

January 2013

WILDFIRE SUPPRESSION COST STUDY

The 2012 Legislature directed the Washington State Institute for Public Policy (Institute) to analyze mechanisms to reduce state fire suppression cost variability and examine whether costs associated with staffing and overtime exceed market rates.¹

Process. Since this topic is outside the expertise of Institute staff, the Institute conducted a competitive bidding process to select a contractor. The FCS GROUP (FCS)² was awarded the contract and completed the study. FCS worked with the state Department of Natural Resources (DNR) to consult with stakeholders and review fire data, financial reports, and labor costs. Other northwestern states' and British Columbia's (B.C.) methods for funding and managing fire suppression expenditures were also reviewed.³ The report from FCS is attached.

Background. DNR is responsible for fire suppression on state and private forest lands.⁴ DNR fire suppression expenditures have ranged from \$16.3 to \$47.5 million over the last ten years. The state general fund has covered about two-thirds of these costs.⁵

Labor costs and contracts to purchase personnel and other resources represent 71% of total expenditures. Over the past ten years, fire suppression personnel have included DNR permanent (40%) and seasonal (60%) employees.

Annual state fire suppression costs depend on the number and size of wildfires, which can be unpredictable due to factors such as weather. Over the past ten years, fire suppression expenditures in seven of the ten years exceeded the original appropriation by as much as \$20 million.

Findings from FCS. FCS findings regarding cost variability include:

- Other northwestern states and B.C. have similar variability in fire suppression costs and budgeting.
- Oregon has an insurance policy to cover large fire suppression expenditures above \$25 million. From 1973 to 2011, Oregon spent \$53.5 million for the insurance, and received \$52 million for claims. Thus, budget variability, but not total cost, has been reduced.
- If Washington's goal is to reduce supplemental appropriations for fire suppression, FCS recommends that the state:
 - increase state general fund appropriations for fire suppression from an average of \$9.7 to \$16.8 million;
 - allow DNR to carry non-expended fire suppression appropriations to the next year; and
 - explore insurance options to reduce appropriations for more costly fire seasons (with a deductible of \$20 million or more).

Regarding labor costs, FCS findings include:

- Among northwest states and B.C., the use of permanent state agency staff and paying overtime for fire suppression is typical. Washington is the only entity, however, to pay an additional \$2 per hour for permanent employees on fire assignments.⁶
- For cost-efficiency, FCS recommends that the state:
 - initiate discussions with the U.S. Forest Service to identify potential exchanges of wildland fire protection;
 - revise the DNR method for calculating its comparative costs to include overhead and paid time off; and
 - create a roster of qualified private vendors to provide specific types of services.

¹ Supp. Op. Budget § 606 (18), 2012 Wash. Sess. Laws 2225. For more information, contact John Bauer at the Institute at (360) 586-2783 or bauerj@wsipp.wa.gov.

² <http://www.fcsgroup.com>.

³ Other jurisdictions reviewed included Oregon, Idaho, Montana, South Dakota, British Columbia, and the U.S. Forest Service.

⁴ DNR may also enter into agreements to protect non-forested lands managed by state agencies. RCW 76.04.015

⁵ Remaining expenditures are covered by disaster response, federal/local general funds, the landowner contingency account, the Clarke McNary fund, and other sources.

⁶ According to the FCS report, the premium pay is considered a "surrogate" for unpaid on-call, standby time, or shift differential pay.

Wildfire Suppression Cost Study



Washington State Institute
For Public Policy
The Evergreen State College

January 2013

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EXECUTIVE SUMMARY

As part of the 2012 Supplemental Operating Budget,¹ the Washington State legislature appropriated funding to conduct a detailed analysis of potential mechanisms for reducing the amount of and variation in the state's fire suppression costs. The desired analysis consists of two parts:

- ◆ An examination of Oregon's excess forest fire suppression cost insurance program and an analysis of the potential application of this model for Washington, and
- ◆ An examination of Washington's total and marginal costs related to staffing and overtime to determine whether these total or marginal costs are in excess of market rates.

Based on this direction from the legislature, the Washington State Institute for Public Policy (WSIPP) developed a scope of work that incorporated the legislature's objectives to address two issues: the variability in wildfire suppression budget requirements and fire suppression labor costs. After a competitive selection process, WSIPP contracted with FCS GROUP to conduct the analysis, and the FCS GROUP team worked primarily with the Department of Natural Resources (DNR) to gather data and information. In addition, FCS GROUP held discussions with key external DNR stakeholders such as the Washington Forest Protection Association, Farm Forestry Association, and Weyerhaeuser and conducted a comparative analysis of how similar programs in Oregon, Idaho, Montana, South Dakota, British Columbia, and the United States Forest Service funded and managed their fire suppression expenditures.

DNR is responsible for fire suppression on state and private forest lands,² and its total fire suppression expenditures have ranged from \$16.3 to \$47.5 million over the last ten years from FY 2002 to FY 2011. The state's General Fund covered about two-thirds of these costs. It should be noted that data from the most recent 2012 fire season is not included in this study.

BUDGET AND FUNDING VARIABILITY

DNR's original fire suppression appropriation has almost always been less than the actual expenditures except for FY 2011, and consequently, supplemental appropriations have always been necessary. Over the ten year period, the original appropriations averaged almost \$16 million per year and supplemental appropriations averaged \$15.6 million for a total average appropriation of \$31.6 million per year. Total fire suppression expenditures averaged \$27.1 million.

- ◆ In two out of the ten years (FY 2002 and FY 2006), the original state General Fund appropriation has been about the same as the actual expenditures. In FY 2011 the original appropriation was about \$267,000 less than the actual expenditures. For all the other fiscal years the original state General Fund appropriation has been more than \$2 million less than the actual expenditures. For three years, the difference was less than \$10 million, but for the other four years the differences were more than \$10 million with one year greater than \$20 million (FY 2007).

¹ Supplemental Operating Budget § 606 (18), 2012 Wash. Sess. Laws 2225.

² DNR may also enter into agreements to protect non-forested lands managed by state agencies. RCW 76.04.015

- ◆ For the past ten fiscal years the average original appropriation for only the state supported General Fund portion (i.e. not including federal and local reimbursements) has been \$9.7 million, while the average state supported General Fund expenditures have been \$17.7 million. As a result, the average gap between the original state supported General Fund appropriation and the actual state supported General Fund expenditures is about \$8 million.

Total fire suppression expenditures are difficult to predict because they are determined by a number of factors outside of the state's control such as weather and people who inadvertently or deliberately start fires. Consequently, the state's ability to decrease the variability in budget requirements while minimizing the costs of decreasing the variability depends on the amount of the original appropriation and the state's willingness to continue making supplemental appropriations. Increasing original appropriations can reduce the need for and the amount of supplemental appropriations.

Overall, Washington's fire suppression funding and use of supplemental appropriations for fire suppression is common among the other states and British Columbia. The General Fund is the most common source of funding for fire suppression, but Washington and Oregon have also used funds from landowner assessments to pay for fire suppression costs. Oregon also has a specific General Fund severity budget and is the only state that has an insurance policy to help offset the costs of very large fire suppression years.

FCS GROUP Recommendations

To reduce budget variability, the legislature could:

- ◆ Increase the initial appropriation for fire suppression costs by using only the state supported General Fund expenditures for a ten year period and calculate the average expenditure level based on the ten years minus the lowest and highest expenditure years in that period. Based on the past ten fiscal years, the state supported General Fund appropriation (i.e. not including federal and local reimbursements) would be \$16.8 million.
- ◆ For the total initial appropriation, add conservative estimates for federal and local reimbursements, disaster funds, and other funding sources.
- ◆ Provide appropriation language that allows DNR to carry-over any surplus in its suppression funding to supplement the next fiscal year's or biennium's original appropriation.

OREGON'S INSURANCE PROGRAM

The Oregon Forest Land Protection Fund (OFLPF) pays for the large fires that are beyond the capability of the regularly funded local fire protection districts. The purpose of the fund is to spread the risk and funding of emergency fire suppression costs among the fire protection districts. The OFLPF helps to pay for the emergency fire suppression costs and the annual insurance policy costs. The funding for the OFLPF comes from the landowners. The landowners pay a harvest tax per thousand board feet, a charge per acre of land protected by ODF, a minimum charge per lot, and a charge per each lot with an improvement.

Except for two years, the Oregon Department of Forestry (ODF) has had an insurance program since 1973. For the fiscal year 2011-2012 Oregon had a \$25 million deductible and \$25 million in insurance coverage. The insurance premium for this policy was \$811,590. The insurance policy plus the \$25 million deductible amount provides ODF with a maximum amount of \$50 million in funding for large fire suppression costs in addition to the ODF's severity budget for pre-positioning resources and the district expenditures. Any costs that exceed the insurance coverage must be paid by the state. The insurance policy covers the fire season and runs from April 1 through April 1 of the next year. The funding for the program comes from both the Oregon's General Fund and landowner

assessments that are part of the OFLPF. The \$25 million deductible is funded on a tiered basis with the first \$10 million from the OFLPF and the next \$15 million from the General Fund. In 2013 ODF will be proposing to equally share the deductible between the OFLPF and the General Fund. The insurance premium is paid equally by the General Fund and the OFLPF. Based on discussions with Oregon's insurance broker, there are also other factors that are considered besides claim history. The broker's analysis cites key attributes of ODF's risk management program. One of these attributes in his analysis includes continued success of an aggressive severity program where fire managers anticipate critical fire weather conditions and pre-position additional resources.

Because the information required for an insurance quote from Washington's insurance broker was not readily available during the study, there is no estimated cost for an insurance premium for the Washington. For Washington an insurance policy might do the following:

- ◆ An insurance policy can provide a limit on the state's General Fund costs for fire suppression.
- ◆ Depending on the original appropriation, an insurance policy might not eliminate the need for a supplemental appropriation if the original appropriation is less than the deductible or the total fire suppression costs exceed the total deductible and coverage amounts.
- ◆ The cost benefit to Washington State depends on the deductible, the coverage amount, and the resulting premium cost to the state. Oregon's premium cost is based on its long claims history and coverage amounts, and if Washington decides to procure an insurance policy, its premium costs might be higher for a similar policy because it does not have a history and certain risk management programs might be different from Oregon's, such as camera detection systems and severity funding. In addition, the DNR believes that it might also incur new costs to provide the insurer with the current data requested to establish the premium cost.

FCS GROUP Recommendations

To the extent that the legislature is interested in pursuing insurance options:

- ◆ Continue to explore insurance options that might cover the more costly fire seasons, which means that an insurance policy should have a high deductible that is at least \$20 million or more.
- ◆ Provide the required information to the state's insurance broker as well as any funding needed to gather the initial data and review and analyze the premium costs.
- ◆ Consider insurance policies that provide for the following:
 - A \$25 million deductible with \$30 million in coverage,
 - A \$25 million deductible with \$25 million in coverage (the same as Oregon),
 - A \$20 million deductible with \$25 million in coverage, and
 - A \$15 million deductible with \$20 million in coverage.
- ◆ Based on the premium costs, determine what insurance policy best fits the state's needs given its current financial situation and historical fire suppression costs.
- ◆ In addition to the recommendation for increasing the initial appropriation for fire suppression, provide a dedicated severity appropriation of \$1.5 million in addition to DNR's fire suppression appropriation.

FIRE SUPPRESSION COSTS

The DNR labor costs represent an average of 40% of the expenditures for fighting fires, but labor costs are generally not the majority of the costs. When there is a wildfire, the DNR has a variety of ways to obtain the necessary resources to fight the fire. First, the DNR has its own permanent and seasonal firefighting staff within the agency. Another option is to contract with private firms to provide personnel and equipment, and finally, the DNR also has interagency cooperative agreements with federal agencies, neighboring states, several Canadian provinces, tribes, and local fire protection districts. Our overall findings concerning DNR's fire suppression and staffing costs are the following:

- ◆ For the past ten fiscal years the DNR labor costs have varied between 29% and 48% of the annual fire suppression costs. Overall for the past ten years, DNR employee labor costs represented 40% of the total costs. The regular salary costs for the DNR's employees were 13% of the total, and overtime was 21% of the total costs. Goods and services and other non-labor costs represented the remaining 60% of the total costs. Almost half of those non-labor costs (31% of the total) were for purchased services from rural fire districts and other public and private firefighting service providers. Aircraft costs and rentals represented another 11% of the total costs.
- ◆ Of the total hours worked for FY 2009-FY 2011, the hours for the full time permanent staff represented about 40%, while the hours for the part time/exempt seasonal staff represented about 60%.
- ◆ Although full time permanent staff worked only 40% of the total hours over the three years reviewed, their labor costs were higher than the part-time/exempt staff and represented about 57% of the total labor costs.
- ◆ With about 1,200 permanent employees, almost half of the DNR's permanent employees have been assigned to a fire. Based on a sample of fire assignments, DNR employees have worked in a wide variety of fire jobs. Only a small number appear to have actually worked as firefighters. Seasonal employees predominately work as part of a fire engine crew, hand crew, or helitack crew.
- ◆ The DNR uses its permanent employees for fire assignments because it believes that they provide a reliable, trained, experienced, and immediate workforce that is readily available to supplement its fire suppression workforce. The DNR believes that seasonal and administratively determined (AD) hires for non-firefighter positions are not always available, and the DNR might have to pay a premium to seasonal and potential AD hires to assure that they are available when DNR needs them.
- ◆ Based on a sample of ten fires and an analysis of the fire assignments for each DNR permanent employee, the fire assignments generally seemed appropriate given the experience and training requirements for those assignments. For 57% of the employees assigned, their positions required training and experience that are usually not found in the DNR seasonal work force. For the other 43% of the assignments, the reasons for using permanent staff included special training requirements, availability of seasonal personnel, expert knowledge of DNR processes and procedures, and staff training and development objectives.
- ◆ Although a direct comparison of the hourly rates between permanent DNR staff and seasonal and AD employees shows that permanent employees are generally more expensive, the seasonal and AD employees are more expensive if their total costs are considered. Because not all their time is spent on fire suppression, their total cost can be equal or greater than a permanent employee's because they are hired for the season, not just when there is a fire. The effective hourly cost can also be higher because their hourly rate has not been adjusted for the time spent not fighting fires.

Permanent DNR employees only charge for their actual time on fire assignments and their non-fire time is already budgeted in their home divisions. Adding more seasonal and AD employees to take the place of permanent DNR employees for the duration of the fire season would also require additional funding to support their non-fire time and may require additional training costs.

- ◆ Agencies in other northwest states, British Columbia, and the U.S. Forest Service, commonly use their own permanent staff, and they allow high pay grade staff to participate in and receive training for fire positions commensurate with their experience, skills, and compensation. In addition, the comparison shows:
 - Without the added premium pay of \$2 per hour, the DNR has the lowest seasonal firefighter rate and has a mid-range single resource boss hourly rate.
 - The DNR is the only state agency to pay an additional \$2 per hour for fire assignments. British Columbia does pay for standby time and pays double time for overtime after two hours and the U.S. Forest Service pays a 25% differential for hazardous duty pay for certain positions.
 - All the comparison agencies plan and budget for three person engine crews, and all have the flexibility to operate with two persons given certain circumstances and situations. The National Wildfire Coordinating Group standard requires at least two persons, but agencies exceed the staffing level for crew efficiency and safety.
 - Other agencies and DNR use fire protection exchanges and contracts to improve their cost effectiveness, and also participate in the national mobilization systems and in state to state compacts and agreements.
- ◆ The DNR's cost estimating comparisons use direct costs charged when resources are assigned to a fire and do not include all of DNR's costs. The hourly rates do not include costs such as paid time off and overhead. As a result, DNR's costs appear lower than they actually are compared to a private business. The DNR considers its resources as exclusive use (i.e. always available when needed) and believes that vendor cost comparisons should be based on such exclusive use costs. In addition, the vendor contracting processes can be improved by making them more transparent and open.

FCS GROUP Recommendations

If the legislature wishes to contain labor costs:

- ◆ Continue using the militia approach, but whenever possible, use seasonal or administratively determined employees for the lower level fire assignments. As previously mentioned, the DNR might want to consider developing a pool of administratively determined employees that can assist with some fire assignments if training costs and availability issues can make such an effort cost effective.
- ◆ Determine whether the additional \$2 per hour can be eliminated through labor negotiations and/or with changes in the assignment and staffing processes.
- ◆ Initiate discussions with the U.S. Forest Service to identify locations within the state where the exchange of wildland fire protection responsibilities would lead to more efficient wildfire response and a more cost-effective program for both agencies. In eastern Washington the DNR should continue to investigate opportunities to enter into agreements with other agencies, such as fire protection districts, to either to protect lands under the jurisdiction of the other agency, or for the other agency to protect lands currently under state jurisdiction.

- ◆ Revise the DNR method for calculating its costs for comparisons with private vendors and include appropriate overhead, administrative, maintenance, and support costs as well as the costs for paid time off. In addition, when calculating the hourly rates for a specific service, the rates should be based on the position classifications actually providing the service. After the DNR's full costs are calculated, determine whether DNR is paying more for its exclusive use resources compared to vendor "call when needed" resources, and then determine whether the DNR needs to consider changing how it uses the DNR resources and procures vendor resources based on costs and availability.
- ◆ To improve transparency and open competition, periodically advertise that the DNR is creating a roster of qualified private vendors to provide specific types of services and that interested vendors should submit their qualifications and prices.

CHAPTER I: INTRODUCTION

As part of the 2012 Supplemental Operating Budget, the Washington State legislature appropriated funding to conduct a detailed analysis of potential mechanisms for reducing the amount of and variation in the state's fire suppression costs. The desired analysis consists of two parts:

- ◆ An examination of Oregon's excess forest fire suppression cost insurance program and an analysis of the potential application of this model for Washington, and
- ◆ An examination of Washington's total and marginal costs related to staffing and overtime to determine whether these total or marginal costs are in excess of market rates.

Based on this direction from the legislature, the Washington State Institute for Public Policy (WSIPP) developed a scope of work that incorporated the legislature's objectives to address two issues: the variability in wildfire suppression budget requirements and fire suppression labor costs. After a competitive selection process, WSIPP contracted with FCS GROUP to conduct the analysis, and FCS GROUP worked primarily with the Department of Natural Resources (DNR). Background on FCS GROUP and the biographies of the primary FCS GROUP consultants can be found in Appendix A. The scope of work involved the following:

- ◆ A review and analysis of DNR documents, financial reports, and fire incident data,
- ◆ Interviews and meetings with staff from the DNR's Resource Protection Division, the Office of Financial Management, the Joint Legislative Audit and Review Committee, and the state legislature's Senate Ways and Means Committee,
- ◆ Discussions with key external DNR stakeholders such as the Washington Forest Protection Association, Farm Forestry Association, and Weyerhaeuser, and
- ◆ A comparative analysis of similar programs in Oregon, Idaho, Montana, South Dakota, British Columbia, and the United States Forest Service.

In conducting the study, many state agency staff were involved in interviews and assisted us with data collection. We want to thank and acknowledge all the state staff and others that spent time providing us with data and their perspectives about the funding and costs associated with the Department of Natural Resources fire suppression activities, especially during the 2012 busy fire season. We also want to thank the staff from the other agencies participating in our comparative analysis, especially those from the State of Oregon's Department of Forestry for their assistance in obtaining information about Oregon's insurance policy.

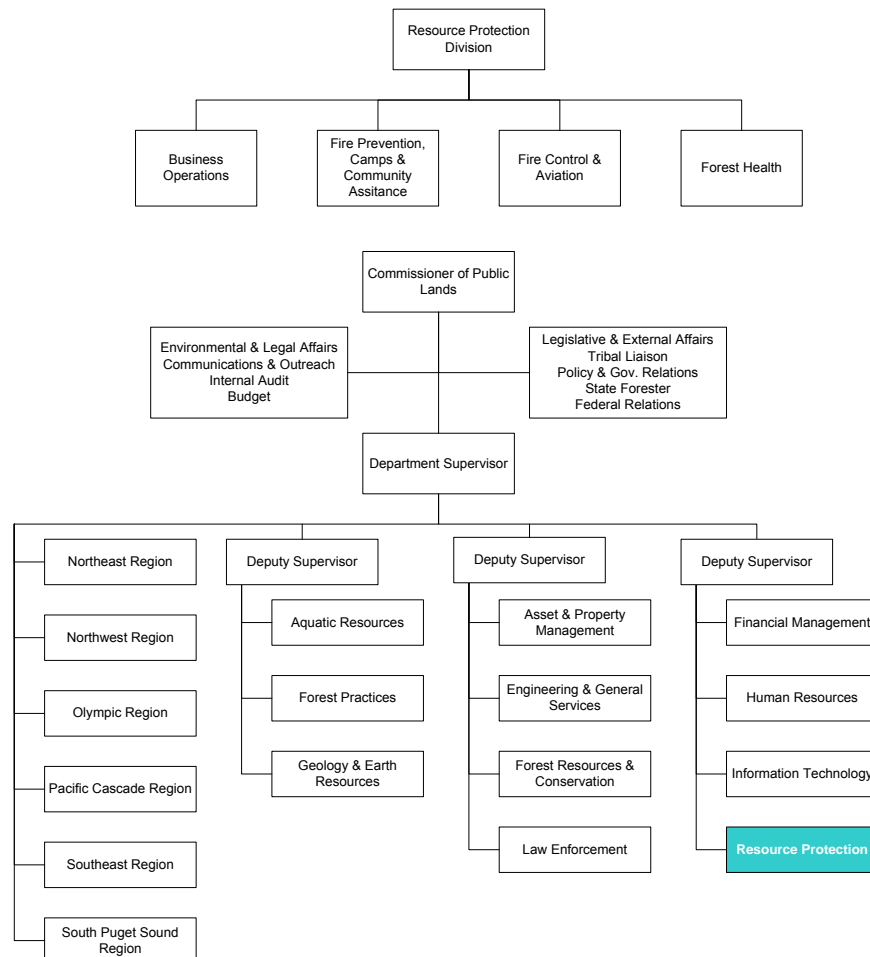
THE DEPARTMENT OF NATURAL RESOURCES

The Department of Natural Resources' vision is that its decisions and actions leave a legacy of healthy forests, clean water, thriving ecosystems, and a vibrant natural resource-based economy. Its mission is "In partnership with citizens and governments, the Washington State DNR provides innovative leadership and expertise to ensure environmental protection, public safety, perpetual funding for schools and communities, and a rich quality of life." Elements of this mission include

managing the state's resources sustainably, making decisions based on sound science, and making decisions in the public interest and with the public's knowledge.

To manage this work effectively, the DNR is organized into ten divisions with each focused on a specific business area conducted through six operational upland regions with offices in communities throughout the state. DNR also supports many boards and councils and maintains tribal relations for respectful government-to-government interactions on natural resources issues. The Department has a variety of different services that it offers, and its Resource Protection Division (as highlighted) is responsible for a variety of forest protection programs including fire suppression. Exhibit 1 shows the DNR's organizational units.

Exhibit 1
Department of Natural Resources Organizational Chart

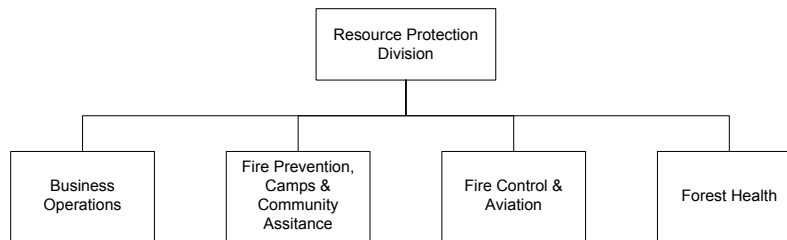


Besides the DNR's overall mission and vision, the Revised Code of Washington (RCW) 76.04.015 makes the Department of Natural Resources responsible for forest fire suppression on all state and private forest lands. DNR also has authority to enter into agreements to protect non-forested public lands managed by the DNR and other state agencies. According to the DNR its 1,200 permanent and temporary employees fight fires on more than 12.7 million acres of private and state-owned forest lands. The DNR also helps local fire districts respond to wildfires by providing fire protection and safety equipment.

The Resource Protection Division has a number of related fire prevention, preparedness, and suppression programs and is organized into four different program areas as shown in Exhibit 2.

Exhibit 2

DNR's Resource Protection Division Organizational Chart



The Resource Protection Division has three major wildfire budget programs: fire control (sometimes referred to as “preparedness”), fire regulation/prevention, and emergency fire suppression.

- ◆ **Fire Control/Preparedness:** The fire control program involves fire preparedness and pre-suppression activities that include planning, systematic dispatch, fire equipment development and maintenance, DNR employee training, and accountability. It also includes all cooperative fire planning with other agencies, fire detection activities, and related fire weather activities. This program includes all activities pertaining to the Forest Fire Protection Assessment statute. It essentially includes everything DNR does to be prepared to respond to a wildfire when a fire is detected or reported. This program has been primarily supported in the past by the state’s General Fund, landowner assessments, and federal funds including State Fire Assistance monies.
- ◆ **Fire Regulation/Prevention:** Fire regulation/prevention is divided into several activities. Under fire regulation, DNR issues permits for silvicultural burning, enforces pertinent laws and rules, administers the Industrial Fire Precaution Level system, and carries out the smoke management program. The fire regulation program provides assistance to local fire districts and also provides regulation and protection services and activities supported by federal grants. Prevention includes all costs related to providing services identified in DNR regional fire prevention plans. The program has been primarily supported in the past by the state’s General Fund, landowner assessments, air pollution funding, and federal funds including State Fire Assistance and other grant monies.
- ◆ **Fire Suppression:** The Emergency Fire Suppression program represents all fire response activities that the DNR manages using the Incident Command System (ICS). A three-digit alpha fire project number assigned by the dispatcher is required when charging to Emergency Fire Suppression Programs. Activities include dispatching resources to fires, including those started by participating landowner operations, and fighting fires. It also includes origin and cause determination and other investigative activities that the DNR conducts during the early phases of a fire as well as activities for extended fire investigations when legal action is being considered. False alarms and standby activities are included when authorized by the Resource Protection Division in advance. Fire suppression also includes mobilizing and pre-positioning DNR fire engine crews, DNR agency hand crews, overhead, and other resources in response to predicted fire danger. The DNR monitors the fire danger each day using a variety of information and predictive services and sources including the Northwest Interagency Coordination Center (NWCC). This program has been supported in the past by the state’s General Fund, the Landowner Contingency Forest Fire Suppression Account, disaster funding, and federal funds including State Fire Assistance monies.

To fight fires, DNR uses a number of different staffing models. There are a small number of permanent year-round staff paid solely by the fire program, and then during the fire season, DNR hires a large number of seasonal firefighters. When additional staffing resources are needed

during the fire season, a large number of permanent year round staff from other DNR programs are temporarily assigned to fire duty and are paid for by the fire suppression program. Because the permanent staff are used on a call when needed basis, the use of the permanent staff in later chapters is referred to as the “militia approach.” The militia approach for wildland fire suppression is based on the military model of a trained, volunteer, citizen soldier asked to become part of the military in an emergency. Similarly, wildland fire agencies train volunteer permanent personnel to augment the fire suppression workforce on a call when needed basis and refer to these volunteers as members of “the militia.” In addition to its own staffing resources, DNR has staffing agreements with federal and other state agencies and uses private contractors to provide additional hand crews, other staff, and equipment.

Based on information provided by DNR, Exhibit 3 shows DNR’s expenditures for these programs for the past ten fiscal years for all funding sources (e.g. the state General Fund including federal and local reimbursements for fire suppression), and Exhibit 4 shows the number of fires and DNR protected acreage burned for the past ten years.

Exhibit 3
Total DNR Expenditures for Fire Suppression, Control, and Regulation

Fiscal Year	Fire Suppression	Fire Control	Fire Regulation	Total
2002	\$33,150,709	\$9,435,325	\$4,230,468	\$46,816,502
2003	24,971,678	10,248,276	4,718,075	39,938,029
2004	28,929,381	8,772,554	4,665,433	42,367,368
2005	17,985,955	8,877,390	4,963,272	31,826,617
2006	21,980,406	9,556,605	3,831,601	35,368,612
2007	47,488,166	9,530,753	4,304,459	61,323,378
2008	24,725,955	10,351,862	4,739,635	39,817,452
2009	30,084,541	7,885,710	4,195,761	42,166,012
2010	25,813,198	9,562,286	4,924,974	40,300,458
2011	16,300,625	10,480,224	4,559,343	31,340,192
Total	\$271,430,614	\$94,700,985	\$45,133,021	\$411,264,620

Source: DNR Datamart Variance Reports

Exhibit 4
Number of DNR Fires and DNR Protected Acres Burned
FY 2002- FY 2011

Fiscal Year	# of DNR Fires	DNR Protected Acres Burned
2002	723	9,628
2003	956	11,743
2004	989	10,723
2005	714	6,690
2006	696	60,560
2007	996	114,317
2008	742	26,176
2009	886	32,057
2010	879	13,151
2011	536	25,430
Total	8,117	310,475

Source: DNR

The following chapters discuss fire suppression funding, the Oregon insurance program, and fire suppression staffing and costs.

CHAPTER II: WILDFIRE SUPPRESSION BUDGET REQUIREMENTS

During the past ten years for the fiscal years 2002 through 2011, the Washington State legislature has provided a supplemental appropriation every year to cover wildfire suppression costs incurred by the Department of Natural Resources on all fires regardless of size. The supplemental appropriations have ranged from a low of about \$3 million to a high of \$45.4 million. Because of these continuing supplemental appropriations and the variability in the amounts, the legislature has shown an interest in determining if there is a way to reduce the variability in the appropriations for fighting wildfires. Some suggested methods include self insurance and an insurance policy similar to the one the State of Oregon uses which is discussed in the next chapter. According to WSIPP, the desired objectives for any funding alternative are the following:

- ◆ Reduce the variability in the annual budget requirements for wildfire suppression,
- ◆ Minimize the costs associated with reducing budget variability (e.g. fund administration, insurance premiums), and
- ◆ Ensure the long-term sustainability of funding mechanisms.

To understand the trends in and the funding of the DNR's wildfire suppression budgets, the following sections discuss the state's funding mechanisms, compare original and supplemental allotments (Instead of budget, DNR uses the term allotment) to actual expenditures, and compare funding practices with other states.

DNR'S FIRE SUPPRESSION FUNDING

As previously mentioned, the state's appropriations and actual DNR expenditures for fire suppression have varied considerably over the past ten fiscal years and have required the legislature to provide a supplemental appropriation every fiscal year since FY 2002. DNR's fire suppression budget has been primarily funded by the state's General Fund, but other funding sources such as disaster funds and federal and local reimbursements have also paid for costs associated with fire suppression.

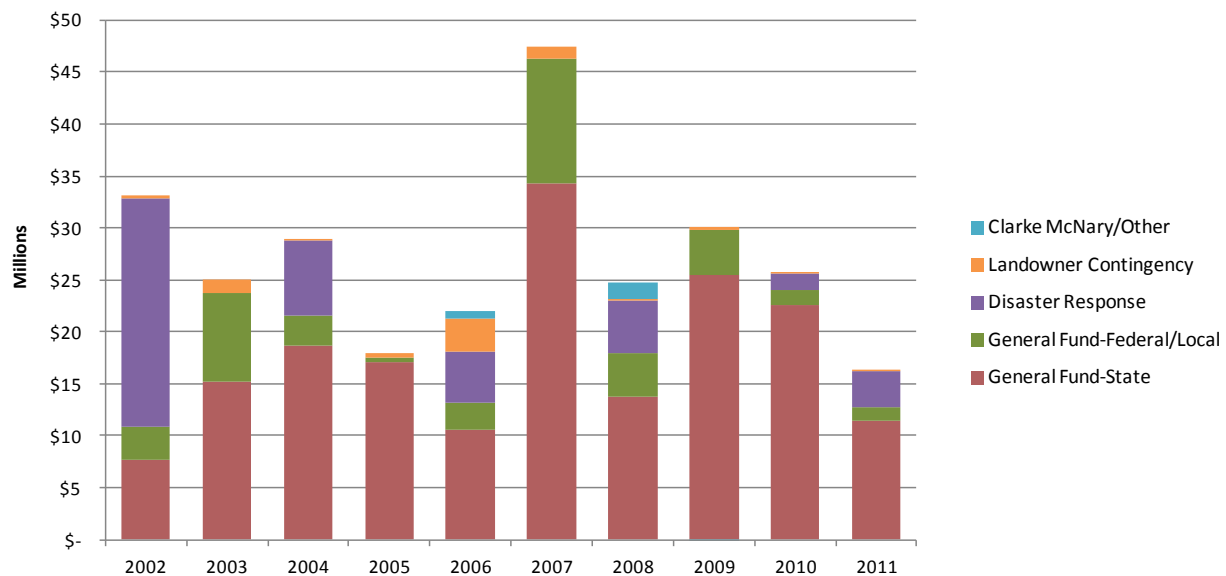
Several funding sources and accounts support the DNR's fire suppression expenditures. Within the state's General Fund, the DNR distinguishes between different funding sources. Besides the state supported portion (i.e. general tax revenues) of the General Fund (General Fund-State), other General Fund monies from federal and local reimbursements are separately identified for fire suppression costs associated with providing assistance to federal and local agencies. The DNR also separately identifies funding from disaster funds and the Landowner's Contingency Forest Fire Suppression Account. In FY 2006 and FY 2008, the Clarke McNary Fund, which accounts for the federal fire assistance grant and other grant funds also paid for fire suppression costs, but was not initially budgeted as part of the DNR's allotment process. Over the past ten years, the percentage contributions from the different funding sources have varied, but the General Fund-State has usually been the primary funding source. Overall for fiscal years 2002-2011, the General Fund-State funding

portion has contributed about 65% of the total fire suppression funding, while federal and local reimbursements and disaster funds have contributed another 31% of the funding over the past ten fiscal years. Landowner and other funding contributed the remaining 4%. Besides the General Fund-State, other large funding sources in different years included the following:

- ◆ Disaster funds represented 66% of the funding in FY 2002, and in fiscal years 2004, 2006, 2008, and 2011 disaster funds contributed 20% to 25% of the total fire suppression funding.
- ◆ Federal reimbursements were particularly large in FY 2003 and FY 2007, representing 34% and 25% of the funding, respectively. Some federal reimbursement funding has occurred every year.
- ◆ The Landowner Contingency Forest Fire Suppression Account represented 14% of the funding in FY 2006, but generally represents less than five percent of total funding for the ten-year period.

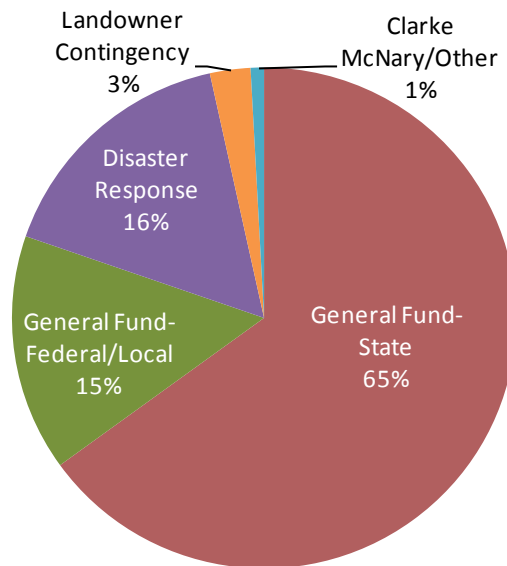
Exhibit 5 shows the different funding sources for each fiscal year, and Exhibit 6 shows the percentage of funding from each source for the entire ten year period.

Exhibit 5
Actual Washington State Fire Suppression Funding Sources by Fiscal Year
FY 2002 - 2011



Source: DNR Datamart Variance Reports and FCS GROUP

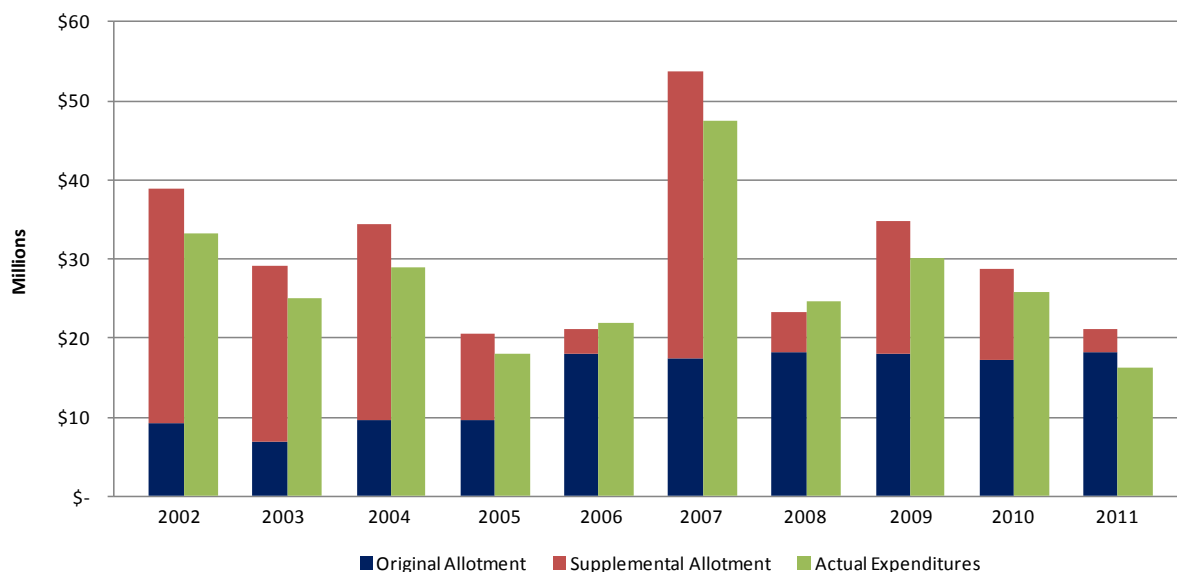
Exhibit 6
Percentage of Actual Washington State Fire Suppression Funding by Source
FY 2002 – 2011



COMPARISON OF ALLOTMENTS AND ACTUAL EXPENDITURES

As shown in Exhibit 7, there have been several years when the Washington State legislature's initial fire suppression appropriation has been considerably lower than actual expenditures, and as a result, the legislature has made supplemental appropriations in five of the past ten fiscal years that have actually been greater than the original appropriation. Over the ten year period, the total original appropriations averaged almost \$16 million per year and supplemental appropriations averaged \$15.6 million for a total average appropriation of \$31.6 million per year. Total fire suppression expenditures averaged \$27.1 million, and the total expenditures have been slightly less than the total appropriations.

Exhibit 7
Total Original and Supplemental Appropriations Compared
To Total Actual Fire Suppression Expenditures
FY 2002 – 2011



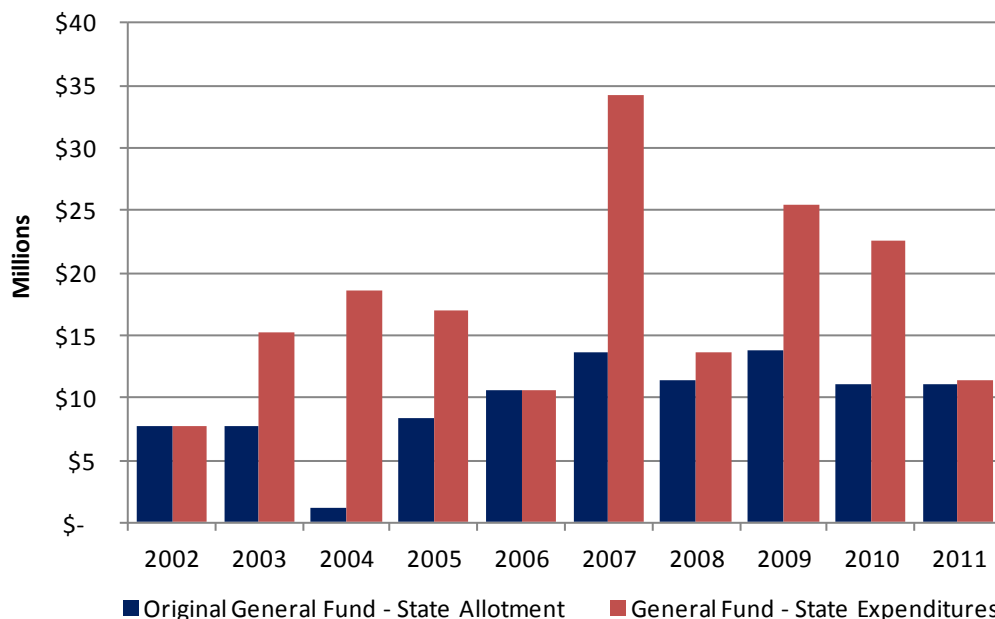
Source: DNR and Datamart Variance Reports

Funding Analysis

The analysis of the past fiscal years from 2002 through 2011 reveals a number of trends concerning the state's appropriations and funding for fire suppression costs. It should be noted that the most recent 2012 fire season is not included in the analysis. The original appropriation has almost always been less than the actual expenditures, except for FY 2011, and consequently, supplemental appropriations have always been necessary. Because expenditures associated with federal, local, or disaster reimbursements and grants and the Landowner Contingency Forest Fire Suppression Account are offset by additional revenues, the amount of General Fund-State money needed to support fire suppression activities can vary significantly depending on the amount of assistance DNR has provided to federal agencies and whether disaster funding is made available for fire suppression costs.

The key appropriations figure is the one related to the fire suppression expenditures supported by the General Fund-State. In addition, supplemental appropriations to support these expenditures can have more of an impact on the state's overall General Fund budget because there are no offsetting, directly related revenue sources. To analyze the magnitude of the supplemental appropriations, Exhibit 8 compares the original appropriation with the actual costs supported by the General Fund-State.

Exhibit 8
Original General Fund-State Appropriations
Compared To Actual General Fund-State Expenditures
FY 2002 – 2011



Source: DNR and Datamart Variance Reports

Exhibit 8 indicates the following for the past ten fiscal years:

- ◆ In two out of the ten years (FY 2002 and FY 2006), the original General Fund-State appropriation has been about the same as the actual General Fund-State expenditures. In FY 2011 the appropriation was about \$267,000 less than the actual expenditures. For all the other fiscal years the original appropriation has been about \$2 million less than the actual expenditures. For three years, the difference was less than \$10 million, but for the other four years the difference was more than \$10 million, with one year greater than \$20 million (FY 2007).
- ◆ The average original appropriation over the past ten fiscal years for the General Fund-State portion has been \$9.7 million, while the average General Fund-State expenditures have been \$17.7 million. As a result, the average gap between the original General Fund-State appropriation and the actual General Fund-State expenditures is about \$8 million.
- ◆ If the low and high cost years are not included in the averages for actual expenditures, the average annual state expenditure was about \$16.8 million and the average gap between those eight years was \$7.4 million.
- ◆ Both budget appropriations and fire suppression expenditures have increased over the last five fiscal years. The average initial fire suppression appropriation and actual General Fund-State expenditures for fiscal years 2002 through 2006 were \$7.1 million and \$13.8 million, respectively. For fiscal years 2007 through 2011 the averages were \$12.2 million and \$21.5 million, respectively. The preliminary General Fund-State expenditures for FY 2012 are about \$8 million - much lower than the previous five-year average and slightly more than the FY 2012 General Fund-State appropriation.

Total fire suppression expenditures are difficult to predict because they are determined by a number of factors outside of the state's control such as weather and people who inadvertently or deliberately

start fires. Consequently, the state's ability to decrease the variability in budgeting while minimizing the costs depends on the amount of the original appropriation and the state's willingness to continue making supplemental appropriations. Increasing original appropriations can reduce the need for and the amount of a supplemental appropriation.

COMPARISONS WITH OTHER STATES

As previously mentioned, a comparison with other states was conducted, and the state agencies responsible for fire suppression in other states were asked about their funding for fire suppression and fire preparedness. The comparison included the following state/provincial agencies: Oregon's Department of Forestry (ODF), Idaho's Department of Lands, Montana's Department of Natural Resources and Conservation, South Dakota's Wildfire Suppression Division, and British Columbia's Ministry of Forestry. The Washington DNR has direct wildland fire protection responsibility covering approximately 12.4 million acres of state and private forest lands. This acreage is similar to Oregon's Department of Forestry which protects approximately 16 million acres. The other states have protection responsibilities ranging from a low of 350,000 acres in South Dakota to a high of 232.3 million acres in British Columbia. Oregon provides the best direct comparison to Washington in terms of the area covered because both are coastal states bisected north-south by the Cascade Range, with similar geography, vegetation, and population. Both have similar fuel types, fire regimes, and growing wildland-urban interface fire protection problems. Given these basic similarities, it is instructive to compare the wildland fire programs of these two states despite their funding, program, and service differences.

Overall, Washington's fire suppression funding and use of supplemental appropriations for fire suppression is common among the states and British Columbia. British Columbia has the highest fire suppression budget at \$63 million followed by Washington and Oregon at \$16.1 million and \$25 million, respectively. However, it is important to note that in Oregon the \$25 million only reflects expenditures for large fires. The costs for suppressing small fires, primarily through the initial and extended efforts to extinguish the fire, are part of the base budgets of its twelve fire protection districts. Once certain cost thresholds are reached in these districts, or if non-budgeted resources are needed, fire suppression costs can then be covered by Oregon's large fire fund. The General Fund is the most common source of funding for fire suppression. Both Washington and Oregon have also used funds from landowner assessments to pay for fire suppression costs. In Washington, the Landowner Contingency Forest Fire Suppression Account is available to support costs resulting from fires started by participating landowners engaged in forestry operations when they are not negligent. Oregon has a Forest Land Protection Fund that is totally supported by landowner assessments, and before the Oregon spends its General Fund monies, the Forest Land Protection Fund must first spend \$10 million in landowner assessments. Oregon also has a specific General Fund severity budget and is the only state that has an insurance policy to help offset the costs of very large fire suppression years. Exhibit 9 summarizes the results of our comparison of fire preparedness and fire suppression funding.

Exhibit 9
Annual State Funding Comparisons

State/Province	Acres Protected	Preparedness Budget	Suppression Budget	Comments
Washington	12.4 million	\$14.4 Million GF: \$3.6 Million Landowner Assessments: \$7.0 Million Federal: \$3.8 Million	\$16.1 Million GF: \$10 Million Disaster Recovery Fund: \$2.5 Million Federal Funds: \$2.9 Million Landowner Assessments: \$0.7 Million	Severity: Discretion to spend limited amount and charge to suppression. Assessments: For suppression: the Landowner Contingency Forest Fire Suppression Account is available to fund a portion of suppression costs for fires caused by landowner forestry operations not involving negligence.
Oregon	16 million	\$42 Million (Includes initial and extended attack plus program administrative costs of over \$10 million per biennium) GF: \$16 Million Assessments: Private Landowners: \$16 Million Public Landowners: \$10 Million	\$25 Million (Insurance Deductible) GF: \$15 Million Assessments: \$10 Million (Paid prior to accessing the General Fund) Insurance: \$25 Million (after the state pays the \$25 million deductible). GF Supplemental Amount more than \$50 Million.	Severity budget: \$2.2 million GF. Assessments: Both timber & grazing lands. Rates vary by District.
Montana	5.2 million	\$8.9 Million GF: \$5.5 Million Assessments: \$2.9 Million Federal: \$0.57 Million	\$40 Million GF One time appropriation in 2008. Allowed to carry over unspent balance, but never replenished and is now depleted. GF supplemental now required. State Emergency Fund: May be available.	Severity: Discretion to spend limited amount and charge to suppression. Assessments: Can fund up to 1/3 of preparedness budget. Timber land only. Minimum fee + per acre rate.

Exhibit 9 (Continued)
Annual State Funding Comparisons

State/Province	Acres Protected	Preparedness Budget	Suppression Budget	Comments
Idaho	6.2 million	\$9.4 Million GF: \$3.7 Million Assessments: \$4.6 Million Federal: \$1.0 Million	\$150,000 General Fund Uses “deficiency warrants” to pay expenses. No requirement to borrow from other programs. GF Supplemental to reimburse.	Severity: Discretion using deficiency warrant. Assessments: \$.60 per acre. Private lands only. \$40 surcharge for structures. Private Protection Associations (2): Operate as an extension of the state.
South Dakota	350,000	\$4.0 Million GF: \$2.4 Million Federal: \$1.6 Million	None Allowed to deficit spend to pay expenses. GF Supplemental appropriation to reimburse.	Severity: Discretion to charge limited amount to suppression. Assessments: None.
British Columbia	232.3 million	\$25.8 Million Provincial General Fund	\$63 Million Provincial General Fund and supplemental if total exceeded.	Severity: Discretion to charge limited amount to suppression. Assessments: None

- ◆ **Fire Control/Preparedness:** Washington funds its wildland fire control/preparedness program from a combination of state general fund, federal funds, and private landowner assessments, as do all the comparison states except for South Dakota. British Columbia funds its program exclusively with its provincial general fund. The amount of federal funds each state receives is determined by the U.S. Forest Service.
- ◆ **Landowner Assessments:** The Washington State assesses private and state forest landowners a fee for wildland fire protection, as do the states of Oregon, Idaho, and Montana. South Dakota and British Columbia do not have assessments. Of the states that assess fees, all assess private landowners (and public landowners if they are providing protection to them) at a per acre rate for wildland fire protection. Rates, or caps on rates, are typically set in state statute, and vary considerably among the states that have them. Oregon has, by far, the most complex system in terms of services, the level of landowner participation, and rate structure. Oregon also charges the highest rates. In Washington, assessments fund approximately 50% of the fire control/preparedness budget. For funding fire preparedness with assessments, Montana is currently the lowest at 33%, while Oregon is the highest at approximately 62%. Idaho's percentage is similar to Washington at approximately 50%.
- ◆ **Severity Funding:** The term "severity" refers to conditions producing high to extreme fire danger, adverse weather forecasts, and a high probability for new fire ignitions and rapid fire spread. According to the National Wildfire Coordinating Group (NWCG) the purpose of severity funding is to increase wildland fire suppression response capability necessitated by abnormal weather patterns, extended drought, or other events causing an abnormal increase in the fire potential and/or danger. Typically state preparedness budgets (e.g. DNR's fire control budget program) do not provide the capacity to pre-position resources, enter into short-term contracts for additional firefighting resources, or otherwise prepare for unusual fire situations. Of the state agencies contacted, only Oregon has an appropriated severity budget, which began in 2006. The other states and provinces, including Washington, have some discretion to charge limited severity expenditures to fire suppression accounts, but usually in the form of a "soft" authority with no statutory limits. According to the DNR records, the DNR spent about \$1.3 million, \$1.5 million, and \$.7 million on false alarms and pre-positioning (the same charge code is used for both) in fiscal years 2009, 2010, and 2011, respectively. States (including Washington) who use soft severity authority say they do so using careful judgment in order to maintain trust with their state legislatures. According to ODF, the advantage in having a dedicated severity budget is that it can respond to changing conditions rapidly by pre-positioning resources and entering into short-term contracts without dipping into earmarked fire suppression accounts. ODF staff believe that this type of funding has helped it to keep fire suppression costs lower.
- ◆ **Suppression Funding:** Of the states and provinces compared, only Washington, Oregon, and British Columbia have significant wildland fire suppression appropriations. Idaho has a very small appropriation of \$150,000. Montana had a large one-time appropriation (\$40 million) in 2008, which has now been depleted with no certainty that it will be replenished. South Dakota has none. Ten-year average suppression expenditures run from a high of \$165 million per year (British Columbia) to a low of \$1.5 million per year (South Dakota). Idaho's average suppression costs are approximately \$7 million per year, while Montana spends between \$15-\$20 million per year. Oregon's average suppression costs are difficult to directly compare to the other states because, unlike the other states, ODF's initial and extended attack costs (small fires) are budgeted for and are included in its preparedness budget. However, adding Oregon's average large fire costs (approximately \$8 million per year) to its average district initial and extended attack costs (approximately \$4.6 million per year) results in an overall annual average of \$12.6

million per year in costs for fire suppression. Washington's suppression costs are considerably higher, averaging approximately \$27.9 million per year.

Once the appropriated suppression budget has been exhausted, all comparison states and provinces (including Washington) have the ability to deficit spend to cover suppression expenses. The state legislature is then asked to provide a supplemental appropriation to cover expenditures in excess of appropriated budgets. By design both Idaho and South Dakota are allowed to deficit spend without any borrowing requirements and without any limitations because their legislatures plan on funding their fire suppression costs after-the-fact. Oregon is unique in that it uses landowner assessments to cover a majority of its large fire costs because landowners are responsible for funding the first \$10 million of large fire costs. Over the past ten years landowner funds have been the most common source of funding, given that the state's large fire costs average about \$8 million. Washington is unique in that it has several accounts to which it can allocate certain suppression expenditures, such as the Disaster Recovery Fund and the Landowner Contingency Forest Fire Suppression Account. However, a key difference between Oregon and Washington is that Oregon funds 40% of its suppression budget from landowner assessment revenue, while Washington funded approximately 4% of its suppression budget from its Landowner Contingency Forest Fire Suppression Account, which is restricted to certain types of landowner caused operational fires. Both states rely on general fund supplemental appropriations once all other sources of funding have been depleted.

- ◆ **Insurance Policies:** Oregon is the only state surveyed that carries an insurance policy that covers forest fire suppression expenditures. The policy will pay up to \$25 million with a \$25 million deductible, and an annual premium payment of slightly less than \$1 million. Other states have periodically explored the concept, but none have acquired a policy.

POLICY AND IMPLEMENTATION CONSIDERATIONS

Other states have the same issue Washington has concerning the variability in fire suppression costs, which makes budgeting for an original appropriation difficult. When the original fire suppression appropriation is exceeded, Washington is very much like other comparison states in that supplemental appropriations are provided. Oregon is the exception because it has an insurance policy that covers any fire season fire suppression expenditures greater than \$25 million. In the last ten fiscal years, Washington's legislature has passed a supplemental appropriation every year, and the supplemental appropriations were all necessary except in FY 2011 when actual expenditures were eventually less than the original appropriation. Overall, original appropriations averaged about \$16 million and supplemental allotments averaged \$15.6 million. Average fire suppression expenditures averaged \$27.1 million.

Because some fire suppression expenditures are reimbursed or paid for by federal and local fire agencies and disaster funding and the amounts vary from year to year, the main support for fire suppression expenditures comes from the General Fund-State. A large part of the funding gap between the original appropriation and actual fire suppression expenditures is caused by the low original appropriation from this funding source. Over the same ten fiscal years, the average original appropriation for the General Fund-State portion of the costs has been about \$9.7 million, and the average total actual expenditures supported by the General Fund-State has been \$17.7 million. As a result the average gap has been about \$8 million. The years when the original appropriations have been close to the expenditures occurred in fiscal years 2002, 2006, and 2011. Original General Fund-State appropriations were about \$7.6 million, \$10.6 million, and \$11.1 million, respectively. These years represented three of the four years with the lowest number of fires during the ten-year period. If the average expenditure of \$17.7 million was used, there would have been four years when a supplemental appropriation for General Fund-State source would have been required. At the same

time, there would have been six years when the original appropriation was much larger than the actual expenditures.

If the legislature's and the Governor's goals are to reduce the number of times supplemental appropriations are needed to pay for unreimbursed or grant funded costs and to reduce the amount of those supplemental appropriations, the original appropriation will need to be increased. As found in the comparison based on the original appropriation and the number of fires, the state appears to be budgeting based on the lowest fire years, but for most years, fire activity has been at a higher level as well as the state's cost to fight those fires. Given the state's current budget forecast, increasing the initial General Fund-State appropriation might be difficult given other state priorities, but any increased appropriation that occurs at the beginning of the budgeting process provides more certainty about the trade-offs and funding resources available at the time rather than waiting until near the end of a fiscal year or biennium when reserves or other budget reductions might be needed if revenues have not increased greater than the state's initial forecast. If there is a busy fire year with major fires, the state can still expect that it will need to make a supplemental appropriation. The next chapter on Oregon's insurance policy will address the high fire year issue. Key policy decisions are the following:

- ◆ Should the state increase its original allotment of General Fund-State monies to reduce the need for and the size of supplemental allotments?
- ◆ If so, how often is the state willing to use General Fund-State supplemental appropriations?
- ◆ Should supplemental appropriations only be necessary when there are extraordinary fire years like 2007, 2009, and 2010?
- ◆ If the original appropriation is higher than actual expenditures (This is likely to happen in low fire years), should DNR be allowed to carry over the remaining balance to supplement or reduce the next fiscal year's or biennium's original appropriation?

FCS GROUP RECOMMENDATIONS

To reduce the number of times the legislature makes a supplemental appropriation to pay for DNR's wildfire suppression costs and to reduce the amount of the supplemental appropriations, our recommendations are the following:

- ◆ Increase the initial appropriation for fire suppression costs by using the General Fund-State expenditures for a ten year period and calculate the average expenditure level based on the ten years minus the lowest and highest expenditure years in that period. Based on the past ten fiscal years, the General Fund-State appropriation would be \$16.8 million.
- ◆ For the total initial appropriation, add conservative estimates for federal and local reimbursements, disaster funds, and other funding sources. If supplemental appropriations are needed because costs associated with these funding sources are higher than anticipated, the supplemental increase can be offset by additional revenues.
- ◆ Provide legislative appropriation language that allows DNR to carry-over any surplus in its suppression funding to supplement the next fiscal year's or biennium's original appropriation. Using the carry-over as a supplement would allow the suppression account to increase after light fire years and thus provide additional funds to create a larger fire suppression account to fund costs in high fire years. This would essentially create a self-insurance program that could reduce the amount of supplemental appropriations needed after high cost fire years. Options for managing any surplus include just monitoring the fire suppression General Fund account,

establishing a specific reserve within the state's General Fund, or creating a separate Fire Suppression Fund.

CHAPTER III: OREGON'S FIRE SUPPRESSION INSURANCE

One of the key objectives of the study is to review and assess the State of Oregon's emergency fire suppression insurance program and its potential to help Washington State smooth the budget variability for fire suppression. To analyze the insurance program, the following were part of the overall issues and objectives of this study.

- ◆ A description and assessment of the Oregon Forest Land Protection Fund's (OFLPF) operation and funding,
- ◆ A description and assessment of Oregon's use of emergency fire suppression insurance,
- ◆ Policy considerations regarding the purchase of emergency fire suppression insurance in Washington, and
- ◆ Policy considerations regarding the type of insurance that should be adopted (if any) in Washington, barriers to adoption/implementation, how the insurance should be implemented, how it should be funded, and what are the projected revenue requirements.

The insurance program is, however, only one element that the Oregon Department of Forestry (ODF) uses to finance its fire suppression costs. The ODF's structure, financing, and level of funding is very different from the DNR's structure and financing for its fire preparedness and fire suppression costs.

OREGON'S FIRE SUPPRESSION PROGRAM AND FINANCING

In contrast to the DNR, which is responsible for protecting only private and state "forest" lands, Oregon's responsibility includes both forest and non-forested lands. The ODF hires over 700 seasonal employees statewide to fight wildland fires during the fire season, which typically begins in late spring and generally extends into late fall. Local crews take quick action on small fires, with a goal of stopping 97% of all fires at 10 acres burned or less. On all fires, ODF counts on the help of forest landowners and loggers. ODF also works closely with other fire protection agencies. When fires exceed the capability of a local district to suppress them, districts have access to a variety of other protection resources that are not part of their regular district operation and funding. As previously mentioned ODF has a General Fund severity budget and its Oregon Forest Land Protection Fund (OFLPF) which helps pay for pre-positioning of resources, aerial retardant, helicopters, additional crews and equipment, and fire management teams. ODF staff believe that this severity budget is an important element in keeping fires small and reducing overall fire suppression costs.

ODF has a tiered system to address its fire suppression costs, and it uses a combination of landowner assessments, the state's General Fund, and insurance to pay for these costs. ODF has twelve fire protection districts, and each district pays for its preparedness activities and initial and extended attack fire suppression costs with acreage assessments on private, city, county, state and federal

forest land and with the State General Fund. The acreage assessments are calculated simply by dividing the local district budget by the acres protected, and higher value timber land pays a greater assessment rate per acre than lower value grazing lands. The General Fund pays 50% of this acreage assessment on private land, while public lands pay the full per acre assessment costs. ODF considers this as the base level of fire protection.

In addition to the district funding, ODF has a General Fund special purpose appropriation used to fund the availability of severity resources such as heavy air tankers and helicopters. Dedicated severity accounts allow wildland fire agencies to pre-position resources and take other actions, such as entering into short term contracts for firefighting resources and preparing better for anticipated, unusual initial attack needs that can be caused by abnormal weather patterns, extended drought, or other events causing an abnormal increase in fire potential and/or danger. ODF considers this as a second level of fire protection.

The next tier of funding is from the OFLPF and the General Fund. Before a district can access these funds, a district must spend what is considered a local district deductible amount. The deductible is based on an amount for the protected acreage (e.g. 10 cents per acre for timber land) plus the first \$25,000 for any one fire or on any one day. The OFLPF is responsible for \$10 million and the General Fund is responsible for the next \$15 million. The last tier is the state's insurance policy which currently covers \$25 million in costs after the ODF has already spent a total of \$25 million in emergency fire suppression costs from the OFLPF and the General Fund.

OFLPF OPERATION AND FUNDING

According to the ODF, the Oregon Forest Land Protection Fund (OFLPF) serves as kind of an "insurance policy" for large fires beyond the capability of regularly funded local district protection forces. The purpose of the fund is to spread the risk and funding of emergency fire suppression costs among fire protection districts. The OFLPF helps to pay for emergency fire suppression costs and 50% of annual insurance policy costs. As previously mentioned, a deductible amount must be spent before a district can be eligible for OFLPF funding. These deductible amounts are included in a district's annual budget. In the event that these deductibles are not completely expended in a low fire season, the balance becomes part of the credit against the next year's district budget. If the fund is exhausted, borrowed funds must be repaid the following year regardless of how large the amount is.

Oversight for the OFLPF is provided by the Emergency Fire Cost Committee (EFCC), a committee appointed by the Oregon Board of Forestry. Like a district budget committee, landowner representatives serve on the committee. This group meets quarterly and more often, if necessary. OFLPF expenditures by districts are audited annually to be sure the expenditures are consistent with the established OFLPF guidance and administrative rules.

Funding for the OFLPF comes from landowners. The landowners pay a harvest tax per thousand board feet, a charge per acre of land protected by the ODF, a minimum charge per lot, and a charge per each lot with an improvement.

THE OREGON INSURANCE PROGRAM

The Oregon insurance program is authorized by Oregon Revised Statute 477.775. The EFCC and the State Forester are responsible for determining the level of insurance to purchase. In determining whether purchasing insurance is advisable, the statute lists a number of factors that are to be considered in determining the level of insurance:

- ◆ The cost, coverage, and deductible insurance available from private insurance carriers,
- ◆ The funding available for fire suppression from the OFLPF and other sources,

- ◆ The current condition of Oregon's forests,
- ◆ Long term weather predictions,
- ◆ Available firefighting resources, and
- ◆ Available funds for the purchase of insurance.

Except for two years, the ODF has had an insurance program since 1973. For the fiscal year 2011-2012 Oregon had a \$25 million deductible and \$25 million in insurance coverage. The insurance premium for this policy was \$811,590. The insurance policy plus the \$25 million deductible amount provides the ODF with a maximum amount of \$50 million in funding for large fire suppression costs in addition to the ODF's severity budget and the district deductible expenditures. Any costs that exceed the insurance coverage must be paid by the state. The insurance policy covers the fire season and runs from April 1 through April 1 of the next year. The funding for the program comes from both the state's General Fund and landowner assessments that are part of the OFLPF.

- ◆ The \$25 million deductible is funded on a tiered basis with the first \$10 million from the OFLPF and the next \$15 million from the General Fund. In 2013 the ODF will be proposing to equally share the deductible between the OFLPF and the General Fund.
- ◆ The insurance premium is paid equally by the General Fund and the OFLPF.

In the beginning of the insurance program, Oregon frequently submitted claims, but since 1995, only a few claims have been submitted. The following is a brief historical overview of the program, and the detailed history can be found in Appendix B.

- ◆ From 1973 to 1994 Oregon submitted insurance claims in half the years. Claims ranged from \$128,000 to a high of \$7.5 million. The insurance policy had deductible amounts starting from \$325,000 in 1973 and increasing to \$8 million in 1994. Insurance coverage started at \$1 million in 1973 and grew to \$34.5 million in 1994 with premiums increasing from \$45,000 to \$2.7 million per year.
- ◆ From 1995 to 2011, there have been only two claims, but because of the previous claims history and increasing premiums, the ODF began increasing its deductible from \$10 million to \$25 million and reduced its insurance coverage from \$32.5 million to \$25 million. Between 1999 and 2002, the insurance coverage was \$43 million. As a result of the higher deductible, fewer claims, and reduced insurance coverage, the insurance premiums have decreased from \$3.875 million to the current \$811,590.
- ◆ From 1973 to 2011, Oregon has spent a total of \$53.5 million for insurance, but has received about \$52 million for claims submitted to the insurance companies. As a result, Oregon has not saved a significant amount of money over the history of its insurance program.

The frequent claims made in the first 22 years of the program caused the premium costs to increase, and the state then began trying to balance the amount of coverage and the deductible amounts to help reduce the premium cost. Based on discussions with Oregon's insurance broker, there are also other factors that are considered besides claim history. The broker's analysis cites key attributes of the ODF's risk management program. These attributes in his analysis include:

- ◆ Continued success of an aggressive severity program where fire managers anticipate critical fire weather conditions and pre-position additional resources,
- ◆ Continued investment in technology solutions (i.e. ODF's camera detection system) to detect forest fires earlier,
- ◆ Using detailed meteorological reports providing "fire intelligence" for fire managers,

- ◆ Having active participation by private landowners in planning and funding, including over \$13 million in annual in-kind contributions,
- ◆ Managing a robust and active fire cost collection program to recover costs from those that start fires, and
- ◆ Establishing standards and performance goals for protection of forest lands.

In the last ten fiscal years, Oregon's fire suppression costs, excluding federal, local, and disaster reimbursements, have generally averaged less than Washington's costs. Exhibit 10 shows Oregon's history of large fire suppression costs.

Exhibit 10
Oregon Department of Forestry Large Fire Suppression Expenditures
FY 2002 – FY 2011

Fiscal Year	Net Emergency Firefighting Claims*	District Deductible Costs**	Total Emergency Firefighting Expenditures
2002	\$14,889,423	\$1,384,777	\$16,274,200
2003	\$30,001,937	\$1,416,421	\$31,418,358
2004	9,180,727	\$1,482,377	\$10,663,104
2005	\$2,017,509	\$712,037	\$2,729,546
2006	\$13,196,716	\$1,082,479	\$14,279,195
2007	\$9,040,048	\$1,247,791	\$10,287,839
2008	\$14,125,366	\$1,413,400	\$15,538,766
2009	\$9,129,075	\$1,151,144	\$10,280,219
2010	\$7,947,483	\$1,067,873	\$9,015,356
2011	\$5,193,638	\$611,070	\$5,804,708
Total	\$114,721,922	\$11,569,369	\$126,291,291

*Does not include costs reimbursed by federal, local, and disaster funding.

**Deductible costs include a \$25,000/fire/day deductible as well as the 10¢/acre timber and 5¢/acre grazing deductibles. Additional fire suppression costs can also be incurred by local districts for initial and extended attack and are not included in these totals. Including the deductible amounts, the ODF estimates that these costs average about \$4.6 million per year.

EMERGENCY FIRE SUPPRESSION INSURANCE FOR WASHINGTON

Although some states surveyed have considered an insurance policy, none of the surveyed states has actually obtained one. As previously mentioned, the State of Oregon has had an insurance policy since 1973, and the deductibles and amounts of coverage have varied. After the deductible was raised to \$10 million in 1995, Oregon has only needed to use the insurance policy twice. In 2001 and 2002 the insurance policy paid claims totaling about \$4.9 million and \$20 million, respectively. Insurance premiums exceeding \$3 million annually resulted in the last deductible increase to \$25 million in 2005. As also noted by the insurance broker's analysis, the ODF's risk management program has a number of elements that contribute to the ODF's ability to keep fire suppression costs within the deductible amount.

Based on the analysis of DNR's funding and expenditures and Oregon's experience, the insurance deductible and the amount of insurance coverage are two major factors in determining the premium cost. Other risk factors will also affect the premium amount. Based on preliminary discussions with

the State of Washington's insurance broker, the following are other factors that the broker and potential underwriters might review.

- ◆ Firebreaks,
- ◆ Access points,
- ◆ Cameras,
- ◆ Number of acres under management, both currently and historically as it matches up with the cost information back to 2002,
- ◆ Forest types,
- ◆ Details on risk management procedures for fire suppression, and
- ◆ Available fire suppression equipment and annual budget.

Insurance Deductible and Coverage Levels

As noted about Oregon's experience with its insurance policy, the insurance policy's deductible is a key factor in keeping premium costs affordable. Like other types of insurance, if the insurance company is continually paying out claims on a policy, insurance premium costs will generally increase. To stabilize or decrease the variability in supplemental appropriations if the state chooses to obtain insurance, Washington must strike a balance between establishing a deductible that reduces supplemental appropriations but does not continually result in claims.

As previously shown in Exhibit 8, the initial appropriations for General Fund-State monies for fire suppression have been frequently lower than the actual expenditures supported by the General Fund-State monies. Consequently, the Washington State legislature has needed to make supplemental appropriations to pay for the DNR's fire suppression expenditures. Because of this trend, any deductible amount higher than the past initial allotments will require that the state increase its original allotment for DNR's fire suppression costs as noted in the previous chapter. In addition, the insurance premium and administrative costs to gather the data identified by the state's insurer will increase the state's costs.

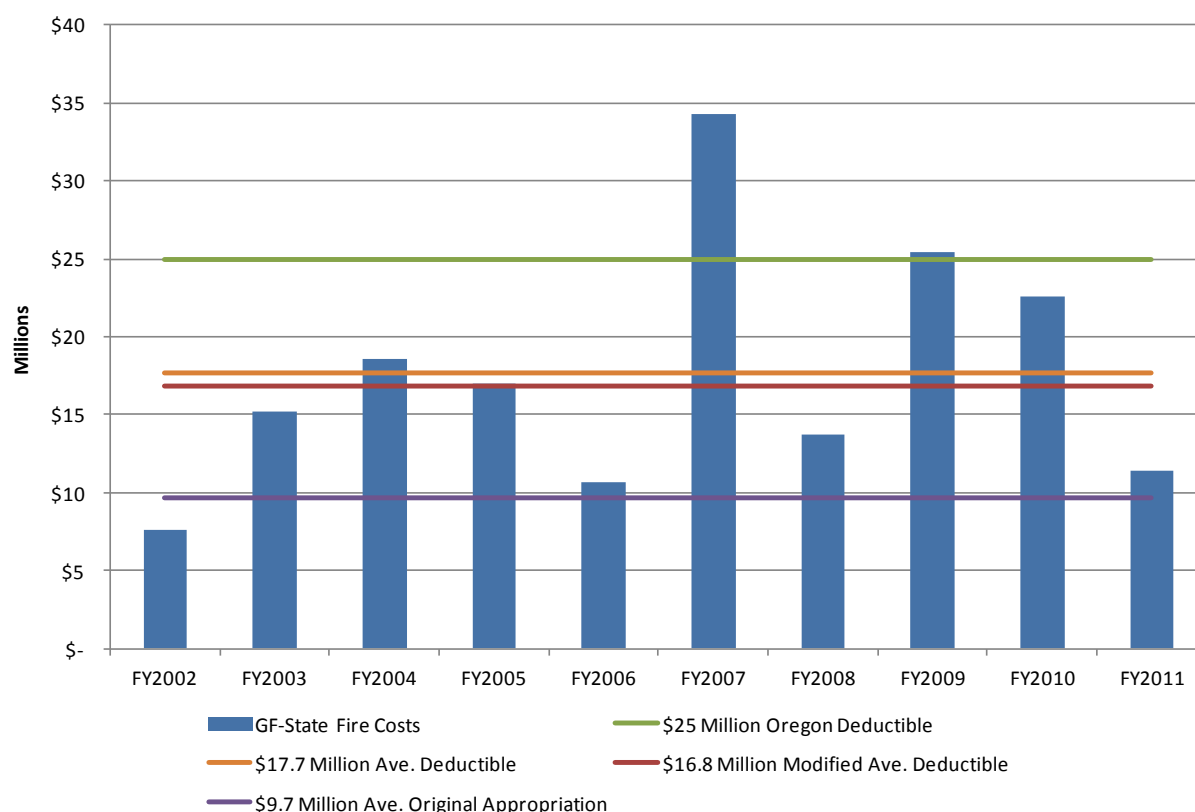
Based on the funding analysis in Chapter II, the average original appropriation for General Fund-State monies over the ten year period was about \$9.7 million. Actual General Fund-State expenditures averaged about \$17.7 million. However, if the lowest and highest expenditure years are not included in the average, the average expenditure decreases to \$16.8 million.

To show the potential impacts and trade-offs concerning different deductible levels based on the original allotments and actual expenditures, Exhibit 11 shows the General Fund-State expenditures compared to different deductible levels, including Oregon's \$25 million deductible.

- ◆ If the DNR had the exact same policy as Oregon, there would have only been two fiscal years, FY 2007 and 2009, when the Washington State would have had an insurance claim. The estimated claims would have been about \$431,000 and \$9.3 million.
- ◆ With a deductible amount based on the average expenditures for the ten year period (\$17.7 million), there would have been four years when the state would have needed to make claims. The estimated claims would have totaled \$30.1 million.
- ◆ With a deductible amount based on average expenditures for the ten year period excluding the lowest and highest expenditures (\$16.8 million), there would have been five years when the state would have needed to make a claim. The estimated claims would have totaled almost \$34 million.

- ◆ With a deductible amount based on the average original appropriation (\$9.7 million) for the ten year period, nine out of the ten years would have required the state to make a claim. The estimated claims would have totaled almost \$81.6 million, which is almost the same amount as the total of the original allotments.

Exhibit 11
Comparison of DNR's General Fund-State Actual Expenditures to Different Deductible Levels



Risk Analysis

Another approach to determining an appropriate initial General Fund-State appropriation and deductible level is to analyze the number, cost, and size of the fires that the DNR must deal with. Based on such an analysis, the deductible might be established based on a combination of costs, number, and size of fires. The analysis can help establish a performance metric and better understanding of what the deductible and coverage will pay for.

The DNR provided ten years of data related to the individual cost and size of fires. However, the cost and acreage data were in separate data bases, and the data from the files had to be combined, matched, and verified. Adjustments were made to identify only the fires supported by General Fund-State monies. We verified this cost information by comparing it to what had been reported as actual expenditures and found that the General Fund-State fire suppression costs were reasonably close for the ten years (i.e. maximum difference from the reported actual expenditures was 6.4% in FY 2006).

Because cost and acreage information was not always available for all fires, a sample of about 5,800 fires with both cost and acreage data was developed. However, there were some limitations with these data, specifically:

- ◆ It was difficult to identify each wildfire's total cost due to material amounts of miscellaneous and other unidentified costs that were not attributed to specific wildfires. According to DNR staff, some of these costs were for general activities not attributable to a specific fire. Other unidentified costs appear to be accounting adjustments that were not assigned to their related wildfires.
- ◆ The wildfire size data did not include information for every wildfire identified in the cost data, and some of the wildfire size data lacked information about acres. To address this, we reviewed wildfires with costs greater than \$50,000 that were missing size data and tried to obtain the size data by matching a wildfire's cost code with the same cost code that included acres in an adjacent fiscal year. We also worked with the DNR staff to manually identify the acres for wildfires with costs greater than \$10,000.
- ◆ Different sets of fire codes are used to identify the costs of wildfires in odd and even fiscal years, but these codes are repeated every biennium. Because the fire season crosses the fiscal year, fire codes are often used out of sync (i.e. a code for an odd fiscal year is used in an even fiscal year). There were also situations where costs for fires were paid in two fiscal years. When these situations occurred in the sample of fires, we addressed the issue by only reviewing all fires with costs greater than \$500,000 to ensure that a material amount of their costs had not been split over two fiscal years.

Given these data limitations, a sample of 5,775 fires was identified for the ten-year period, and these fires provided us with a large data sample about individual fires. According to DNR statistics, the DNR had 8,117 fires during the ten year period as previously shown in Exhibit 4. After analyzing the data from these sample fires, some trends were identified about the cost and the size of fires. There were 20 fires that cost \$1.0 million or more. As shown below in Exhibit 12, while these 20 wildfires made up only 0.3% of the total number of wildfires, their total combined cost was \$43.9 million, or 41% of the overall total cost of the sample fires. The size of these 20 fires ranged from a low of 255 acres to a high of 109,402 acres.

Exhibit 12
Number of Sample Wildfires Paid for By Washington's General Fund

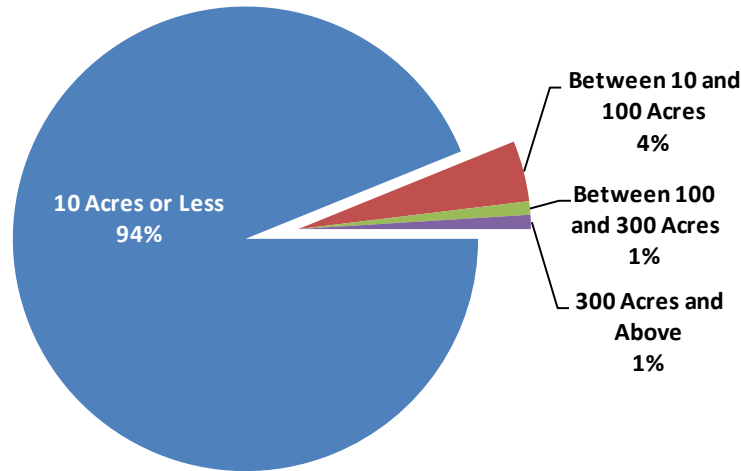
Period	Fires Less Than \$1 Million	Fires More Than \$1 Million	Total	% of Fires Costing More Than \$1 Million
FY 2002*	37	2	39	5.1%
FY 2003*	55	-	55	- %
FY 2004*	322	3	325	0.9%
FY 2005	698	-	698	- %
FY 2006	686	1	687	0.1%
FY 2007	973	3	976	0.3%
FY 2008	735	2	737	0.3%
FY 2009	862	6	868	0.7%
FY 2010	861	1	862	0.1%
FY 2011	526	2	528	0.4%
Total	5,755	20	5,775	0.3%

*Lower counts and higher percentages are due to incomplete records for the earlier years

Based on the above cost analysis, the size and cost data were further analyzed to determine if a relationship existed between the fire size and costs. The purpose of the analysis was to show how the number and size of the fires might affect the annual cost of fires. Our analysis found that there is a statistically significant relationship between the size of wildfires and their costs, and that on average, costs increase with fire size. Since fire size is related to cost, by expanding on DNR's existing strategy of concentrating on early efforts to keep wildfires smaller is one approach that might be considered as a way to contain costs associated with larger fires. According to the DNR, this principle is already a foundation of the DNR's strategy for meeting its firefighting responsibilities, and it does pre-position resources. As noted earlier, Oregon has a specific severity budget that is used to pre-position and provide resources for the initial attack on the fire. Because ODF believes that stopping more fires at the smallest possible size reduces costs and resource losses, it plans to propose an increase in its annual severity budget from the current \$2.2 million to \$5 million.

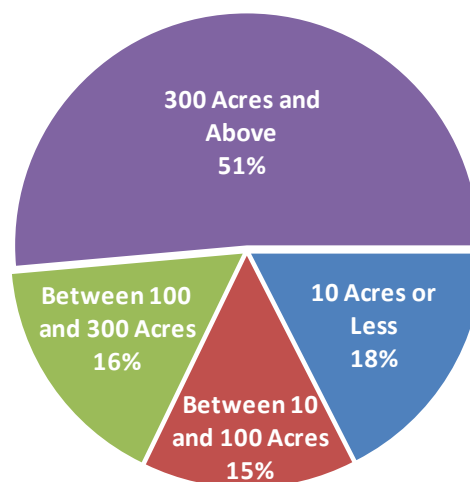
As shown below in Exhibit 13, DNR has kept 94% of the fires in the sample data to ten acres or less and only a small percentage, 6%, of fires are larger than 100 and 300 acres. DNR's performance target is to keep 93% of the fires to ten acres or less.

Exhibit 13
Sample Data Percentage of DNR Fires by Size
FY 2002-Fy2011



An analysis of these 5,775 wildfires by size found that more than half of the costs of classified wildfires paid by the General Fund-State was for large wildfires (i.e. wildfires with more than 300 total acres burned). As shown below in Exhibit 14, large wildfires made up 1% of the total number of fires, but accounted for 51% of the total cost (\$55.3 million out of \$107.6 million).

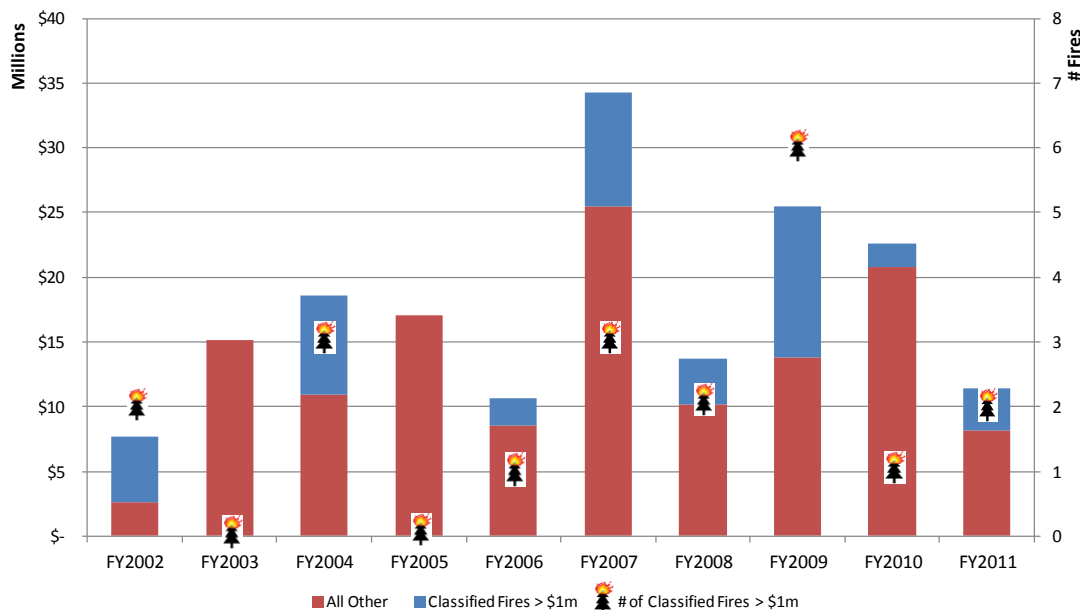
Exhibit 14
Sample Data Percentage of DNR Fire Suppression Costs Based on Fire Size
FY 2002-FY 2011



Of the 20 fires that cost more than \$1 million during the ten year period, 19 of those fires were 300 acres or more and cost between \$1 million to \$5.5 million. The average cost per fire was \$2.3

million, and the total cost of these 19 fires represented 98% of the total costs of fires over \$1million. Exhibit 15 shows the relationship between these large fires and the fire suppression costs for each fiscal year.

Exhibit 15
DNR Fire Suppression Costs by Fire Cost
FY 2002-FY 2011



Based on this analysis, the deductible could be established so the state insures itself against the more costly large fires and high fire seasons. From a performance metric perspective the deductible could cover the cost of those fires that are generally less than 300 acres and cost less than \$1million. If these large fires are taken out of the average cost, the average fire suppression cost over the ten fiscal years is \$13.2 million. At this deductible amount, claims would have been submitted seven out of the ten years.

POLICY AND IMPLEMENTATION CONSIDERATIONS

One alternative to making large supplemental appropriations is to use a fire suppression insurance policy like Oregon. If Washington wants to have an insurance policy to help pay for fire suppression costs and help reduce the variability and limit fire suppression costs supported by the General Fund-State monies, there are a number of key policy questions. As discussed in the previous chapter, the state has needed to provide supplemental appropriations because its original appropriations have been significantly lower than the average expenditures. In contrast, Oregon's fire suppression budget is significantly higher than Washington's at \$25 million (the insurance deductible), although the funding sources are also much different (i.e. the Oregon General fund contributes \$15 million, and landowners contribute \$10 million). In the last ten years, Oregon has only submitted a claim in FY 2002 when the deductible was \$10 million, and since having the \$25 million deductible amount, Oregon has never needed to use its insurance policy. For Washington, an insurance policy might do the following:

- ◆ An insurance policy can provide a limit on the state's General Fund costs for fire suppression.

- ◆ Depending on the original appropriation, an insurance policy might not eliminate the need for a supplemental appropriation if the original appropriation is less than the deductible or the total fire suppression costs exceed the total deductible and coverage amounts.
- ◆ The cost benefit to Washington State depends on the deductible, the coverage amount, and the resulting premium cost. Oregon's premium cost is based on its long claims history and coverage amounts, and if Washington decides to procure an insurance policy, its premium costs might be higher for a similar policy because it does not have a history and certain risk management programs might be different from Oregon's, such as camera detection systems and severity funding. In addition, the DNR believes that it might also incur new costs to provide the insurer with the current data requested to establish the premium cost.

For the state, supplemental appropriations can still occur if the appropriations are less than the deductible amount, and in addition to the original appropriation for fire suppression expenditures, an additional amount will be needed to pay the premium costs for the insurance policy. If the deductible amount is low and the state continually has claims, the premium might be substantial and thus offset any potential savings.

The key policy issues are the following:

- ◆ What is the state's objective for using an insurance policy? Is it to create a maximum state funding level for wildfire suppression costs and/or reduce state General Fund fire suppression costs?
- ◆ Is the Oregon insurance policy with its deductible and coverage amounts appropriate for Washington recognizing that Oregon has a different funding mechanism (i.e. General Fund and landowner assessments) for its fire suppression costs?
- ◆ If Oregon's policy is not appropriate or desired, what should an insurance policy cover, extraordinary fire costs caused by 1% to 2% of the fires and high cost fire years or should it be used to keep the original General Fund-State appropriation at current low levels (the \$9.7 million ten year average or the FY 2013 \$10 million amount), which might mean continuous claims and high premiums but possibly no supplemental appropriations?
- ◆ Should the state also have a severity budget to improve the DNR's initial attack response to help limit the size of fires?

FCS GROUP RECOMMENDATIONS

The previous chapter showed that the Washington State legislature's original appropriations are usually less than what the DNR will actually spend on fighting wildfires. The average difference between the appropriations and costs can be significant. Based on our work in the previous chapter, we recommended that the legislature should increase its initial General Fund-State appropriation to \$16.8 million using a ten year modified average. For Oregon's insurance policy, the claims must be net of reimbursements and grants. If an insurance deductible was set at \$16.8 million, the policy would have been used 50% of the time, and this frequency might be problematic for an insurer. If the deductible is as high as \$20-\$25 million, supplemental appropriations would still be needed to reach the deductible threshold.

After analyzing the size of fires, the related wildfire suppression costs, and the ten year cost history, FCS GROUP believes that it would be appropriate for the state to consider using an insurance policy for the more catastrophic fire years when there are many fires as well as several large fires costing over \$1 million. The three most costly fire seasons occurred in FY 2007, FY 2009, and FY 2010 with General Fund-State costs at \$34,259,202, \$25,431,255, and \$22,618,513, respectively. The most recent fire season in 2012 is not included in our analysis. Although the premium costs have not been

established to determine the cost benefit of the insurance, a \$25 million deductible would have paid for costs in two fire seasons, FY 2007 and FY 2009. At a \$20 million deductible, all three high-cost years would have resulted in claims.

In addition, Oregon has a dedicated severity budget and believes has been effective in lowering the cost of its fires. Such a dedicated severity account allows wildland fire agencies to pre-position resources and take other actions, such as entering into short term contracts for firefighting resources, and preparing better for anticipated, unusual initial attack needs. This is similar to what current policies allow the federal agencies, the other states we examined and British Columbia to do. Through experience over time, the wildland fire agencies have learned that taking proactive steps to ensure firefighting resources are pre-positioned in areas of anticipated wildfire problems is cost-effective. The Federal Wildland Fire Management Policy is to develop interagency severity plans to provide increased suppression capability in emergency situations including accessing additional resources, pre-positioning resources, and training emergency firefighters. Although the DNR does not have a dedicated severity budget or appropriation, it does have the authority to charge a limited (though undefined) amount of severity expenditures to its appropriated fire suppression fund. According to DNR, it pre-positions firefighting resources as part of a broader strategy of having the right resources in the right place at the right time, with the idea being that a relatively small investment in prudent pre-positioning can avoid larger suppression costs associated with small fires that become large because of delayed initial attack. The DNR could benefit from a dedicated severity account as it would then make it unnecessary to charge these expenditures to the suppression account, thereby reducing the amount available to cover actual fire suppression costs and possibly leading to a need for a supplemental appropriation. In addition, an upfront severity appropriation would allow DNR the flexibility to more aggressively acquire and pre-position firefighting resources during times of high fire danger as well as provide more accountability and transparency for these types of expenditures.

Based on the above discussion, the FCS GROUP recommendations concerning insurance are:

- ◆ Continue to explore insurance options that might cover the more costly fire seasons, which means that an insurance policy should have a high deductible that is at least \$20 million or more.
- ◆ Provide the previously identified information to the state's insurance broker as well as any funding needed to gather the initial data and review and analyze the premium costs.
- ◆ Consider insurance policies that provide for the following:
 - A \$25 million deductible with \$30 million in coverage,
 - A \$25 million deductible with \$25 million in coverage (the same as Oregon),
 - A \$20 million deductible with \$25 million in coverage, and
 - A \$15 million deductible with \$20 million in coverage.
- ◆ Based on the premium costs, determine what insurance policy best fits the state's needs given its current financial situation and historical fire suppression costs.
- ◆ In addition to the recommendation for increasing the initial appropriation for fire suppression, provide a dedicated severity appropriation of \$1.5 million in addition to DNR's fire suppression appropriation. The account should be separately monitored, and the DNR needs to establish a separate code to track its expenditures. The costs for responding to false alarms should not be included as severity expenditures as is currently done.

CHAPTER IV: FIRE SUPPRESSION COSTS

In addition to the budget variability and supplemental appropriations, the fire suppression costs, especially labor costs, have also been a concern of state Legislative committees and the Office of Financial Management. The scope of work for the study included:

- ◆ A review of DNR staffing and compensation practices for different types of firefighting personnel, including review of applicable federal and state laws, administrative rules, and labor agreements,
- ◆ A comparison of costs and practices with other states in the region, British Columbia, and federal agencies,
- ◆ An analysis of DNR labor costs (for both DNR and non-DNR crews),
- ◆ A review of major contracts that specify engine crew and hand crew compensation, and
- ◆ Policy considerations regarding changes (if any) to how the DNR sources and compensates fire suppression personnel.

DNR labor costs represent 40% of the expenditures for fighting fires over the past ten years. When there is a wildfire, the DNR has a variety of ways to obtain the necessary resources to fight the fire. First, the DNR has its own permanent and seasonal firefighting staff within the agency. The DNR also has the ability to make emergency hires, and the Resource Protection Division manager and regional division managers have the authority to hire and terminate temporary employees used in emergency fire suppression activities. These types of hires are often referred to as “administratively determined” (AD). Another option is to contract with private firms to provide personnel and equipment. The DNR also has interagency cooperative agreements with federal agencies, neighboring states, several Canadian provinces, tribes, and local fire protection districts.

WILDFIRE INCIDENT MANAGEMENT

Although firefighter crews and aircraft are the most visible images in the news, many other personnel provide support and assistance to these crews. The DNR’s incident command system is based on the National Wildfire Coordinating Group incident command system because the DNR often operates in an interagency environment where other local, state, and federal agencies can be involved with a fire. The DNR also participates in an interagency dispatch system that operates seven interagency dispatch offices in Washington under the umbrella of the Northwest Interagency Coordination Center (NWCC) in Portland, Oregon. The DNR believes that the interagency operating environment is important, participates as a key member of the Pacific Northwest Wildfire Coordinating Group (PNWCG), and believes that it has exercised leadership in the organization. The DNR participates in the national mobilization system through its relationship with the PNWCG.

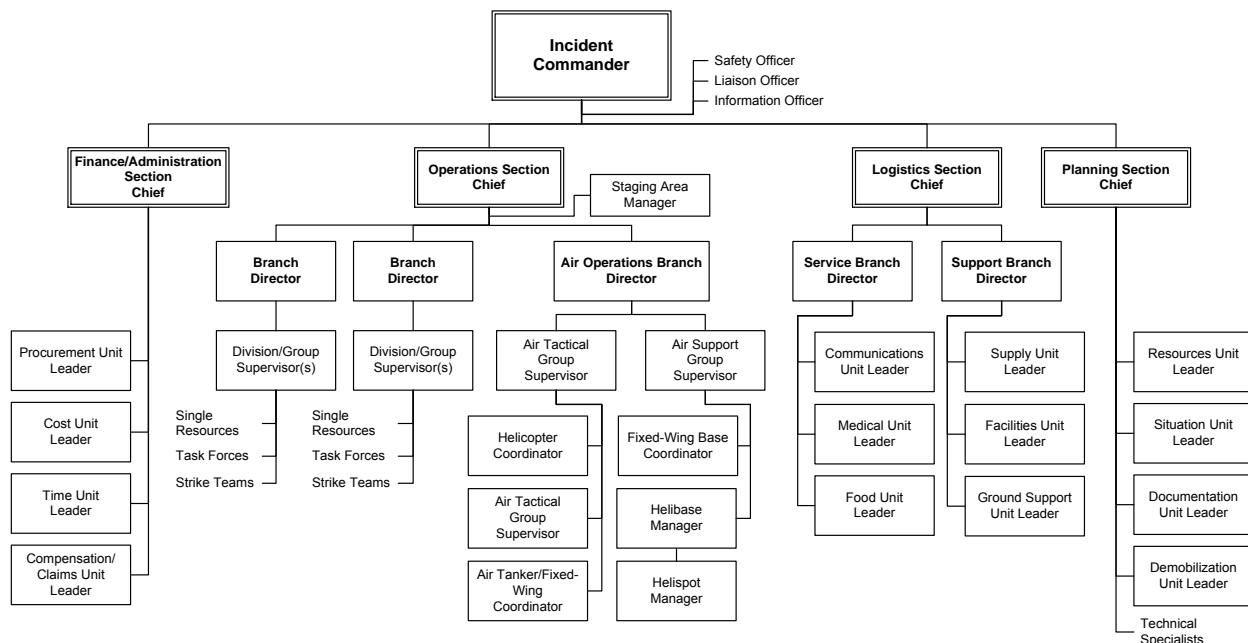
The National Wildfire Coordinating Group (NWCG) provides leadership to the wildland fire community regarding training, standards, equipment, personnel qualifications, and other wildland fire functions. Through representation by the National Association of State Foresters, the DNR is also a member of NWCG. The NWCG is made up of five federal agencies (the U.S. Forest Service, the Bureau of Land Management, the National Park Service, the Bureau of Indian Affairs, and the

U.S. Fish and Wildlife Service) and state forestry agencies through the National Association of State Foresters. The NWCG's mission statement states that the purpose is to coordinate programs of the participating wildfire management agencies to avoid wasteful duplication and to provide a means of constructively working together. The NWCG provides a formalized system for establishing agreed upon standards for training, equipment, qualifications, and other operational functions. Appendix C provides additional information about the standards and incident management systems.

All three levels of government, federal, state and local, have responsibilities for wildland fires in Washington. The DNR operates under a Master Cooperative Fire Protection Agreement with five federal agencies and a compact between five states and five Canadian provinces and territories. The DNR protected lands abut lands protected by the Bureau of Land Management, the National Park Service, the Bureau of Indian Affairs, the U.S. Fish and Wildlife Service, and the U.S. Forest Service as well as lands protected by the states of Idaho and Oregon and the Canadian province of British Columbia. The DNR maintains a cooperative agreement in the Blue Mountains, where DNR fire engines work from U.S. Forest Service facilities and U.S. Forest Service personnel supervise DNR engine crews. In addition, the DNR protected lands overlap more than local 200 fire protection districts.

Many different types of activities are needed to fight a fire and support the fire operations. Exhibit 16 shows the National Wildfire Coordinating Group incident command system (ICS) organizational chart for a fully developed ICS organization. The primary ICS functions include operations, logistics, planning, and financial administration. The resources needed to address these incident activities and functions depend on the size and complexity of a fire and the number of personnel and equipment needed to actually fight a fire.

Exhibit 16
Incident Command Organizational Chart



As the threat of catastrophic fire, particularly in the wildland-urban interface, has grown and the costs of fighting fires have climbed, all levels of government have found it essential to achieve effective interagency cooperation that makes the most efficient and effective use of resources. Nationally, wildland fire agencies have acknowledged two important points regarding interagency

cooperation for at least 20 years. First, significant and unacceptable loss occurs when agencies fail to share resources and coordinate their fire response. Second, wildland fire agencies have long acknowledged that all levels of government must cooperate by coordinating their resource mobilization, training, and equipment.

Description of DNR's Wildfire Incident Response

When the DNR receives a fire report, the responsible dispatch center sends a pre-determined package of firefighting resources, utilizing the closest available resources first. This initial response is frequently referred as the “initial attack” (IA). The amount and type of IA resources dispatched vary by location, fuel type, time of year, fire danger rating and other factors. For example, dispatchers would typically send a single engine to a fire in the month of May. Later in the summer, if the fire had potential for rapid spread or was in the wildland-urban interface, dispatchers might also support the engine with the nearest helicopter and water tender. In one such case, IA resources held the 2011 North Fork fire to 0.2 acres. The DNR organizes its fire response using the Incident Command System (ICS.) On a small fire such as this one, the Incident Commander (IC) would retain responsibility for all five of the major ICS functions (command, operations, planning, logistics, and finance). Fire agencies employ the ICS, in part, to ensure that incident commanders maintain safe and effective control over their resources.

The amount and kind of resources needed for any given fire depends on variables such as the current and expected fire danger, fuels in which the fire is burning, the terrain on which the fire is burning, the current and expected weather, timber and property values at risk, and the expected duration of operations. For example, in August 2011, the California Road #2 fire in the South Puget Sound Region, even though held to four acres, required crews, multiple engines, fallers, and other resources. When additional resources supplement the IA resources, this is known as “extended attack.” The DNR expects the IC to develop an organization commensurate with the resources assigned and that an extended attack fire might require more support from the DNR’s permanent staff than a fire contained on IA. Accordingly, the California Road #2 fire involved temporarily assigning 21 permanent DNR staff versus four for the North Fork fire.

Generally speaking, fires on the west side of Washington, where fuels can be very heavy and highly resistant to control, require far more resources than an equivalent sized fire on the east side, where fuels tend to be much lighter and less resistant to control. On the west side, fireline construction typically proves more difficult, and clean-up is much more time consuming. For example, the 108 acre Speelyai fire in the DNR’s Pacific Cascade Region cost \$684,000 while the 840 acre Dallesport fire in the Department’s Southeast Region cost less than \$55,000, reflecting a significant difference in resources required and time spent on the fires. Consistent with ICS practice, due to its location, fuel type, and multi-day duration, the DNR activated a Type 3 incident management team (IMT) to manage the Speelyai fire. Again, with increasing resource and support needs, one would expect that the DNR would have to reach further into its permanent staff for support. Accordingly, this fire involved 49 permanent DNR staff versus seven for the Dallesport fire, even though the Dallesport fire occurred on a multiple fire day that required the Southeast Region to reach into its timber sale staff to meet its IA and EA needs.

OVERALL FIRE SUPPRESSION COSTS

For the past ten fiscal years DNR labor costs have varied between 29% and 48% of the annual fire suppression costs. Overall for the past ten years, DNR employee labor costs represented 40% of the total costs. The regular salary costs for the DNR’s employees were 13% of the total, and overtime was 21% of the total costs. Goods and services and other non-labor costs represented the remaining 60% of the total costs. Almost half of those non-labor costs (31% of the total) were for purchased services from rural fire districts and other public and private firefighting service providers. Aircraft

costs and rentals represented another 11% of the total costs. Exhibits 17 and 18 show the costs and percentage of costs by fiscal year and cost category.

Exhibit 17
DNR Fire Suppression Costs By Category
FY 2002-FY 2011

Cost Category	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	GRAND TOTAL
DNR Salaries & Wages - Regular	\$4,189,454	\$4,001,164	\$3,998,836	\$2,389,615	\$2,585,588	\$4,329,836	\$4,248,558	\$3,725,319	\$3,321,355	\$2,380,876	\$35,170,601
DNR Salaries & Wages - Overtime	7,375,880	6,503,507	7,257,858	4,061,504	4,259,319	7,283,822	6,346,072	5,789,038	4,877,774	3,524,505	57,279,279
DNR Employee Benefits	1,415,156	1,456,218	1,594,405	939,352	1,118,095	1,930,585	1,828,897	1,939,995	1,481,333	1,668,298	15,372,334
SUBTOTAL - DNR LABOR	\$12,980,489	\$11,960,889	\$12,851,100	\$7,390,471	\$7,963,002	\$13,544,243	\$12,423,527	\$11,454,352	\$9,680,461	\$7,573,678	\$107,822,213
GOODS & SERVICES											
<u>Other Purchased Services</u>											
Rural Fire Districts	\$594,069	\$1,083,135	\$852,381	\$304,628	\$420,863	\$876,980	\$455,293	\$580,601	\$413,996	\$441,179	\$6,023,125
Other	4,569,876	1,935,743	3,611,029	6,224,910	8,819,482	24,420,761	4,801,649	11,976,894	9,484,897	4,182,900	80,028,140
<u>Rentals & Leases</u>											
Aircraft: DNR	-	1,299,750	2,225,718	1,436,500	1,480,819	2,287,036	2,273,351	2,023,356	1,740,893	1,600,756	16,368,178
Aircraft: Non-DNR	1,609,225	1,009,256	972,584	814,519	1,075,644	1,379,278	2,616,565	1,773,908	1,263,175	438,688	12,952,842
Heavy Equipment	325,439	424,661	308,532	242,156	232,329	357,045	489,407	407,706	423,714	297,417	3,508,407
Outside Equipment & Other Supplies	5,563,419	1,318,274	3,880,055	66,670	152,622	750,898	180,323	319,841	346,145	318,128	12,896,374
Rural Fire Districts	670,269	866,990	492,729	249,537	194,372	384,968	344,352	296,935	254,934	155,536	3,910,622
Telecommunication Equipment	509,881	556,715	665,786	727,266	709,177	718,967	743,308	743,855	743,855	743,855	6,862,664
Other	611,712	695,495	68,220	49,281	79,395	167,889	65,641	131,782	80,079	98,898	2,048,390
<u>Supplies & Materials</u>	2,132,866	1,958,195	1,808,768	642,973	707,356	2,544,297	1,030,413	1,325,995	818,583	598,402	13,567,848
<u>All Other</u>	2,551,816	782,556	252,976	251,883	198,191	245,379	298,892	228,629	131,987	127,979	5,070,287
TRAVEL	1,138,140	1,138,724	963,157	684,852	862,918	1,514,256	1,180,582	1,047,310	977,100	707,441	10,214,480
INTERAGENCY REIMBURSEMENTS	148	4,975	(117,914)	(1,140,748)	(965,373)	(1,786,129)	(1,351,624)	(2,228,050)	(554,284)	(981,871)	(9,120,869)
ALL OTHER	27,271	14	4,407	909	5,084	43,469	241	-	-	1,087	82,482
SUBTOTAL - NON LABOR	\$20,304,130	\$13,074,483	\$15,988,430	\$10,555,335	\$13,972,880	\$33,905,091	\$13,128,391	\$18,628,759	\$16,125,075	\$8,730,395	\$164,412,969
TOTAL	\$33,284,619	\$25,035,372	\$28,839,529	\$17,945,807	\$21,935,882	\$47,449,334	\$25,551,918	\$30,083,111	\$25,805,536	\$16,304,074	\$272,235,183

Source: DNR Financial Datamart Reports for FY 2002-2011 and FCS GROUP

Exhibit 18
Percentage of DNR Fire Suppression Costs By Category
FY 2002-FY 2011

Cost Category	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	GRAND TOTAL
DNR Salaries & Wages - Regular	13%	16%	14%	13%	12%	9%	17%	12%	13%	15%	13%
DNR Salaries & Wages - Overtime	22%	26%	25%	23%	19%	15%	25%	19%	19%	22%	21%
DNR Employee Benefits	4%	6%	6%	5%	5%	4%	7%	6%	6%	10%	6%
SUBTOTAL - DNR LABOR	39%	48%	45%	41%	36%	29%	49%	38%	38%	46%	40%
GOODS & SERVICES											
<u>Other Purchased Services</u>											
Rural Fire Districts	2%	4%	3%	2%	2%	2%	2%	2%	2%	3%	2%
Other	14%	8%	13%	35%	40%	51%	19%	40%	37%	26%	29%
<u>Rentals & Leases</u>											
Aircraft: DNR	-	5%	8%	8%	7%	5%	9%	7%	7%	10%	6%
Aircraft: Non-DNR	5%	4%	3%	5%	5%	3%	10%	6%	5%	3%	5%
Heavy Equipment	1%	2%	1%	1%	1%	1%	2%	1%	2%	2%	1%
Outside Equipment & Other Supplies	17%	5%	13%	0%	1%	2%	1%	1%	1%	2%	5%
Rural Fire Districts	2%	3%	2%	1%	1%	1%	1%	1%	1%	1%	1%
Telecommunication Equipment	2%	2%	2%	4%	3%	2%	3%	2%	3%	5%	3%
Other	2%	3%	0%	0%	0%	0%	0%	0%	0%	1%	1%
<u>Supplies & Materials</u>	6%	8%	6%	4%	3%	5%	4%	4%	3%	4%	5%
<u>All Other</u>	8%	3%	1%	1%	1%	1%	1%	1%	1%	1%	2%
TRAVEL	3%	5%	3%	4%	4%	3%	5%	3%	4%	4%	4%
INTERAGENCY REIMBURSEMENTS	0%	0%	-0%	-6%	-4%	-4%	-5%	-7%	-2%	-6%	-3%
ALL OTHER	0%	0%	0%	0%	0%	0%	0%	-	-	0%	0%
SUBTOTAL - NON LABOR	61%	52%	55%	59%	64%	71%	51%	62%	62%	54%	60%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: DNR Financial Datamart Reports for FY 2002-2011 and FCS GROUP

DNR STAFFING PRACTICES

One of the key issues identified by state legislative committees and the Office of Financial Management is the use of permanent DNR staff. When there is a fire, the DNR can dispatch both permanent and seasonal staff to a fire, and when a fire occurs, the DNR personnel assigned to fight a fire or support fire operations operate under a different set of pay and work rules compared to their regular jobs.

Based on the consulting team's experience and the comparative state analysis, wildland fire agencies employ the "militia" approach where permanent personnel augment the fire suppression workforce on a call when needed basis. Consequently, agency personnel whose primary responsibilities might be outside of fire suppression fight fires, command the fire effort, direct operations, or directly support the firefighting mission. During the 2012 fire season, timber sales natural resource specialists were out on fires as crew bosses; recreation natural resource specialists were serving as division supervisors; and wildlife biologists performed as fire information officers. Even in Southern California, the most active fire suppression operating environment in the country, the California Department of Forestry and Fire Protection (CAL FIRE) and the U.S. Forest Service use "the militia" approach.

It should be noted that even seasonal firefighting employees are not spending all their time fighting fires and charging the fire suppression budget. According to the DNR's analysis of time records for the summer of 2012 through the end of August, seasonal firefighters spent about 44% of the time involved with training, safety briefings, prevention activities, fuel reductions treatments, and other activities. These activities are not charged to the fire suppression budget, but to the fire control budget.

Like other wildland fire organizations, the DNR uses permanent personnel, both from its regions and divisions to augment its fire suppression workforce as necessary. According to the DNR it uses this approach instead of hiring more seasonal and part timers because it provides an available, trained work force when needed in emergencies and avoids depending on an uncertain labor market.

When weighing the labor costs associated with the DNR's use of its permanent personnel on fire assignments, it should be noted that the DNR has weathered two reductions-in-force (RIF) in recent years. As a result of these RIFs, a number of younger, lower-level (and lower paid) personnel who had been trained to fill fire suppression roles have left the DNR. In addition, like its peer agencies, the DNR finds that many younger, entry-level (lower paid) personnel decline to participate in the fire suppression mission. Consequently, the agency must rely more heavily on more senior employees, who typically receive higher compensation.

Using personnel cost information from the past three fiscal years 2009-2011, an analysis of labor costs and hours was conducted to identify the time and costs spent for fire suppression by DNR permanent and seasonal employees (e.g. part time and exempt classes). Exhibits 19 through 22 show the following.

- ◆ Of the total hours worked for fire suppression, the hours for the full time permanent staff represented about 40%, while the part time/exempt seasonal staff represented about 60%.
- ◆ With about 1,200 permanent DNR employees, about 50% of those employees have been assigned to work on a fire.
- ◆ Staff members in the natural resource specialist job classification (the most common position classification throughout the DNR) represented about 46% of the full time permanent staff hours worked and about 45% of the staff members working their regular hours for fire suppression. Within this job classification series, the natural resources specialist 1 position is responsible for

directing crews and equipment for suppression activities, training fire crews, and conducting fire suppression readiness and performance inspections. A natural resources specialist 2 position requires one to two years of experience as a natural resources specialist 1 or other similar experience.

- ◆ For part time/exempt staff members about 67% of the total hours are from fire engine and hand crew members. In addition, another 14% for the total hours are primarily from the natural resource worker 2 position. The natural resource worker 2 position is mostly responsible for leading engine crews of one to four employees with primary duties in fire training, prevention, and suppression work. These two job classifications represent most of the part time/exempt staff with known job classifications.
- ◆ Full-time staff averaged about 83 regular hours and 92 overtime hours during the FY 2011 fire season and 104 regular hours and 134 overtime hours during the FY 2009 fire season, a busier fire season than 2010 or 2011.
- ◆ Part-time staff averaged about 130 regular hours and 126 overtime hours during the FY 2011 fire season, and 162 regular hours and 160 overtime hours during the FY 2009 fire season.

Exhibit 19
DNR Fire Suppression Hours by Type of Position for Full Time Permanent Personnel
FY 2009-FY 2011

Position Classification	FY 2009	FY 2010	FY 2011	Total
Aircraft Pilot	-	-	116	116
Fire Engine Crew/Hand Crew	-	-	-	-
Fiscal Analyst	3,107	4,272	3,716	11,095
Forest Crew Supervisor	1,724	1,981	1,190	4,896
Forest Crew Supervisor (Corrections)	5,420	6,216	3,079	14,715
IT Specialist	3,984	2,279	2,182	8,445
Natural Resource Engineer	4,822	4,425	3,897	13,144
Natural Resource Investigator	3,134	2,958	2,641	8,732
Natural Resource Specialist	68,627	64,409	45,856	178,892
Natural Resource Worker	31	21	137	189
Natural Resources Technician	4,215	3,667	3,328	11,210
Radio Operator	871	683	137	1,691
WMS Band	14,615	11,071	7,982	33,668
All Other	29,569	22,449	20,309	72,327
Unknown	21,301	6,921	1,499	29,721
Total	161,420	131,351	96,070	388,841

Source: DNR Datamart Reports and FCS GROUP

Exhibit 20
Number of Full Time DNR Permanent Staff By Type of Position
Working Regular Hours on Fire Suppression
FY 2009-FY 2011

Position Classification	FY 2009	FY 2010	FY 2011	Total
Aircraft Pilot	-	-	-	-
Fire Engine Crew/Hand Crew	-	-	-	-
Fiscal Analyst	11	15	13	39
Forest Crew Supervisor	5	4	4	13
Forest Crew Supervisor (Corrections)	19	19	16	54
IT Specialist	16	14	13	43
Natural Resource Engineer	23	24	24	71
Natural Resource Investigator	7	8	8	23
Natural Resource Specialist	251	261	236	748
Natural Resource Worker	1	-	1	2
Natural Resources Technician	16	21	15	52
Radio Operator	1	1	1	3
WMS Band	65	61	50	176
All Other	148	129	144	421
Unknown	101	35	10	146
Total	664	592	535	1,791

Source: DNR Datamart Reports and FCS GROUP

Exhibit 21
DNR Fire Suppression Hours By Type of Position for Part Time/Exempt Personnel
FY 2009-FY 2011

Position Classification	FY 2009	FY 2010	FY 2011	Total
Aircraft Pilot	4,601	5,567	3,149	13,317
Fire Engine Crew/Hand Crew	157,298	142,935	99,072	399,305
Fiscal Analyst	-	-	-	-
Forest Crew Supervisor	10,617	10,093	8,458	29,168
Forest Crew Supervisor (Corrections)	658	4,532	2,397	7,587
IT Specialist	-	-	-	-
Natural Resource Engineer	-	-	-	-
Natural Resource Investigator	-	-	-	-
Natural Resource Specialist	87	218	299	604
Natural Resource Worker	29,612	28,805	23,811	82,228
Natural Resources Technician	681	598	310	1,589
Radio Operator	2,734	3,301	2,306	8,341
WMS Band	-	-	-	-
All Other	3,587	4,797	2,894	11,278
Unknown	20,739	10,432	6,496	37,667
Total	230,615	211,276	149,193	591,084

Source: DNR Datamart Reports and FCS GROUP

Exhibit 22
Part Time/Exempt Number of DNR Staff By Type of Position
Working Regular Hours on Fire Suppression
FY 2009-FY 2011

Position Classification	FY 2009	FY 2010	FY 2011	Total
Aircraft Pilot	8	9	9	26
Fire Engine Crew/Hand Crew	481	411	437	1329
Fiscal Analyst	-	-	-	-
Forest Crew Supervisor	12	12	13	37
Forest Crew Supervisor (Corrections)	6	11	11	28
IT Specialist	-	-	-	-
Natural Resource Engineer	-	-	-	-
Natural Resource Investigator	-	-	-	-
Natural Resource Specialist	1	3	3	7
Natural Resource Worker	47	45	46	138
Natural Resources Technician	2	2	1	5
Radio Operator	6	5	4	15
WMS Band	-	-	-	-
All Other	28	32	19	79
Unknown	219	179	92	490
Total	810	709	635	2,154

Source: DNR Datamart Reports and FCS GROUP

Although full time permanent staff worked only 40% of the total hours over the three years reviewed, their labor costs shown in Exhibit 23 are higher than the part-time/exempt staff and represent about 57% of the total labor costs.

Exhibit 23
Fire Suppression Labor Costs By Type of Staff
FY 2009-FY 2011

Fiscal Year	Regular			Part Time/Exempt			Grand Total
	Regular	Overtime	Total	Regular	Overtime	Total	
2011	\$1,268,871	\$2,086,583	\$3,355,454	\$1,116,932	\$1,444,670	\$2,561,602	\$5,917,055
2010	\$1,729,191	\$2,845,805	\$4,574,996	\$1,645,597	\$2,052,835	\$3,698,432	\$8,273,428
2009	\$1,940,089	\$3,662,226	\$5,602,314	\$1,791,822	\$2,136,519	\$3,928,342	\$9,530,656

Source: DNR Datamart Reports and FCS GROUP

As part of the regular salaries and wages and overtime pay, an additional \$2 per hour is paid when a DNR employee is assigned to a fire. Labor agreements with the Washington Federation of State Employees and the Washington Public Employees Association provide for this additional fire pay for represented employees, and the DNR has established a policy of extending the same practice to non-represented employees. The additional \$2 per hour is added to the staff's regular pay and is also included as part of the overtime pay calculation. The labor agreements mention that this additional pay is provided in lieu of payments for pay items such as callback, standby, stand down, shift

differential, split shift differential, assignment pay, schedule change, and pay for rest periods less than five hours. This practice started in 2005 at \$1 per hour, and in 2007 it was raised to the current \$2 per hour. According to the DNR, the change was made because the DNR was receiving many grievances and disputes over these other pay issues (e.g. callback) when staff were assigned to a fire, and to simplify the payroll administration, an additional amount per hour was added to compensate staff for the previous situations. The total cost of this additional pay is estimated at about \$602,600 in FY 2011 and at \$955,900 in FY 2009, the highest year of the three years. Based on the state survey, Washington is the only state that provides any type of additional pay besides overtime.

USE OF DNR STAFF ON A SAMPLE OF TEN FIRES

As part of our charge to review the DNR's staffing and compensation practices, a review was conducted on how the DNR uses its permanent personnel and specifically, whether permanent DNR personnel are doing work commensurate with their level of compensation when they augment the DNR fire suppression workforce.

To conduct the review, ten fires were chosen for which 138 DNR permanent employees filled 149 fire assignments. The initial objective was to ascertain whether permanent personnel were filling appropriate roles or positions given their compensation, technical expertise, and normal responsibilities. These DNR employees participated in these fires in a variety of capacities, not just as firefighters. In fact, only eight staff actually participated as firefighters. As previously mentioned, the incident command system involves many different types of activities to support the firefighting operations. Appendix D shows a listing of the fire jobs and the DNR position classifications filling those jobs. The following are examples of some of the fire jobs besides firefighter.

- ◆ Agency Administrator and Representative
- ◆ Incident Commander
- ◆ Computer Technical Specialist
- ◆ Division/Group Supervisor
- ◆ Faller
- ◆ Dozer Boss
- ◆ Finance Section Chief
- ◆ Personnel Time Recorder
- ◆ Fire Cache Staff
- ◆ Investigator
- ◆ Public Information Officer
- ◆ Kitchen Supervisor
- ◆ Camp Helper
- ◆ Receiving and Distribution Manager
- ◆ Planning Section Chief
- ◆ Safety Officer

An initial screening of the data found that 79 employees (57%) were filling positions that require training, experience, and specific qualifications that take years to develop for skilled positions that one would not normally find in the typical seasonal workforce or from available contractors. Examples include Incident Commander (IC), Pilot, Finance Section Chief, Agency Representative, Division Supervisor, Public Information Officer, and Planning Section Chief. The remaining 64 individual fire assignments (or 43%) were selected for further follow-up. Many assignments involved positions to which a number of people had been assigned; while others resulted in follow-up questions about why a specific person was assigned in a specific capacity to a particular fire.

There are three reasons why a permanent employee would fill a given fire position. First, the agency has an unfilled personnel need, the individual has the requisite qualifications to fill the need, the individual will fill a role commensurate with his or her level of compensation, and the individual is available in the timeframe needed. Second, a permanent employee might fill a relatively low-level fire position while in a developmental or training capacity or serving in a position that is a

prerequisite to a higher-level position toward which he or she is working. Finally, a permanent employee might fill a lower level position simply because there is a job to be done, he or she is available and able to perform the necessary work, and no practical alternative is available in the timeframe needed.

Of the 64 individual fire assignments selected for follow-up, most staff served in five types of assignments. Nineteen (30%) were personnel working either as crew bosses or as inmate crew supervisors. Fourteen (22%) were personnel working as dispatchers. Eight (13%) had assignments as members of fireline explosives crews. Seven (11%) were handheld infrared device operators. Six (9%) were fire origin and cause investigators. The remaining ten (15%) ran the gamut from firefighter to computer technical specialist. The following sections discuss each of these position types.

Crew Bosses and Crew Supervisor – Inmate

Crew boss is a skilled, supervisory position requiring qualifications and experience as a firefighter, advanced firefighter, and crew boss trainee, as well as more than 140 hours of experience and training which typically require at least three years to attain. Crew Bosses typically supervise a 20 person crew through subordinate squad bosses.

Six permanent personnel filled assignments as either crew boss or crew boss trainee on the fires we selected for review. Their base wage ranged from \$17.82 per hour to \$30.43 per hour with the average being \$23.30 per hour. By comparison, a similarly qualified emergency crew boss would be paid a base rate of \$15.20 per hour. However, crew boss shortages are well known among fire agencies and the position has been noted as a critical issue among fire training organizations for many years. Consequently, experience has shown that few qualified crew bosses are actually available from the emergency firefighter pool, and qualified contract personnel are supervising their own crews.

Consequently, the DNR uses “militia” crew bosses to obtain qualified, experienced personnel on a timely basis. In addition, serving as a crew boss represents an important experience prerequisite for personnel pursuing higher level command and operations positions including strike team leader, task force leader, incident commander, division/group supervisor and operations section chief. Consequently, some career, DNR personnel will perform in the crew boss role to attain higher qualifications or to maintain qualified in those higher positions. As previously mentioned, the natural resource specialist 1 classification does include supervision of fire suppression crews in the position description.

There were a few instances in which permanent personnel filled crew boss assignments when those duties were not commensurate with the employee’s level of compensation. However, this occurs infrequently, and the DNR does not add substantially to its labor costs by using permanent DNR for crew boss assignments.

Like other western states, the DNR obtains firefighting labor, both adults and juveniles, from its corrections system; fielding 23-30, ten person fire crews from conservation honor camps. The DNR, the Department of Corrections (DOC) and the Department of Social and Health Services (DSHS) operate this program under formal agreement. Consistent with that agreement, DNR Forest Crew Supervisors (FCS) are required to have substantial training prior to supervising offender crews. The training is provided collaboratively, with DOC or DSHS providing basic training pertaining to working around offenders and the DNR providing formal fire training. The DNR also provides on-the-job training, during which personnel new to the FCS position are teamed with an experienced crew supervisor.

Supervising offender crews during firefighting assignments is a specific job duty of employees working in the FCS classification; not a collateral duty. Usually these are employees who formerly worked as a DNR FCS. Although some personnel serving in FCS positions are qualified as crew

bosses, it is not a requirement for supervising offender crews. However, qualified crew bosses from outside this system cannot supervise offenders without additional training. It appears that some DNR personnel do occasionally fill in as crew supervisor-inmate (CSI) as a collateral duty. However, more often than not, the CSI is an FCS performing their normal duties. When the DNR personnel augmented regular supervisors, they were paid, on average, \$28.15 per hour. By comparison, an administratively determined (AD) qualified crew boss is paid a base rate of \$15.20. However, one must keep in mind that AD crew bosses are in very short supply, that a qualified crew boss cannot supervise inmates without additional training, and that an opportunity to serve as a crew boss represents an important, and often highly coveted, experience prerequisite for personnel pursuing higher level command and operations positions. The cost of these positions was \$58,309 or 6% of the total costs for the ten fires.

Dispatchers

The DNR dispatches its firefighting resources from dispatch centers in each of its regions, most of which are interagency centers operated by, and on behalf of, multiple agencies. The DNR also operates a statewide emergency coordination center (ECC) in the Olympia headquarters building. During normal operations, fire program personnel staff each dispatch center and the ECC.

Some fire program dispatch and emergency operations personnel are full-time employees and others are seasonal employees. During periods of unusual demand, the DNR increases staffing to accomplish required tasks, using the “militia” approach. The DNR adheres to ICS principles and position qualifications identified in the NWCG PMS 310-1 when assigning non-fire staff to dispatch positions. For the ECC, the Department puts priority on assigning qualified, permanent personnel who work in the headquarters building when needs arise. These assignments tend to be of short duration, sometimes only a few hours per day.

Twelve permanent personnel filled 14 assignments as dispatchers and dispatch coordinators on the fires selected for review. Their base wage ranged from \$17.61 per hour to \$30.65 per hour with the average being \$22.51 per hour. By comparison, a similarly qualified emergency firefighter (AD) would be paid a base rate between \$10.35 per hour and \$20.60 per hour, and an average of \$15.48 per hour.

The practice of assigning permanent personnel as dispatchers appeared to present a comparatively expensive option for augmenting the dispatch workforce. Consequently, an alternative to consider is whether the DNR should instead train a pool of AD dispatch personnel. However, when the need is time-sensitive and/or for short-duration assignments, using in-house personnel makes sense. AD personnel present a practical alternative only when they are available locally, on short notice, and at the right time. Active agency employees often maintain a much higher awareness of agency policy, current practices, technology applications and other considerations. Locally available permanent personnel require little time and no cost to mobilize or expenses for per diem and lodging.

The DNR could utilize AD personnel for occasional short-term dispatch assignments. However, delays, inefficiencies, and expenses would likely defeat the savings achieved by using less expensive personnel for these assignments. Providing agency employees with this experience helps them advance to higher position qualifications and sustain DNR’s fire program over time. The DNR should consider whether they can reduce their fire suppression costs by using more AD dispatchers at less than 70% of the cost of DNR militia dispatchers on average. However, expenditures for emergency dispatchers drafted from the permanent workforce amounted to less than \$3,100 total for the 10 fires we reviewed, which represented a small financial impact.

Fireline Explosives Crews

The DNR employs a unique fireline explosives (FLE) program as an alternative method of constructing a fireline, which is used in steep terrain where it is unsafe or impractical for a traditional

hand crew to construct a fireline. The FLE crew also blasts hazardous trees that are too dangerous for fallers to cut with chain saws. The DNR fields an eight-person FLE crew made up of one qualified Blaster, one FLE Advisor, a driver, and five fireline explosives crewmembers (FLEC). The DNR mobilizes their FLE crew from a pool of four qualified blasters and a pool of approximately 25 individuals qualified as FLECs.

The DNR recruits its FLECs from fireline experienced, permanent DNR employees who express interest in participating in the program as a collateral duty. An FLE crewmember must pass the arduous work capacity test, have fireline experience, and maintain qualifications for any position that normally involves work on the fireline. In other words, a potential FLE crewmember must be firefighter qualified to receive the additional training required to become FLEC qualified.

A firefighter (FFT1 or FFT2) does not have the training or demonstrated experience that the DNR believes is necessary for a person to safely participate on a crew routinely working with high explosives. Consequently, the DNR requires a FLEC to receive an additional 8-hour fireline explosives course, perform for evaluation on at least three assignments prior to receiving certification, and recertify every three years.

Eight permanent, non-fire personnel filled assignments as members of the FLE crew on one of the 10 fires we selected for review. Their base wage ranged from \$19.55 per hour to \$32.23 per hour with the average being \$25.82 per hour. By comparison, a similarly qualified emergency firefighter (AD) would be paid a base rate between \$11.50 per hour (FLEC) and \$24.90 per hour (FLE Advisor), or an average of \$18.20 per hour. Expenditures for these positions drafted from the permanent non-fire workforce amounted to \$14,323 or 1% of the total costs for the 10 fires we reviewed.

Like the practice of assigning permanent personnel as dispatchers, assigning permanent personnel as FLECs appeared to present a comparatively expensive option for providing the DNR with this capacity, if one assumes that AD personnel could fill the role of FLEC. Again, an alternative might be for the DNR to train a pool of “AD” FLECs.

Assuming the DNR had a pool of AD firefighters available to complete the fireline explosives training and the required evaluation assignments, the DNR could utilize AD personnel as FLECs at a lower per hour cost. The DNR should consider whether they can reduce their fire suppression costs by using more AD FLECs at 70% of the cost of DNR personnel on average.

Hand-held Infrared Operators

The DNR utilizes handheld infrared detection equipment to locate hotspots during clean-up operations on wildland fires. Doing so improves the efficiency and thoroughness of clean-up, thereby reducing the chance of fire escape. When employed, a two-person team walks over the fire area, detecting hot spots that are not visible to the naked eye and flagging them for later attention by firefighters.

Seven permanent, non-fire personnel filled assignments as handheld infrared device operators (HIOP) on the 10 fires we selected for review. Their base wage ranged from \$17.60 per hour to \$24.42 per hour with the average being \$21.94 per hour. By comparison, while we could not find an AD rate for HIOP, an emergency firefighter (AD) qualified as a field observer (a similar position) would be paid a base of \$15.20 per hour. Expenditures for these HIOP positions drafted from the permanent workforce amounted to \$12,529 or 1% of the total costs for the 10 fires we reviewed.

Investigators

The DNR maintains two full-time, dedicated fire cause investigators within Resource Protection Division, for whom fire investigation is their primary responsibility. However, other agency employees also perform fire investigation as a collateral duty. The NWCG maintains lower qualification requirements for wildland fire investigators; requiring just 43 hours of training and

successful performance as a trainee. The DNR uses these requirements as their basis for determining minimum qualifications for their investigators. The DNR recertifies its investigators every two years with a tested program involving eight hours of classroom training and eight hours in field exercises. The DNR also calls on qualified investigators from other agencies such as the U.S. Forest Service and county fire marshals. However, experience has shown that these personnel are rarely available when needed and, more often than not, other agencies come to the DNR seeking investigation assistance.

Five permanent personnel filled six assignments as investigators on the ten fires we selected for review. Their base wage ranged from \$25.19 per hour to \$30.84 per hour with the average being \$27.99 per hour. An AD rate for a fire investigator was not available (likely an indication of their availability), but positions with similar levels of responsibility are paid \$23.04 per hour. Given availability concerns, the DNR uses its own staff because of its emphasis on meeting its statutory responsibility to determine origin and cause of wildfires and the DNR's enhanced standards for qualification. Expenditures for investigator positions drafted from the permanent workforce amounted to \$6,151 or 0.6% of the total costs for the ten fires reviewed.

Other Positions

Of the 64 individual fire assignments identified for further follow-up, 15% of the targeted fire assignments ranged from firefighter to computer technical specialist. Based on discussions with the DNR staff regarding these 16 individual fire assignments, the following were the explanations for making the assignments.

- ◆ Seven persons were performing in prerequisite positions at relatively low-levels in the fire organization as they pursued higher level qualifications more commensurate with their DNR position.
- ◆ Two were working in positions commensurate with their skills, experience and non-fire responsibilities.
- ◆ Two held higher level qualifications, but were filling assignments at a lower level because they were serving as mentors and trainers to seasonal employees and/or newer permanent fire personnel.
- ◆ One filled a role (timber faller) for which the DNR could not practically find a qualified contract resource in the time frame required.
- ◆ One permanent employee with significant experience working in the DNR fire cache relieved regular fire cache personnel during a busy period to provide them with time off to rest. Fatigue is a known safety hazard in the wildland fire industry and the interagency fire community has adopted work-rest ratio guidelines to mitigate the safety risks associated with fatigue.
- ◆ One person performed in what, on the surface, seemed a low-level role. However, in reality, the employee was one of two people serving in the finance function of a DNR Type 3 incident management team managing an extended attack fire.
- ◆ One person served as a “purchaser,” a seemingly low-level position. However, in reality, this person was in a position to directly influence purchasing decisions with significant implications for fire suppression costs and the ability to control those costs.

COST EFFECTIVENESS OF SEASONAL VERSUS PERMANENT DNR STAFF

The DNR uses the “militia” approach because it believes the approach assures that the DNR has a reliable, trained, and experienced labor force to supplement its fire suppression workforce when additional resources are needed when a fire occurs. As previously described, many different jobs and activities contribute to the firefighting effort. Based on an analysis of ten sample fires and an analysis of hours by position and by full time versus part time, seasonal and part-time employees are providing most of the firefighting resources. Seasonal firefighters usually work from mid-June to mid to late September, except in Eastern Washington where seasonal firefighters can start as early as April. Most seasonal/part time employees are usually hired as part of a fire engine crew or hand crew or as a supervisor of such crews. In the ten sample fires reviewed, only eight out of the 138 permanent full time DNR employees actually worked as a firefighter. Nineteen staff worked as crew bosses or supervisors of inmate crews. It should also be noted that even seasonal firefighters do not spend all their time fighting fires during the fire season. In the most recent 2012 fire season, even with the large fires, only 56% of their regular time was spent fighting fires according to DNR time records. The remaining time is spent on fire control activities and charged against the fire control budget, not the fire suppression budget.

Thus, it appears that DNR’s full time permanent staff are generally performing fire jobs that support the firefighting efforts and are not actually working as firefighters. Many of these jobs are higher level jobs requiring substantial training and experience or ones where having agency knowledge or experience is helpful. DNR believes that using its permanent staff is necessary because of the following:

- ◆ A reliable, trained, experienced, and immediate workforce is available when needed,
- ◆ For some positions, additional training is required, which adds to the cost of hiring a seasonal and AD employee,
- ◆ Seasonal and AD hires for non-firefighter positions are frequently not available for hire, and
- ◆ Although the seasonal and AD rates are lower, DNR believes that it would have to pay a premium to seasonal and potential AD hires to assure that they are available when DNR needs them. No data, however, was provided by DNR on this issue.

As shown in the previous examples from the ten sample fires, the DNR’s hourly rates for its permanent staff assigned to fires are higher than either the comparable seasonal or administratively determined rates for part-time staffing. The difference in total salary costs were estimated by using the seasonal and AD rates for those jobs where seasonal or AD rates were available and where the full time DNR staff might be replaced. Exhibit 24 shows the percentage differences in the average wages from the ten fire sample, and the differences range from a low of 21% to a high of 85%. If all those identified jobs were filled by seasonal or AD employees, the total salary and wage costs (including remaining DNR staff assigned) for these ten fires would have been about 19% lower. As previously mentioned, many of the permanent DNR staffing costs for several fire jobs were not substantial compared to the total cost of the fires. Experience suggests that for several of the jobs evaluated, DNR would find it difficult to fill these positions with adequately trained personnel in a timely manner using either seasonal or AD labor.

Exhibit 24

**Comparison of Seasonal/AD Hourly Rates to Average DNR Employee Rates
for the Ten Fire Sample**

Fire Position	Seasonal/AD Ave. Rate	DNR Employee Ave.	DNR Employee % Difference
Crew Boss	\$15.20	\$23.30	53%
Crew Supervisor-Inmate	\$15.20	\$28.15	85%
Dispatcher	\$15.48	\$22.51	45%
Fireline Explosive Crew	\$18.20	\$25.82	42%
Hand Held Infrared Operators	\$15.20	\$21.94	44%
Investigators	\$23.04	\$27.99	21%

The analysis assumes that the DNR permanent staff hours are simply replaced with seasonal or AD hours. However, the DNR might not be able to hire someone at the time of a fire, and the DNR might instead need to hire a seasonal or an AD employee for the entire fire season to assure that it has the necessary resources when needed. DNR permanent employees are already budgeted in their home divisions. When not assigned to a fire, they are performing other work that has been planned and budgeted for that division. In 2011 the average regular time spent by a DNR permanent employee working a fire assignment was 83 hours or about two weeks.

If more seasonal or AD employees were hired for a fire season to replace the permanent DNR employees on fire assignments, the DNR might have to increase its fire control program budgets because the additional seasonal or AD employees would need to charge other budgets or the fire suppression budget when not assigned to a fire. If these employees take the place of the DNR employees for an entire season, the hourly cost of the seasonal or AD employee increases because even though they are only hired to work fires, the DNR would still need to pay them when they are not assigned to a fire. If the DNR's seasonal budget is at the appropriate level to fight fires and perform non-fire work, the costs associated with a seasonal employee's non-fire time is an added unnecessary cost, and it effectively increases the hourly rate for the fire work.

For example, a seasonal single resource crew boss costs the DNR \$16.03 an hour, but if the crew boss only worked 56% of the time (like the 2012 seasonal firefighters), the hourly rate to just fight fires would increase to about \$28.62 per hour because the DNR would still have to pay the employee for the time when he or she is not assigned to a fire. If the non-fire work time is not needed, the DNR is essentially paying a person only to do firefighting work. The average hourly rate of the DNR staff acting as a crew boss in the ten fires was \$23.30. The specific seasonal or AD employee might also not have the other skills, expertise, or desire that a normal seasonal employee would have that allows them to work on other non-fire activities. In addition, the non-fire costs are currently charged to the fire control program, not fire suppression, and consequently, the fire control budget would then need to be increased. Thus, the incremental cost of using a seasonal employee might be the same or higher than using a DNR permanent employee assuming no other increase in seasonal non-fire workloads. Exhibit 25 shows how a seasonal crew boss costs more than a permanent DNR employee when factoring in a seasonal employee's non-fire time. Assuming a seasonal employee works about 500 hours (about three months), the total seasonal pay will be about \$1,500 more than the cost of a permanent employee's fire time. This assumes that a seasonal employee's fire time is 56% of the total time. If the non-fire hours are not needed by DNR, then the effective hourly rate for a seasonal crew boss increases from \$16.03 to the \$28.62 per hour.

Exhibit 25
Cost Comparison Example of a Seasonal Crew Boss and DNR Permanent Employees
Based on 500 Seasonal Hours

Type of Staff	Seasonal Crew Boss	DNR Employees
Ave. Hourly Rate	\$16.03	\$23.30
Firefighting Hours (56%)	280	280
Non-Fire Hours	220	0
Total Cost	\$8,015	\$6,524
Effective FF Hourly Rate	\$28.62	\$23.30

If seasonal and AD hires are not available to replace the 500 to 600 DNR permanent employees assigned to fires, and if contract personnel are not available, the other source of fire staff is from other agencies through the cooperative agreements among the northwest states, Canada, federal agencies, and local fire protection districts. Because state, federal, and Canadian agencies also use the militia concept, the staff members sent from the other state agencies might also be non-firefighting positions for which DNR will have to pay their regular wage rates, which might be similar to what DNR would have paid its own permanent staff. As a result there might be little or no savings in this staffing alternative. In addition, if DNR did not have any trained personnel, it might be difficult to participate in the cooperative agreements because DNR would eventually have no trained staff over time.

COMPARISON WITH OTHER STATE AND FEDERAL AGENCIES

To better understand and analyze the Washington DNR's policies, procedures, and practices that affect wildfire suppression costs and related labor costs, a comparison was made to the wildland fire programs of four northwest states (Oregon, Idaho, Montana, and South Dakota) and the Canadian province of British Columbia. The United States Forest Service was also included in the wage comparisons. From this review a number of specific factors were identified that influence both the cost of fire suppression and the cost of labor. Once we identified those factors, we looked at each state, comparing the DNR's operating practices to those of the other states and British Columbia.

- ◆ **Seasonal Firefighter Wages:** British Columbia pays the highest hourly wages to seasonal firefighters. Oregon is the second highest, followed by the U.S. Forest Service. Washington pays the least for entry level firefighters and is mid-range for single resource boss positions (crew boss, engine boss, etc.). If the additional \$2 per hour is added, Washington's pay is in the middle of all the survey participants. The following table shows the rates, by position, that each state/province pays its firefighters. The pay rates reflect entry level pay without any longevity adjustments or other differentials.

Exhibit 26
Comparison of Seasonal Fire Crew Wages

Position	WA*	MT	ID	SD	OR	BC	USFS
Firefighter	\$9.28	\$10.68	\$10.65	\$11.00	\$13.85	\$19.99	\$11.95
Single Resource Boss	\$16.03	\$13.36	\$15.87	\$13.00	\$19.61	\$22.34	\$18.59

*Does not include DNR's extra \$2 per hour for fire assignments.

- ◆ **Participation by High Pay Grade Personnel:** All states/provinces, including Washington, allow high pay grade managerial personnel to participate and receive training for fire positions

commensurate with their experience, skills and compensation. All the comparison agencies attempt to use such personnel at their highest level of qualification and/or to fill key shortages. No agency reported a policy of routinely using high pay grade personnel in duties requiring low skill levels.

- ◆ **Overtime and other Premium Pay:** All states and provinces, including Washington, pay an overtime rate of 1.5 times their normal hourly rate after 40 hours. In every state, except South Dakota, all firefighting employees, including FLSA exempt personnel, qualify for overtime. In South Dakota, salaried employees do not receive overtime pay except when on an out-of-state assignment and then only if the receiving agency is willing to pay overtime. In British Columbia, overtime after the first two hours is paid at a double time rate. Washington is the only state surveyed that pays any other form of premium pay. In Washington, employees receive a \$2.00 per hour premium when assigned to an incident. The premium pay is considered a “surrogate” for unpaid on-call, stand-by time, or shift differential pay. By comparison, federal firefighters receive a 25% differential for hazardous duty pay when serving in many positions in which firefighters are directly involved in firefighting or aviation operations. British Columbia stands alone in providing for paid stand-by.
- ◆ **Priorities for Ordering Personnel:** The Washington DNR, like all four surveyed states, participates in an interagency dispatch system for initial response, using a system that mobilizes the closest available resources. For extended attack, the DNR prefers to first use its own resources or exclusive use contract resources (including inmate crews), if possible. The DNR’s second priority is to use the resources of other agencies, followed by employing contract resources. This is very similar to the approach used by the other states surveyed. Oregon emphasizes using local fire department engine crews for initial response when possible, while Montana’s guidance (if given a choice) is to use agency seasonal engine crews first, fire department engines second, and contract engines third. Idaho and South Dakota simply rely on dispatch to make sensible decisions. For extended attack, Oregon’s expectation is that its own personnel will be mobilized first. The other three states simply operate on the premise that staff will release higher cost resources as soon as possible and, if necessary, replace them with lower cost resources. British Columbia operates under a Provincial mandate to use internal employees from within the fire center (region) whenever possible.
- ◆ **Training Permanent Personnel:** All states/provinces in our survey, including Washington, use the “militia” approach to staffing large fires. In South Dakota, all employees of the Division are fire-funded. In most states, including Washington, participation in the fire mission by permanent personnel represents a voluntary collateral duty, but is strongly encouraged. In the Oregon Department of Forestry, all employees are expected to support the fire program when needed. No state or province has a specific policy that limits the amount of time that an employee can spend on fire assignments. However, several states mentioned two weeks as an unofficial expectation in normal years. Depending on employee availability, the Washington DNR places no limits on the number of assignments, either formal or informal. In all cases, employees are paid their normal rate of pay, plus overtime, when on fire assignment.
- ◆ **Engine Staffing:** Wildland fire engines differ from their more familiar urban and suburban counterparts. Wildland fire engines need higher ground clearance and are frequently all-wheel drive. Wildland fire engines often carry far less water than a city or suburban structural fire engines and lack the ladders, large volume pumps, large diameter hose and other features associated with structural fire engines. The National Wildfire Coordinating Group (NWCG) maintains a fire engine classification system that includes five types of wildland fire engines. The Washington DNR, like its counterparts in other states, extensively uses type 5 and 6 engines. These engines carry between 150 and 400 gallons of water. National Wildfire Coordinating Group (NWCG) standards for national mobilization require at least two-person staffing on both

type 5 and type 6 engines, though agencies typically exceed this staffing level in the interest of both crew efficiency and safety. For example, it is the practice in Washington, British Columbia, Idaho, Montana, Oregon and South Dakota to plan and budget for three person staffing on their type 5 and 6 engines. Montana, Oregon and Washington allow the flexibility to drop to two-person staffing based on crew availability, current fire danger, and other extenuating factors. The DNR operates with fewer than three under defined circumstances although its preference is for three crew members.

Other methods exist for obtaining staff and other resources needed to fight and support a fire incident. The following describes and compares some of these other methods used by DNR and the other states.

- ◆ **National Mobilization System:** All surveyed states, including Washington, participate in the national mobilization system, and have procedures in place to use that system to fill orders as necessary. Each state also makes firefighting resources available for national mobilization so that they may respond to the needs of other states and federal agencies. All surveyed states, including Washington, assign staff to work in interagency initial attack dispatch centers, particularly during times of high fire activity. In addition, Montana, Oregon, and Washington provide staff to their geographic coordination centers, the next higher level in the dispatch system. Except for Oregon and Washington, the surveyed states simply allow their agency managers (MT) or dispatch/coordination centers (ID and SD) to communicate and use good judgment on how far to reach out to fill resource orders. Oregon considers reaching outside of the state to be a last resort which should only be used when state and local forces are drawn down to minimum levels. Washington's approach is similar to that of Oregon, but the DNR tends to focus more on the Northwest Compact as an alternative to national mobilization to acquire needed resources. British Columbia participates in the Canadian national mobilization system as well as the Northwest Compact.
- ◆ **State to State Compacts:** All of the states surveyed, including Washington and British Columbia, participate in one or more state-to-state compacts and use them to varying degrees. These compacts are legal agreements which provide a mechanism for the member states and provinces to send firefighting resources to directly assist one another, without going through the national mobilization system. Washington is a member of the Northwest Wildland Fire Protection Agreement (Northwest Compact), along with Oregon, Idaho, Montana, Alaska, British Columbia, Alberta, and the Yukon Territory. Oregon indicates that, in their experience, the compact makes it easier to coordinate and control costs than it does using the national mobilization system. Montana and Idaho agree and add that it also provides for faster mobilization and demobilization of resources. British Columbia tends to agree, but thinks their national system is more developed and more streamlined than the compact. The Washington DNR believes the compact is particularly beneficial for mobilizing aircraft from Canada for short-term initial attack assignments. Through this arrangement with British Columbia, the DNR is able to avoid the high cost of contracting for air tankers.
- ◆ **Fire Protection Exchanges (off-sets):** Three states (Montana, Idaho, and Oregon) currently have significant protection area exchanges with federal agencies ranging from 500,000 to over 1.5 million acres. Such exchanges allow for the creation of protection area boundaries that are more aligned with natural features and are more efficient blocks of protection. The acres exchanged are balanced so that no money is transferred between the parties. The states involved believe that the exchanges are cost-effective and advantageous. Oregon currently has significant fire protection exchanges with federal agencies within the state totaling between 500,000 and one million acres. The ODF states that the exchanges are highly cost-effective and "critical to their success." The Washington DNR currently has one exchange agreement with the Bureau of Indian Affairs totaling approximately 180,000 acres, and is currently exploring opportunities with the

U.S. Forest Service. During the 1970s the DNR and the U.S. Forest Service had a significant off-set agreement, but it was allowed to lapse.

- ◆ **Fire Protection Contracts:** Washington and all four states surveyed currently have contracts either to protect lands administered by other agencies or for other agencies to protect lands under state jurisdiction. These contracts may be for the full cost of protection (including large fires) or simply for the initial response. The contracts are either for a fixed cost or are on a reimbursement basis. Most of these contracts are for relatively small acreages, mostly with federal agencies with limited local staff. In two cases significant acreages are involved. Oregon has a contract with the BLM to protect 2.3 million acres in the western part of the state, and refers to their exchanges with the federal government as “critical to their success.” Montana contracts with the Confederated Salish and Kootenai Tribe to protect over 50,000 acres of state and private land within the reservation boundary. The DNR has a few agreements with individual fire protection districts in eastern Washington to provide the initial response on areas of DNR responsibility along the Columbia Basin where the DNR has limited staff and facilities. These agreements have proven to be cost effective. The DNR is considering an expanding the concept to include additional fire districts and possibly federal agencies.

DNR COST ESTIMATING AND VENDOR COMPARISONS

RCW 76.04.175 requires DNR to “establish a list of the fire suppression equipment, such as portable showers, kitchens, water tanks, dozers, and hauling equipment, provided by the department so that the cost by unit or category can be determined and can be compared to the expense of utilizing private vendors.” The DNR staff provided information about the methods they use to develop cost estimates to meet this requirement, and a review was conducted of the calculations and methodology used for their 2012 Cost Comparison Report.

Overall, although the cost estimates represent a good faith effort, they do not include all of the costs that a private vendor would include in calculating how much to charge the state. DNR’s estimates include only expenses directly charged to the emergency fire suppression account when a DNR resources is assigned to a fire. As a result, the true cost for the DNR to use its own equipment is most likely higher than what has been reported in the past. After reviewing how the costs were calculated, we identified several issues.

- ◆ The DNR does not include overhead or indirect costs in its cost estimates. Overhead includes costs for services such as division and region overhead, agency administrative services, and other administrative, maintenance, or support services provided by the state. Overhead costs can potentially make up a large share of the overall cost. Because private vendors need to cover all of their costs through what they charge, their costs might include a share of their overhead.
- ◆ Currently, the DNR hourly rates are based on the number of hours a permanent employee is paid over the course of the year (e.g. 2,080 hours). As a result, the true cost of a DNR employee is not recovered because an employee does not work all 2,080 hours. The effective hourly rate should include the costs of paid time off, such as vacation, sick leave, holidays, etc. and the hourly rate would then be based on the number of hours an employee is actually working over the course of the year (e.g. 1,800 hours).
- ◆ The DNR uses the costs of the three types of position classifications most commonly used to staff its resources to calculate the cost of labor. A private vendor would use the actual staff providing these services as the basis for estimating their labor costs.
- ◆ Some of the direct costs, such as the protective equipment and tools used by hand crews, were not included in the cost estimates because they are paid out of another place in the budget.

Because all equipment needs to be purchased at some point, a private vendor might include these items as part of their total costs.

By not including the costs and adjustments described above, the state's costs might appear lower than what they actually are. For example, according to the 2012 Cost Comparison Report, DNR's cost for a 20 person hand crew was \$6,631 per shift, while a private contractor's was \$11,312, for a difference of \$4,681. However, DNR's estimate did not include any overhead costs or the costs of equipment, and the DNR hourly rates do not recover the costs of paid time off.

The DNR also notes in its 2012 Cost Comparison Report that estimated vendor costs are for "call-when-needed" agreements, whereas the DNR considers its resources to be more like "exclusive use" contracts that guarantee availability of the particular resource when needed. As noted elsewhere, the DNR's response strategy relies upon having adequate numbers of the right resources available to respond rapidly when a fire is reported. DNR believes that contractor costs would be higher if the DNR were to use exclusive use contracts for vendor personnel and equipment. The DNR believes that a true comparison between DNR and vendor resources requires such an adjustment but reports that data are not readily available because DNR has not requested exclusive use rate quotations from its vendors. We believe that changing the comparison to an exclusive use cost basis is not necessary unless the DNR wants to change its current practices. If after calculating its full costs, the DNR finds that its costs are higher than the "call when needed" prices, the DNR will then know what premium it is paying for having its own exclusive use resources compared to relying on "call when needed" vendors. Based on the difference, the DNR can then make the decision about whether it should be seeking exclusive use contracts or not.

Vendor Contracting Process

DNR's contracting processes and practices, specifically how vendors become eligible and how they are selected to provide services, were reviewed. During our discussion, various types of contracts for equipment such as bulldozers, mobile kitchens, toilets, fire engines/tenders, and aircraft were reviewed. Our review found that these processes and practices vary depending on the types of equipment, specifically:

- ◆ The contracting processes are managed centrally in most cases, except for bulldozers which are managed at the regional level. There is no set time period for sign up, so vendors can become part of a state roster at any time.
- ◆ For some areas of the state, especially the east side, some staff operate under the assumption that all of the potential vendors are known for certain types of equipment, such as bulldozers and mobile kitchens.
- ◆ In most cases, vendors are responsible for approaching the state if they want to contract to provide services. Vendors typically do this through a phone call, after which contracting information is sent to them via mail.
- ◆ For the vendor lists the state is responsible for (i.e. everything except hand crews, engines/tenders and some types of aircraft), the decision regarding which vendor to hire is based on proximity and lowest cost (i.e. the cheapest, closest equipment that meets DNR's training, equipment, and insurance requirements will be hired first). For smaller fires (i.e. type 3, 4 and 5) when response time is critical, regional offices will sometimes use the qualifying vendor that is closest and then hire the equipment at the fire.
- ◆ The state and the Federal Government share their vendor lists with each other. They can use each other's lists when all the vendors on their own lists are either already being used or not available.

In light of the assumption that all vendors are known in some areas of the state, and that vendors are typically responsible for approaching the state if they want to contract for services, the purchasing process could be more transparent and open if the DNR periodically advertised the need for services so that more prospective vendors are informed about available opportunities.

Contracting processes and practices for the various types of equipment are described in more detail below:

- ◆ **Bulldozers:** The purchasing of bulldozer services is managed locally by the different regions. According to DNR staff, on the east side of the state all of the potential vendors are known. The state uses bulldozer services more frequently in eastern Washington, and contracts are used to purchase bulldozer services from vendors. The contracts are typically for a period of two years and specify the rates that will be charged. Letters are sent out annually to existing vendors to renew contracts and update rates. In western Washington, bulldozers are used less frequently. As a result, the vendor list includes only the location and type of equipment, and vendors are paid using DNR's applicable equipment rates.
- ◆ **Fire Engines/Tenders:** The agreements for fire engine/tender services are managed by the U.S. Forest Service on behalf of the Pacific Northwest Wildfire Coordinating Group. Contracts are renewed every two years, where vendors are ranked in a dispatch priority list. For the initial attack (i.e. first day) the state is allowed to hire whomever it wants, but after that the state must hire vendors according to the priority order of the list.
- ◆ **Fixed Wing Aircraft:** The DNR relies primarily on cooperative agreements with other firefighting agencies to obtain services of most fixed wing aircraft when needed by DNR. Large air tankers are available to DNR mainly through the Forest Service's contracts with private vendors and through British Columbia's contracts with private vendors. In three instances, DNR cooperates with other agencies to directly procure services of fixed wing aircraft:
 - The DNR and the Forest Service have an "exclusive use" contract for an aerial firefighting supervisor and aircraft where the aircraft and pilot are provided by the state and the aerial supervisor is provided by the Forest Service. This is an annual contract to provide services from July 15th through September 15th. There are separate prices for availability (i.e. keeping the resource available to respond to the fire when needed) and actual time spent on a fire.
 - In cooperation with the DNR, the Department of Interior's Bureau of Indian Affairs has contracted for a single engine water scoping air tanker that is used exclusively by the DNR and BIA during the fire season. The two agencies share the cost of daily availability and flight time, and BIA provides the on-ground contract manager.
 - The DNR has an agreement with the Washington State Department of Fish and Wildlife by which a WDFW aircraft and pilot are used to provide a platform for an aerial supervisor. The DNR pays WDFW for use of the aircraft, and WDFW pays DNR for mechanical services and hangar storage for its aircraft.
- ◆ **Call When Needed Contracts:** The remaining types of equipment are managed through "call when needed" contracts (i.e. the state is not required to hire the vendor nor is the vendor required to respond when requested. The vendor's prices are set via contract, and they become part of a vendor roster). This includes a broad variety of equipment, such as: buses, helicopters, portable toilets, showers, mobile kitchens, administrative trailers, hand washing stations, portable water trucks, heavy equipment, etc. To reduce administrative time, these agreements typically last from three to five years. However, vendors are given an opportunity annually to amend their contracts to reflect changes in their pricing or equipment. DNR manages these contracts centrally and vendors are typically contacted by central dispatch when their services are needed. Some specific points of interest include:

- **Mobile Kitchens:** According to DNR staff, after deploying DNR operated kitchens staff by inmate crews under DNR's supervision, vendor kitchens are generally ordered using "call when needed" contracts when there are 100 or more people to feed. For smaller fires, sometimes a local caterer or restaurant is used. The dispatchers in the east side of the state know the vendors because they use them every year. On the west side of the state, a list is kept. The services that mobile kitchen vendors provide need to meet certain strict criteria, such as being capable of feeding at least 250 people per hour while keeping the per meal cost below the per diem rate (i.e. daily meal allowance) for employees.
- **Helicopters:** In order to provide services to the state, helicopters need to be of a certain type (i.e. type 1, 2 or 3) and certified by either the U.S. Forest Service or the Department of the Interior.

POLICY AND IMPLEMENTATION CONSIDERATIONS

After reviewing, analyzing, and comparing the DNR's fire suppression costs, its use and costs of non-fire permanent staff for fire assignments, and its cost estimating, we found the following:

- ◆ Of the total fire suppression costs for the past ten fiscal years, the DNR's labor costs represented about 40% of the total fire suppression costs, but the DNR spent almost as much, 31%, on purchasing personnel and additional resources from other public agencies and private contractors. Thus, the DNR's labor costs have been a major cost item, but they have not been the only cost driver. For example, the most costly fire suppression year in the past ten years occurred in FY 2007, but DNR's labor costs represented only 29% of the year's total costs.
- ◆ Almost half of the DNR's permanent employees have been assigned to a fire, and based on a sample of fire assignments, DNR employees have worked in a wide variety of fire jobs. Only a small number appear to have actually worked as firefighters. Seasonal employees predominately work as part of a fire engine crew, hand crew, or helitack crew.
- ◆ The DNR uses its permanent employees for fire assignments because it believes that they provide a reliable, trained, experienced, and immediate workforce that is readily available to supplement its fire suppression workforce. The DNR believes that seasonal and AD hires for non-firefighter positions are not always available, and the DNR might have to pay a premium to seasonal and potential AD hires to assure that they are available when DNR needs them.
- ◆ For the period covering FY 2009-FY 2011, the DNR's permanent employees worked about 40% of the total hours spent on fire suppression, while seasonal employees worked the remaining 60% of the hours.
- ◆ Based on a sample of ten fires and an analysis of the fire assignment for each DNR permanent employee, the fire assignments generally seemed appropriate given the experience and training requirements for those assignments. For 57% of the employees assigned, their positions required training and experience that are usually not found in the DNR seasonal work force. For the other 43% of the assignments, the reasons for using permanent staff included special training requirements, availability of seasonal personnel, expert knowledge of DNR processes and procedures, and staff training and development objectives.
- ◆ Although a direct comparison of the hourly rates for permanent DNR staff and seasonal and AD employees shows that permanent employees are generally more expensive, the seasonal and AD employees are more expensive if their total costs are considered. Because not all their time is spent on fire suppression, their total cost can be equal or greater than a permanent employee's because they are hired for the season, not just when there is a fire. As a result, the effective hourly cost can also be higher because their hourly rate has not been adjusted for the time spent

not fighting fires. Permanent DNR employees only charge for their actual time on fire assignments and their non-fire time is already budgeted in their home divisions. Adding more seasonal and AD employees to take the place of permanent DNR employees for the duration of the fire season would also require additional funding to support their non-fire time and might require additional training costs.

- ◆ Agencies in other northwest states, British Columbia, and the U.S. Forest Service, commonly use their own permanent staff is common among these agencies, and the agencies allow high pay grade staff to participate and receive training for fire positions commensurate with their experience, skills, and compensation. In addition, the comparison shows:
 - Without the added premium pay of \$2 per hour, the DNR has the lowest seasonal firefighter rate and has a mid-range single resource boss hourly rate.
 - The DNR is the only state agency to pay an additional \$2 per hour for fire assignments. British Columbia does pay for standby time and pays double time for overtime after two hours. For FY 2011 the estimated cost of this provision was about \$600,000. In FY 2009 which was a busier fire season, the estimated cost was about \$956,000.
 - All the comparison agencies plan and budget for three person engine crews, and all have the flexibility to operate with two persons given certain circumstances and situations. The NWCG standard requires at least two persons, but agencies exceed the staffing level for crew efficiency and safety.
 - Other agencies and DNR also use fire protection exchanges and contracts to improve their cost effectiveness, and also participate in the national mobilization systems and in state to state compacts and agreements.
- ◆ The DNR's cost comparisons use direct costs charged when resources are assigned to a fire and do not include all of DNR's costs because hourly rates do not include costs such as paid time off and overhead. As a result, DNR's costs appear lower than they actually are when compared to a private business. The DNR considers its resources as exclusive use and believes that vendor cost comparisons should be based on such exclusive use costs. In addition, the vendor contracting processes can be improved by making them more transparent and open.

Based on the above observations, there are several policy and operational issues that could be considered.

- ◆ Should the DNR continue using its permanent staff for fire assignments or should it begin to rely more on the seasonal and AD labor market?
- ◆ If more reliance is placed on seasonal/AD employees, is the state willing to increase funding if necessary to support their non-fire suppression time?
- ◆ Should cost comparisons with private vendors include additional DNR costs related to overhead, administration, and paid time off?
- ◆ Should the DNR be more transparent and open in its procurement process for private vendor services?

FCS GROUP RECOMMENDATIONS

Based on FCS GROUP's analyses and experience, the use of permanent DNR staff for fire assignments is not unusual and is practiced by other state and federal agencies in the northwest. When taking into consideration the full cost of adding a seasonal employee to replace the fire suppression hours provided by permanent DNR staff, the cost benefit of using a seasonal employee is not as positive and might actually cost more than a permanent staff member because DNR will have

to pay for the non-fire time as well. In addition, the DNR believes that there is not an adequate labor pool that is qualified and available to fill all these positions. If DNR does not have an adequate labor pool, it might have to rely on private contractors, which it already does, and on its interagency agreements to fill assignments. Because the other agencies use the militia approach by involving their permanent staff, the DNR will not be reducing its costs but will have diminished its own in-house capacity over time. The FCS GROUP recommendations are the following:

- ◆ Continue using the militia approach, but whenever possible, use seasonal or AD employees for the lower level fire assignments. As previously mentioned, the DNR might want to consider developing a pool of AD employees that can assist with some fire assignments if training costs and availability issues can make such an effort cost effective.
- ◆ Determine whether the additional \$2 per hour can be eliminated through labor negotiations and/or with changes in the assignment and staffing processes.
- ◆ Initiate discussions with the U.S. Forest Service to identify locations within the state where the exchange of wildland fire protection responsibilities would lead to more efficient wildfire response and a more cost-effective program for both agencies. In eastern Washington the DNR should continue to investigate opportunities to enter into agreements with other agencies, such as fire protection districts, to either to protect lands under the jurisdiction of the other agency, or for the other agency to protect lands currently under state jurisdiction.
- ◆ Revise the DNR method for calculating its costs for comparisons with private vendors and include appropriate overhead, administrative, maintenance, and support costs as well as the costs for paid time off. When calculating the hourly rates for a specific service, the rates should be based on the position classifications actually providing the service. After the DNR's full costs are calculated, determine whether DNR is paying more for its exclusive use resources compared to vendor "call when needed" resources, and then determine whether the DNR needs to consider changing how it uses the DNR resources and procures vendor resources based on costs and availability.
- ◆ To improve transparency and open competition, periodically advertise that the DNR is creating a roster of qualified private vendors to provide specific types of services and that interested vendors should submit their qualifications and prices.

APPENDIX A: KEY CONSULTANT TEAM MEMBERS

FCS GROUP

FCS GROUP, formed in 1988, provides public finance, economic, and management consulting services that include budget and financial analysis, impact and user studies, utility rate development, economic analysis, operational reviews, performance audits, and funding analysis to public sector clients such as city and county governments, municipal corporations, state agencies, and special districts. FCS GROUP's mission is to facilitate sound decision-making and management by public officials and stakeholders through a solutions-oriented analytical approach to public sector financial and management issues. Since the firm's inception, FCS GROUP has delivered high-quality, cost-effective consulting services in over 2,200 engagements and served more than 475 clients. The firm serves clients throughout the western United States and Canada from locations in Redmond, Washington and Portland, Oregon.

To provide the necessary expertise, FCS GROUP assembled a project team that provided WSIPP with both the financial expertise and "hands on" firefighting and state agency administrative experience. The FCS GROUP team included Peter Moy, an FCS GROUP principal; Mike DeGrosky from the Guidance Group, Inc., an Idaho-based consulting firm providing strategic services for fire organizations; and Don Artley, a former Montana State Forester, who has been in the forefront of analyzing wildfire suppression issues and management.

PRIMARY CONSULTANT TEAM MEMBERS

Peter Moy is a principal at FCS GROUP with 35 years of public sector experience specializing in public finance, personnel and organizational analysis, management and operational reviews, and policy analysis. Mr. Moy has worked on projects that have involved every level of government: federal and state agencies, city and county government, and special districts. Mr. Moy began his career as a management auditor with the Congressional watchdog agency, the United States General Accounting Office, now called the Government Accountability Office. He later worked for the Seattle City Council as a program analyst and as the Assistant Director of the Council's Central Staff where he acted as the City Council's primary financial advisor and managed a staff responsible for analyzing policy, program, and management issues. For more than 25 years, he has been a consultant working with public sector agencies. One of Mr. Moy's specialties is working with fire departments and fire districts. He has worked with over 50 different departments and districts analyzing the cost of fire and emergency medical services; annexation, consolidation, and merger opportunities; ambulance fees; and fire permit fees. In addition, he has also conducted a number of management studies for Washington State agencies and departments, such as the Office of Financial Management, the State Auditor's Office, the Department of Social and Health Services, and the Washington State Liquor Control Board.

Michael DeGrosky, founder and CEO of Guidance Group, Inc., is an experienced wildland and municipal fire professional. His fire service background spans 35 years, including service as a rural fire forester, fire management specialist, unit fire supervisor, fire program manager, volunteer fire department captain, career fire department training officer and consultant to fire and emergency organizations. He served as a member of interagency incident management teams working across the west, and maintains current qualifications as an Operations Section Chief Type 2 and Incident Commander Type 3. Michael has participated in numerous landmark studies in the wildland fire management field. For example, in 1997, DeGrosky served as part of an interdisciplinary study team that comprehensively examined the Washington DNR fire program. The project included a review of the agency's fire prevention and firefighting capabilities, the nature of the fire problem, fire trends in Washington, and opinions of various stakeholders, including the general public, forest industry, non-industrial forest land owners, local governments, contractors, insurance companies, and others.

Michael also served as Deputy Project manager for a similar comprehensive review at the Nevada Division of Forestry to examine the nature of the fire problem throughout the state; fire trends; as well as the agency's fire prevention capacity, firefighting capabilities, and statutory responsibilities. Like the Washington DNR review, the study considered the organization and practices of comparable state agencies responsible for firefighting in the Western United States. In 2010 Michael served as the Project Manager for the Secretary of Agriculture's Large Cost Fire Review Panel for 2009, a congressionally mandated review. The Panel was tasked with examining and reporting on fire suppression costs for wildfire incidents where federal expenditures exceeded \$10,000,000.

Don Artley has worked professionally for 35 years in fire policy and forestry and specializes in wildland fire policy. He spent a decade as Montana State Forester and held other positions with the Forestry Division of the Montana Department of Natural Resources and Conservation. Following his retirement as Montana State Forester, Don was hired as the National Fire Director for the National Association of State Foresters and represented state fire organizations at the National Interagency Fire Center in Boise, Idaho. Until recently, Don was a part-time employee of the International Association of Fire Chiefs (IAFC), and an ex-officio member of their Wildland Fire Policy Committee. Mr. Artley has been a member of the National Multi-Agency Coordinating Group (NMAC) and chaired that organization from 20025 through 20076. Don was also a member of the National Association of State Foresters (NASF) Forest Fire Protection Committee for nine years, and represented the NASF on the National Wildfire Coordinating Group (NWCG) for 8 years, including chairing the Group for 6 years. He has also served as a team member on several high profile wildland fire initiatives, including serving on the Management Oversight Team for the implementation of the 1995 Federal Wildland Fire Management Policy and as a team member for both the development of the 2001 Revised Federal Wildland Fire Management Policy and the "Large Fire Cost Reduction Action Plan" (March 2003). He co-Chaired the Wildland-Urban Interface Working Panel for the Forest Service's 2009 Quadrennial Fire Review (QFFR).

APPENDIX B: OREGON INSURANCE PROGRAM SUMMARY

OREGON FOREST LAND PROTECTION FUND
INSURANCE PROGRAM SUMMARY

	Fire Season	Insurance Year**	Premium Cost	Insurance Deductible (Self-Insur.)	Amount of Coverage	Net F.F. Cost Claims (EFC Claims)	Paid By Insurance
1	73	73-74	\$45,000	\$325,000	\$1,000,000	\$853,801	\$528,801
2	74	74-75	\$45,000	\$325,000	\$1,000,000	\$453,331	\$128,331
3	75	75-76	\$75,000	\$500,000	\$1,000,000	\$299,721	\$0
	76	76-77	NO COVERAGE			\$304,240	
4	77	77-78	\$92,850	\$500,000	\$1,000,000	\$465,503	\$0
5	78	78-79	\$77,006	\$500,000	\$1,000,000	\$640,372	\$140,372
6	79	79-80	\$61,919	\$500,000	\$1,000,000	\$1,166,147	\$666,147
7	80	80-81	\$138,875	\$1,000,000	\$1,000,000	\$887,888	\$0
8	81	81-82	\$174,750	\$1,000,000	\$2,000,000	\$3,048,422	\$2,000,000
9	82	82-83	\$174,750	\$1,000,000	\$2,000,000	\$237,146	\$0
10	83	83-84	\$170,000	\$1,000,000	\$2,000,000	\$0	\$0
11	84	84-85	\$144,968	\$1,000,000	\$2,000,000	\$41,360	\$0
	85	85-86	NO COVERAGE			\$414,723	
12	86	86-87	\$170,000	\$3,000,000	\$2,000,000	\$4,217,318	\$917,993
13	87	87-88	\$244,045	\$2,000,000	\$2,000,000	\$19,002,716	\$2,000,000
14	88	88-89	\$1,781,493	\$2,000,000	\$7,650,000	\$9,600,000	\$7,549,771
15	89	89-90	\$1,956,109	\$4,000,000	\$8,000,000	\$5,216,613	\$1,216,613
16	90	90-91	\$2,418,438	\$7,500,000	\$35,000,000	\$4,511,611	\$0
17	91*	91-92	\$2,418,438	\$7,500,000	\$35,000,000	\$3,406,772	\$0
18	92*	92-93	\$2,418,438	\$7,500,000	\$35,000,000	\$12,850,855	\$5,350,855
19	93*	93-94	\$2,878,421	\$8,000,000	\$34,500,000	\$1,954,271	\$0
20	94*	94-95	\$2,668,039	\$8,000,000	\$34,500,000	\$14,669,153	\$6,669,153
21	95*	95-96	\$2,777,477	\$10,000,000	\$32,500,000	\$3,618,209	\$0
22	96*	96-97	\$2,714,577	\$10,000,000	\$32,500,000	\$2,410,977	\$0
23	97*	97-98	\$2,539,980	\$10,000,000	\$33,000,000	\$36,189	\$0
24	98*	98-99	\$2,380,439	\$10,000,000	\$33,000,000	\$666,713	\$0
25	99*	99-00	\$2,372,098	\$10,000,000	\$43,000,000	\$3,036,044	\$0
26	00*	00-01	\$2,372,098	\$10,000,000	\$43,000,000	\$5,780,952	\$0
27	01*	01-02	\$2,266,528	\$10,000,000	\$43,000,000	\$14,889,423	\$4,880,003
28	02*	02-03	\$3,345,305	\$10,000,000	\$43,000,000	\$30,001,937	\$19,975,885
29	03*	03-04	\$3,570,743	\$15,000,000	\$20,575,000	\$9,180,727	\$0
30	04*	04-05	\$3,875,425	\$15,000,000	\$25,000,000	\$2,017,509	\$0
31	05	05-06	\$1,290,626	\$25,000,000	\$25,000,000	\$13,196,716	\$0
32	06	06-07	\$1,290,626	\$25,000,000	\$25,000,000	\$9,040,048	\$0
33	07	07-08	\$1,081,510	\$25,000,000	\$25,000,000	\$14,125,366	\$0
34	08	08-09	\$907,966	\$25,000,000	\$25,000,000	\$9,129,075	\$0
35	09***	09-10	\$907,972	\$25,000,000	\$25,000,000	\$7,947,483	\$0
36	10	10-11	\$860,776	\$25,000,000	\$25,000,000	\$5,193,638	\$0
37	11	11-12	\$811,590	\$25,000,000	\$25,000,000	\$3,299,812	\$0
Total(s)			\$53,519,275			\$217,812,780	\$52,023,924

1973-2011 Fire Seasons

Cumulative Difference (Cost-Claim) (\$1,495,351)

Bolded figures indicate they are estimates.

*1991 Legislature required the EFCC, by statute, to purchase insurance. The Legislature did not establish a minimum for insurance, but the Legislative intent indicated a deductible plus insurance amount equal to approximately \$45 million. (ORS 477.775)

**Policy Period: April 1, 20XX-April 1, 20XX (Fire Season)

Note: EFC Claims are based on a fiscal year, while insurance policy claims are based on a fire season, thus EFC and insurance claims don't necessarily equate.

***Includes two FEMA declarations that may bring an anticipated reimbursement of \$2,354,740.

APPENDIX C: BACKGROUND ON INCIDENT MANAGEMENT STANDARDS

INCIDENT MANAGEMENT

Like any interagency player, the DNR is subject to interagency standards, guidelines, and operating protocols, and organizes its work around the following three systems of national scope and importance.

National Incident Management System (NIMS)

On February 28, 2003, the President issued Homeland Security Presidential Directive 5 (HSPD-5), “Management of Domestic Incidents,” which directed the Secretary of Homeland Security to develop and administer a National Incident Management System (NIMS). This system, and its associated National Response Framework (NRF) provide a consistent nationwide template to enable federal, state, tribal and local governments, nongovernmental organizations (NGOs) and the private sector to work together to respond to, recover from, and mitigate the effects of incidents. HSPD-5 required states, territories, local jurisdictions and tribal entities to adopt the NIMS.

Incident Command System (ICS)

When adopted, the NIMS incorporated the Incident Command System (ICS) as a foundational element. When an incident requires response from multiple local emergency management and response agencies, effective cross-jurisdictional coordination using common processes and systems proves critical. The ICS provides a standardized, on-scene, all-hazards incident management approach to achieving that cross-jurisdictional coordination. The ICS allows for integrating facilities, equipment, personnel, procedures and communications; enables coordinated response among various jurisdictions and functional agencies; and establishes common processes for planning and managing resources.

Appropriately, the DNR organizes its response to fires using the ICS. Wildland fire agencies, including the DNR, have employed the ICS for decades. As described above, as an arm of state government, the DNR must now also use the ICS as part of its NIMS compliance.

National Interagency Incident Management System (NIIMS): Wildland Fire Qualification System Guide

NWCG member agencies, including the DNR, prepare their personnel to operate within the ICS and meet their NIMS/NRF obligations, in part, by maintaining a qualifications and certification system. As an NWCG member and NIMS/NRF compliant agency, the DNR is subject to the National Interagency Incident Management System (NIIMS): Wildland Fire Qualification System Guide (310-1) published by the National Wildfire Coordinating Group (NWCG).

The NWCG develops the 310-1 to establish minimum requirements for training, experience, physical fitness, and currency standards for wildland fire positions. All participating agencies have agreed to meet these standards for national mobilization. Any organization or agency providing resources intended to fill national interagency request for resources for wildland fire incidents must meet the minimum NWCG requirements described in the 310-1. While the NWCG recognizes the ability of cooperating agencies at the local level to jointly define and accept each other’s qualifications, most have recognized the challenges of maintaining two different qualification and certification systems, one for in-house operations and another for national mobilization, and the 310-1 requirements have largely become the de facto national standard.

For each identified ICS position, the 310-1 establishes standards for required training, recurrent training necessary to maintain qualification, required experience, established physical fitness levels for wildland fire assignments, and currency requirements.

APPENDIX D: LISTING OF FIRE JOBS AND PERMANENT POSITION JOB TITLES

Fire Job Description	Position Title
Agency Administrator	NATURAL RESOURCE SPECIALIST 2 WMS BAND 1 WMS BAND 2
Agency Representative	NATURAL RESOURCE SPECIALIST 3 WMS BAND 1
Computer Technical Specialist	IT SPECIALIST 5 NATURAL RESOURCE SPECIALIST 1
Crew Boss	FOREST CREW SUPERVISOR 1 FOREST CREW SUPERVISOR 2 NATURAL RESOURCE ENGINEER 2 NATURAL RESOURCE ENGINEER 2 NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 2
Crew Supervisor - Inmate Crew	CARPENTER SUPERVISOR 2 EQUIPMENT TECHNICIAN SUPERVISOR EQUIPMENT TECHNICIAN SUPERVISOR FOREST CREW SUPERVISOR 1 FOREST CREW SUPERVISOR, CORR FACILITIES FOREST CREW SUPERVISOR, CORR FACILITIES FOREST CREW SUPERVISOR, CORR FACILITIES FOREST CREW SUPERVISOR, CORR FACILITIES FOREST CREW SUPERVISOR, CORR FACILITIES FOREST CREW SUPERVISOR, CORR FACILITIES FOREST CREW SUPERVISOR, CORR FACILITIES NATURAL RESOURCE SPECIALIST 1 WMS BAND 1
Dispatch Coordinator	NATURAL RESOURCE SPECIALIST 3 NATURAL RESOURCE SPECIALIST 3 NATURAL RESOURCE SPECIALIST 3 OFFICE SUPPORT SUPERVISOR 1
Dispatcher	COMMUNITY OUTREACH & ENVIRON ED SPEC 2 FISCAL ANALYST 1 NATURAL RESOURCE ENGINEER 2 NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 3 OFFICE ASSISTANT 3 OFFICE ASSISTANT 3 OFFICE ASSISTANT 3 OFFICE ASSISTANT 3 OFFICE ASSISTANT 3 OFFICE ASSISTANT 3 OFFICE ASSISTANT 3 OFFICE SUPPORT SUPERVISOR 2 OFFICE SUPPORT SUPERVISOR 2
Division Supervisor	NATURAL RESOURCE ENGINEER 2 NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2
<i>Division Supervisor / Operations Section Chief</i>	NATURAL RESOURCE SPECIALIST 2

Fire Job Description	Position Title
Dozer Boss	Actual Position Unknown FISH & WILDLIFE BIOLOGIST 3 FOREST CREW SUPERVISOR 2 NATURAL RESOURCE ENGINEER 3 NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2
Driver	EQUIPMENT TECHNICIAN 3 TRUCK DRIVER 3
Driver w/ CDL	NATURAL RESOURCE SPECIALIST 3
Emergency Ops	NATURAL RESOURCE SPECIALIST 4
Engine Boss	NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 1
Faller	MAINTENANCE MECHANIC 1
Felling Boss	NATURAL RESOURCE SPECIALIST 1
Finance	FISCAL ANALYST 1 FISCAL ANALYST 2
Finance Section Chief / Personnel Time Recorder	NATURAL RESOURCE SPECIALIST 1
Fire Cache	CONTRACTS SPECIALIST 1 NATURAL RESOURCE SPECIALIST 4 WAREHOUSE OPERATOR 2 WAREHOUSE OPERATOR 3
Firefighter	ENVIRONMENTAL PLANNER 4 EQUIPMENT OPERATOR 2 EQUIPMENT TECHNICIAN LEAD HUMAN RESOURCE CONSULTANT 1 NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 2
Fireline Blaster	NATURAL RESOURCE SPECIALIST 2
Fireline Explosive Crewmember	NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 3 NATURAL RESOURCE SPECIALIST 4
<i>Fireline Explosive Crewmember</i> <i>Fireline Explosive Crewmember / Handheld Infrared Equipment Operator</i>	NATURAL RESOURCE SPECIALIST 2
General Mechanic	EQUIPMENT TECHNICIAN 3
Handheld Infrared Equipment Operator	NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 2 OFFICE ASSISTANT 2
Helicopter Crewmember	IT SPECIALIST 5
Helicopter Manager	NATURAL RESOURCE OPERATIONS SUPERVISOR 1
Helicopter Pilot	NATURAL RESOURCE SPECIALIST 3
Incident Commander	FOREST CREW SUPERVISOR 2 NATURAL RESOURCE ENGINEER 2 NATURAL RESOURCE SPECIALIST 1

Fire Job Description	Position Title
	NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2 WMS BAND 1
<i>Incident Commander / Fire Management Officer</i>	WMS BAND 1
Investigator	NATURAL RESOURCE INVESTIGATOR NATURAL RESOURCE INVESTIGATOR NATURAL RESOURCE INVESTIGATOR NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 3 WMS BAND 1
Kitchen Supervisor	EQUIPMENT TECHNICIAN SUPERVISOR
Kitchen/Camp Helper / Firefighter	NATURAL RESOURCE ENGINEER 2
Kitchen/Camp Helper / Receiving & Distribution Mngr	NATURAL RESOURCE SCIENTIST 2
Operating Section Chief	NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2
Pilot	NATURAL RESOURCE SPECIALIST 3
PIO	COMMUNITY OUTREACH & ENVIRON ED SPEC 2 NATURAL RESOURCE SPECIALIST 3 NATURAL RESOURCE SPECIALIST 3
Planning Section Chief	NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 3
Purchaser	COMMUNITY OUTREACH & ENVIRON ED SPEC 3
Receiving & Distribution Manager	ADMIN ASST DNR
Region Finance	FISCAL ANALYST 2 FISCAL TECHNICIAN 2
Safety Officer	NATURAL RESOURCE SPECIALIST 2
Strike Team Leader - Engine / Fireline Explosives Crewmember	NATURAL RESOURCE SPECIALIST 2
Task Force Leader	NATURAL RESOURCE SPECIALIST 1 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2 NATURAL RESOURCE SPECIALIST 2
<i>Task Force Leader / Fire Management Officer</i>	NATURAL RESOURCE SPECIALIST 2
<i>Task Force Leader / Fireline Explosives Crewmember</i>	NATURAL RESOURCE SPECIALIST 2
<i>Task Force Leader / Strike Team Leader</i>	NATURAL RESOURCE SPECIALIST 1
<i>Task Force Leader/ Incident Commander</i>	NATURAL RESOURCE SPECIALIST 2
Time Recorder - Equipment	NATURAL RESOURCES TECHNICIAN 3
Time Recorder - Personnel	FISCAL TECHNICIAN 2 NATURAL RESOURCE SPECIALIST 3
Time/Cost	NATURAL RESOURCES TECHNICIAN 3
Time	NATURAL RESOURCES TECHNICIAN 2
GIS Specialist	CARTOGRAPHER 3
Equipment Manager	EQUIPMENT OPERATOR 2