Forest Development Account to the Trust Manager are for carrying out forest management activities on state forestlands and for reimbursements of expenditures from the Resource Management Cost Account in the management of state forestlands.

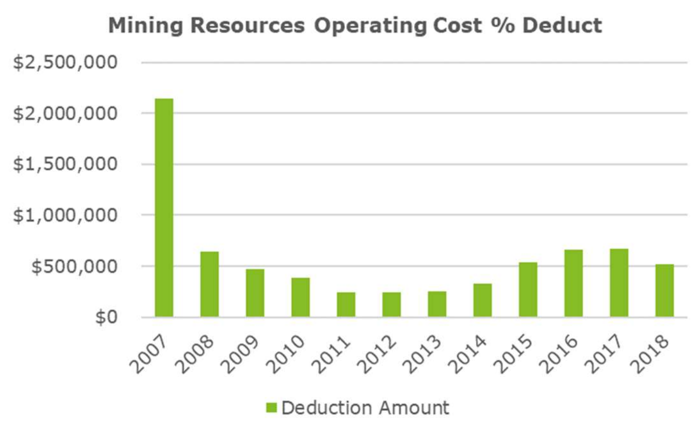
The third account is the Agriculture College Trust Management Account. This account does not retain an operating cost percentage deduction, but the Trust Manager receives a direct appropriation from the legislature to conduct management work. The Trust Beneficiary retains all gross revenue.

The reserve balances for all asset classes as of June 30, 2018 were approximately $12.6 million (Resource Management Cost Account) and nearly $4 million (Forest Development Account). Over the last 10 years, the Resource Management Cost Account reserves reached a high of more than $17 million at the end of FY 2014 and a low of $800,000 at the end of FY 2009. The Forest Development Account reserves reached a high of $24 million at the end of FY 2011 and a low of just under $4 million at the end of 2018.

However, note that these are snapshots as of the end of fiscal years. In reality, fund balances constantly change across a much wider range throughout each year. On a few occasions, reserves have dipped down to only a couple weeks of operating expenses.

The following chart presents the dollar amounts of the historical operating cost percentage deduction from 2007 to 2018 for the Mining Resources Asset Class. The operating cost percentage deduction is proportionate to the gross revenue produced by the asset class each year—it rises and falls along with trust earnings and may not reflect increases or decreases in the Trust Manager's actual costs. These dollar amounts include both portions of revenue distributed to the Trust Manager from mining contracts and leases and incidental revenue from trespassing fines, non-federal conservation programs, Initial Incident Report (IIR) restitutions, power charges, and other assessments.

FIGURE 14

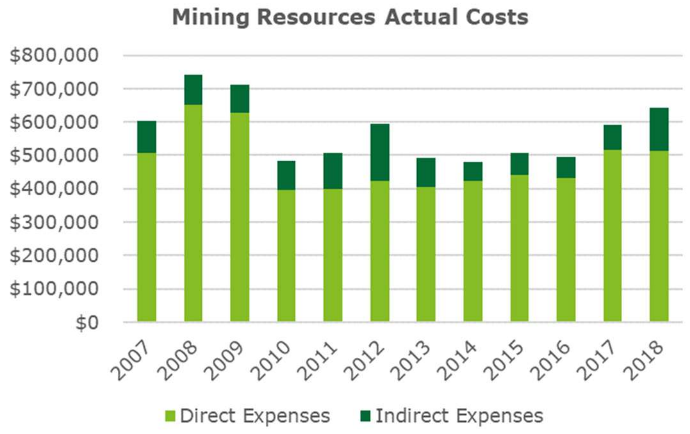


ACTUAL COSTS

The following is a discussion of the actual costs incurred by trust beneficiaries and paid by the Trust Manager from funds received as a result of the operating cost percentage deduction.

The following chart highlights the historical actual costs incurred by the Trust Manager, which are split between direct and indirect expenses. The Trust Manager's accounting system does not record costs at the subgroup level.

FIGURE 15



Direct Expenses. Direct expenses include all costs directly related to managing lands in the Mining Resources Asset Class as well as allocations of general costs.

Currently, direct expenses include all costs directly related to managing lands, including:

- Resource and leasing management
- Project, sales, and planning management

The allocations of general costs are related to:

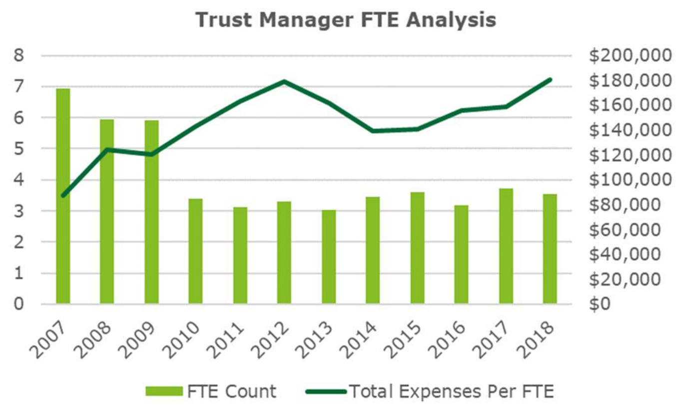
- Uplands
  - Examples include environmental analysis, state lands training, and law enforcement
- Engineering and general services
  - Examples include resource mapping, surveying, and record keeping

Indirect Expenses. Indirect expenses include all overhead costs allocated to the Trust Manager for:

- Administrative and agency support
- Adjustments
- Legal services
- Strategic investments
- Other administrative payments

As seen in the following full-time employee analysis, the Trust Manager typically retained between three and four full-time employees for the Mining Resources Asset Class over the last four fiscal years. The total actual costs paid by the Trust Manager have risen from $140,000 per full-time employee to $180,000 per full-time employee over that same period. These costs include all direct and indirect expenses, including salaries, as well as benefits and overhead.

FIGURE 16



NET CASH FLOW 2014 TO 2018

The trust beneficiaries pay a portion of the gross revenue (i.e., operating cost percentage deduction) to the Trust Manager for operating expenses and capital expenditures. These costs include direct and indirect expenses. The cash flows net of the operating cost percentage deduction are then distributed to the appropriate funds by ownership.

The following table summarizes the net cash flows distributed to trust beneficiaries over the past five fiscal years for this asset class. These operating cost percentage deduction amounts include both portions of revenue distributed to the Trust Manager from mining contracts and leases and incidental revenue from trespassing fines, non-federal conservation programs, IIR restitutions, power charges, and other assessments. These cash flows indicate the Mining Resources Asset Class provides trust beneficiaries with approximately $1,000,000 in net cash flows per year.

FIGURE 17

	2014	2015	2016	2017	2018
Total Annual Gross Revenue	**$1,161,423**	**$1,897,737**	**$2,207,403**	**$2,233,716**	**$1,561,113**
Operating Cost % Deduct	($326,413)	($538,345)	($660,466)	($674,489)	($520,076)
% of Revenue	28.10%	28.37%	29.92%	30.20%	33.31%
Revenue Distributed to Trusts	**$835,010**	**$1,359,392**	**$1,546,938**	**$1,559,228**	**$1,041,037**
% of Revenue	**71.90%**	**71.63%**	**70.08%**	**69.80%**	**66.69%**

Property Taxes and Zoning

The State of Washington is exempt from paying direct real property taxes.

PROPERTY TAXES

Property taxes are a local government's main source of revenue. Most localities tax private homes, land, and business property based on the property's value.

Lands owned by the state are exempt from property tax obligations under the state constitution. However, because private lessees of state land receive the benefit of governmental services, the legislature imposes a leasehold excise tax on these private lessees under RCW 82.29A.

Leasehold excise tax is paid by the lessee to the Trust Manager when rent is paid, and the Trust Manager remits the payment to the Department of Revenue. Land that is not leased does not pay property taxes or leasehold excise tax. Generally, the leasehold excise tax on leased land is most often less than what property taxes would be for the same land.

ZONING

We assume that all leased sites in the Mining Resources Asset Class adhere to the proper zoning regulations outlined in local general plans. If not fully compliant, we assume that each property is legally non-conforming to the proper zoning regulations and development standards.

Market Analysis

Mining in the United States has decreased in revenue over the past five years.

MARKET OVERVIEW

Industry Sector Performance (National Overview)

The entire market analysis section is based on information and data sourced from IBISWorld, a trusted industry research firm. The industry sector discussed in the market overview is a national overview in the United States that includes the state of Washington. The relevant industry sector is the mining industry.

In a broad sense, IBISWorld defines the mining industry sector as the extraction of minerals occurring naturally; solids, such as coal and ores; liquids, such as crude petroleum; and gases such as natural gas. The mining industry sector is defined by IBISWorld to also include quarrying, well operations, milling, and other preparations that occur at the mine site or as part of mining activity. Additionally, the exploration and development of land for mineral mining is included in this industry sector. Note that the current portfolio of the Mining Resources Asset Class does not as of the date of value include certain elements that comprise the mining industry sector as defined by IBISWorld.

The majority of sector revenue (81 percent) is generated by the subindustries of oil and gas extraction and oil and gas field services, and industry performance is closely tied to the oil and gas market. The world price of crude oil and natural gas have both fallen drastically over the past five years. As such, the mining industry has performed poorly over the past five years.

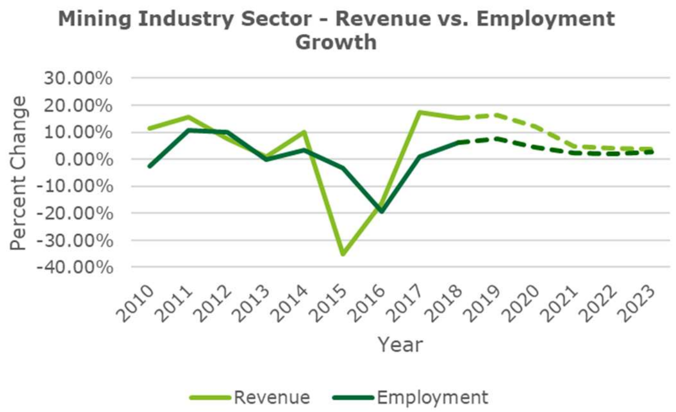
Further, coal prices have crashed over the past five years along with the price of steel, which is found downstream in the market. Metallic mining also experienced a reduction in demand and subsequently price.

While most subindustries have declined in revenue over the past five years, one segment has increased. The demand for aggregate (e.g., rock, gravel, and sand) has increased, resulting in increased revenue for this subindustry over the past five years.

As a whole, the mining industry sector reported revenue of $488 billion across 120,000 businesses nationwide in 2018.

The following chart displays historical and projected revenue and employment growth in this industry sector between 2010 and 2023.

FIGURE 18



In 2015, sector revenue dropped significantly due to decreases in oil and gas prices, but the sector began recovering in 2017. Between 2013 and 2018, sector revenue decreased by a compound average annual rate of -4.08 percent largely due to the performance of the oil and gas market.

World prices for crude oil and natural gas are expected to rise along with demand for non-metallic mining. As such, total nationwide industry revenue is anticipated to grow at an annual rate of 8.1 percent over the next five years to 2023.[3]

[3] All data sourced from "Mining Industry in the US – Market Research Report," IBISWorld, June 2018.

Methodology

The valuation methodology selected is the income approach.

IMAGE SHOWS A SITE WHERE SAND, GRAVEL AND ROCK IS HARVESTED IN CLARK COUNTY IN WASHINGTON. SOURCE: WA STATE DEPARTMENT OF NATURAL RESOURCES

Methodology

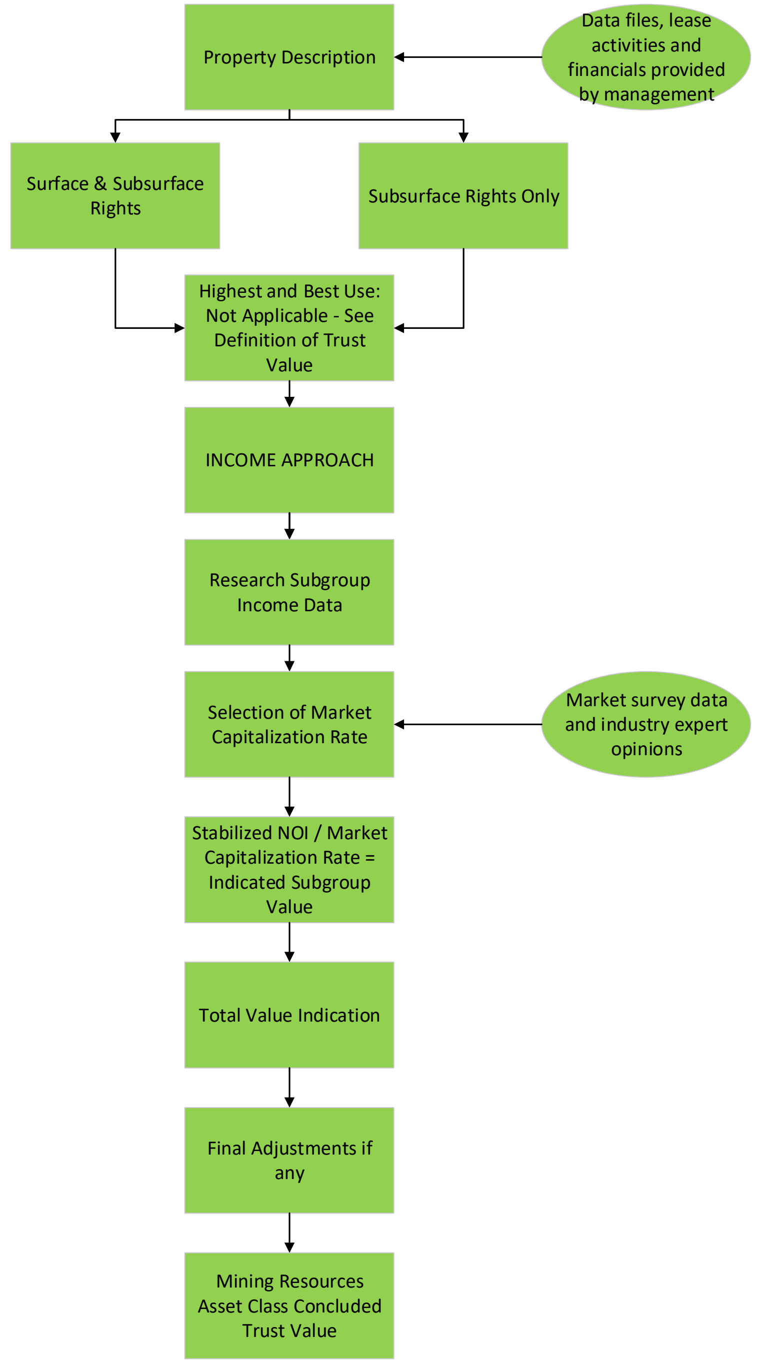
The income approach was the basis for the valuation of this asset class as it currently produces annual income through lease agreements and the receipt of future cash flows is expected to continue. The Trust Manager's data files were the principal source of market and value information (i.e., annual gross lease revenue, direct and indirect expenses, and other financial information) and include lease activity obtained in the ordinary course of the management of assets.

Due to the nature of the cash flow stream this asset class produces through its negotiated leases, the income approach was utilized as the primary methodology approach. Adequate amounts of market data existed to use the income approach.

The flowchart that follows displays the steps taken in the valuation analysis for the Mining Resources Asset Class.

Mining Resources Asset Class Valuation Flowchart

FIGURE 19



Trust Value Analysis

We evaluated the Trust Value of the Mining Resources Asset Class by using the approach described below:

Income Approach

The income approach involves a set of procedures through which an appraiser derives a value indication for an income-producing property by converting its anticipated benefits into property value using one of the following methods:

- *Discounted Cash Flow Method*: The annual cash flows for the holding period and the reversion are discounted at a specified yield rate. The discounted cash flow method was not used in this analysis.
- *Direct Capitalization Method*: One year's income expectancy is capitalized at a capitalization rate that reflects a specified income pattern, return on investment, and change in the value of the investment. The direct capitalization method was used in this analysis.

An overall capitalization rate is defined as a ratio of one year's net operating income provided by an asset to the value of the asset and is used to convert income into value when using the income capitalization approach.[4] Further discussion regarding this rate can be found in the earlier chapter that focuses on rates of return.

As no two mining rights are identical, it is often difficult to estimate the value of the mining rights through the sales comparison approach. Other factors that may affect an estimate include current and surrounding production and declining production curve and royalty rates. As such, the sales comparison approach was not utilized in our valuation analysis.

For additional state trust lands with subsurface rights only that are currently not leased, little or no specific information about the presence of valuable materials is known. Given the highly speculative nature of the value of these mining rights, this analysis assumes that there are no revenues associated with these additional lands in a stabilized year's cash flow. As such, no value has been attributed to the additional 793,046 acres of unleased lands with subsurface rights only.

Extraordinary Assumptions

Note that the state generally owns the subsurface rights under the lands in the other asset classes (e.g., Forest Resources, Agricultural Resources). The value, if any, of mining rights in other asset classes is captured in the Trust Value estimates for those asset classes based on the corresponding stabilized income estimate. The mining resources rights included in this asset class lie outside the other classes reviewed.

[4] Definition sourced from the *Sixth Edition of the Dictionary of Real Estate Appraisal*.

We assume that all lands containing leases or contracts for mining uses adhere to the proper zoning regulations outlined in local general plans. If not fully compliant, we assume that each property is legally non-conforming to the proper regulations and development standards.

As previously discussed in the chapter regarding restrictions and burdens, the Trust Manager's ability to sell, exchange, or transfer state trust lands is limited by statute. For the purpose of this analysis, we assume that the ownership interest is non-transferable resulting in the land not being able to be sold.

We relied upon information provided by the Trust Manager for all specific data regarding data files, leasing activities and financials, and size and ownership information. We assume that all information provided by the Trust Manager is sufficient for the purpose of this valuation.

Hypothetical Conditions

None noted.

Income Approach

The direct capitalization method was used to estimate the Trust Value of the Mining Resources Asset Class.

For the purposes of the portfolio valuation analysis in this report, the Mining Resources Asset Class has been divided into two subgroups:

- Surface and Subsurface Rights
- Subsurface Rights Only

ESTIMATED NET CASH FLOW

As highlighted in the "Operational History" section of this chapter, total gross revenue received from lease payments for the Mining Resources Asset Class typically total between $1 million to $2 million per year. We estimated stabilized streams of revenue for the asset class based on analyzing historical averages and trends while acknowledging volatility and potential growth where applicable.

We segregated a stabilized gross revenue estimate of $1.9 million to each subgroup. Given there are only two leases in the subsurface rights only subgroup, we allocated similar revenue received during FY 2018 ($4,000) to that subgroup. The remaining portion of the estimate ($1,896,000) was allocated to the surface and subsurface rights subgroup.

We also estimated an expected stabilized operating cost percentage deduction of 30 percent based on historical deductions averaging near this blended rate. The following table summarizes the estimated income stream for each subgroup.

FIGURE 20

Mining Resources Asset Class - Stabilized Income Summary	Surface & Subsurface Rights	Subsurface Rights Only	**Total**
Stabilized Gross Revenues	$1,896,000	$4,000	**$1,900,000**
Operating Cost % Deduction	($568,800)	($1,200)	**($570,000)**
% of Revenues	30%	30%	**30%**
Trust Net Operating Income	$1,327,200	$2,800	**$1,330,000**

CAPITALIZATION RATE SELECTION

An overall rate of 8 percent has been selected to apply to the net cash flows for both the surface and subsurface rights and the subsurface rights only subgroups. For further discussion regarding the determination of this capitalization rate, please refer to the earlier chapter that discusses rates of return.

DIRECT CAPITALIZATION

The overall capitalization rate was applied to the relevant stabilized revenue stream estimates for each subgroup to derive a preliminary Trust Value indication for this asset class. The direct capitalization calculations are presented for each subgroup.

Note that the FY 2018 agreement count represents the number of different leases and contracts associated with each subgroup type, and the FY 2018 acreage count for each subgroup is an approximate estimate based on data provided by Trust Management.

Surface and Subsurface Rights. The total value indication for agreements with both surface and subsurface rights was $16,600,000 (rounded) for FY 2018, which equates to an average of approximately $2,900 per acre. The capitalization calculation for the surface and subsurface rights subgroup is shown in the following table:

FIGURE 21

Direct Capitalization - Surface & Subsurface Rights		
Agreement Count		39
Acres under Agreement		5,684
Stabilized Gross Revenues		$1,896,000
Operating Cost % Deduction	30%	($568,800)
Revenue Distributed to Trusts		$1,327,200
Capitalization Rate		8.00%
Indicated Value		$16,590,000
Value Indication (Rounded)		**$16,600,000**
Value Indication per Acre		**$2,921**

Subsurface Rights Only. The total value indication for agreements with subsurface rights only was $40,000 (rounded) for FY 2018, which equates to an average of approximately $216 per acre. The capitalization calculation for the subsurface rights only subgroup is shown in the following table:

FIGURE 22

Direct Capitalization - Subsurface Rights Only		
Agreement Count		2
Acres under Agreement		185
Stabilized Gross Revenues		$4,000
Operating Cost % Deduction	30%	($1,200)
Revenue Distributed to Trusts		$2,800
Capitalization Rate		8.00%
Indicated Value		$35,000
Value Indication (Rounded)		**$40,000**
Value Indication per Acre		**$216**

ADDITIONAL SUBSURFACE RIGHTS OWNED

The state retains ownership of subsurface rights on approximately 793,231 acres of state trust lands where surface rights have been transferred to other parties. Currently, only 185 acres of state trust lands with subsurface rights, but no surface rights, are leased for the extraction of materials.

Given the highly speculative nature of the value of these mining rights as little or no specific information about the presence of valuable materials is known, this analysis assumes that there are no revenues associated with these additional lands in a stabilized year's cash flow. As such, no value has been attributed to the additional 793,046 acres of unleased lands with subsurface rights only.

Value Conclusion

The concluded Trust Value of the Mining Resources Asset Class is $16,640,000.

MINING RESOURCES ASSET CLASS VALUE CONCLUSION

Using the direct capitalization approach, the indicated values for each subgroup—the surface and subsurface rights subgroup and the subsurface rights only subgroup—were combined to represent the total value indication for the Mining Resources Asset Class.

This results in a concluded Trust Value of $16,640,000 for the asset class.

FIGURE 23

Mining Resources Asset Class Value Conclusion	
Agreement Count	41
Total Acres under Agreement	5,869
Additional Acres Owned with Subsurface Rights Only	793,046
Surface & Subsurface Rights	$16,600,000
Subsurface Rights Only	$40,000
Rounded Value Indication (Lands with Agreements)	**$16,640,000**
Indicated Value per Agreement	$405,854
Indicated Value per Acre	$2,835
Additional Lands with Subsurface Rights Only	$0
Rounded Value Indication (Additional Lands - No Agreements)	**$0**
Concluded Trust Value (Rounded)	**$16,640,000**

INDIVIDUAL TRUST VALUES SUMMARY

The concluded Trust Value for state trust lands in the Mining Resources Asset Class was calculated for each trust. Specifically, the concluded Trust Value was allocated based on each individual trust's percentage of gross revenue for the asset class in FY 2018. The following table reflects the concluded value for each trust.

FIGURE 24

Mining Resources Asset Class Individual Trust Values		
Trust	**Trust Value**	**%**
CEP & RI Transferred	**$13,510,515**	**81.19%**
State Forest Transfer	**$1,575,309**	**9.47%**
Common School and Indemnity	**$1,433,869**	**8.62%**
Capitol Grant	**$96,346**	**0.58%**
Agricultural School	**$23,962**	**0.14%**
Total	**$16,640,000**	**100%**