Cowlitz County
Fire District No. 5

Fire District Assessment

Final Report

May 2007

Emergency Services
Consulting inc.

Cowlitz County Fire District No. 5

Fire District Evaluation

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Table of Contents

Executive Summary **1**

Purpose of the Report 1
Methodology 1
Background Information 2
Summary of Recommendations 3
Methods for Prioritization of Recommendations *3*

Overview of the Report **7**

Objective One: Community Baseline and Organizational Overview **9**

Cowlitz County 9
Cowlitz County Fire Protection Agencies *10*
Cowlitz County Fire District No. 5 10
History *10*
Current Operations *11*
Responsibilities and Lines of Authority 13
Foundational Policy 14
Organizational Structure 18
Maintenance of History 20
Financial Profile 22
Cost Recovery Efforts 26

Objective Two: Management Components **28**

Mission, Vision, Strategic Planning, Goals, and Objectives 28
Availability of SOGs, Rules, Regulations, and Policies 30
Critical Issues 30
Internal and External Communications 31
Document Control and Security 35
Reporting and Records 36

Objective Three: Risk Management **37**

Risk Management Process 37
Safety Officer *38*
Liability Issues *38*

Objective Four: Planning Systems and Resources **41**

Organizational Planning Process 41
Strategic Planning 43
Tactical Planning 44
Disaster Planning 46
Master Planning and External Customer Planning Involvement 47
Internal Customer Planning 49

Objective Five: Personnel Management **51**

Personnel Policies and Rules 51
Compensation and Benefits 52

Personnel Records 54
Disciplinary Process 55
Counseling Services 55
Health and Safety 56
Ongoing Competency Evaluation 59

Objective Six: Staffing 61

Administration and Support Staff 61
Operational Staffing 65
Incident Staffing Performance 68
Effective Response Force 69

Objective Seven: Capital Asset Management 73

Fire Stations and Other Facilities 74
Apparatus 79
Fire Suppression Apparatus Matrix 81
EMS Apparatus Matrix 83
Rescue/Special Operations Apparatus Matrix 84
Command Apparatus Matrix 85
Auxiliary/Support Apparatus Matrix 85
Apparatus Replacement 85
Fleet Maintenance 87
Support and Small Equipment 87
Pump Testing and Hose Testing 88
Turnout Gear Maintenance Program 89

Objective Eight: Emergency Services Delivery 91

Notification System 91
Incident Management 94
Response Performance Analysis 95
Response Analysis 95
Workload Analysis 102
CCFD5 Workload Analysis 102
Incidents Per FTE 106
Mutual Aid Systems 106
Resource Analysis 108
CCFD5 Distribution Analysis 108
Deployment 110
Response Performance 111
People, Tools, and Time 112
Dynamics of Fire in Buildings 112
Emergency Medical Event Sequence 115
Response Performance for CCFD5 117
Call Processing and Dispatch 117
Turnout Time of Firefighters 117
Travel Time 117
Hazardous Materials Response 124
Technical Rescue Response 124
Homeland Security Integration 124
Data Collection and Analysis 126

Objective Nine: Training Program 127

Training Program Planning 130
Training Delivery 131
Ongoing Competency Evaluation 132
Training Facilities 132
Career Development Training 133
Training Records and Reports 134

Objective Ten: Fire Prevention Program 137

New Construction Review 137
Fire Safety Inspections 138
Public Safety Education 141

Appendices 145

Appendix A: Total Compensation Comparison (TCC) Chart 147
Appendix B: Volunteer Reimbursement Policy 149
Appendix C: Apparatus Replacement Data 150
Apparatus Information and Replacement Plan Proposal 150
Projected Replacement Schedule, 2007 - 2016 153
Fire and Ambulance Reserve Funding (Current and Proposed Adjustments) 154
Appendix D: District Organizational Chart 155
Appendix E: Washington State Taxing History 157

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Table of Figures

Figure 1: Summary of Recommendations 4
Figure 2: Resource Allocation Comparison 12
Figure 3: Lines of Authority Table 13
Figure 4: Summary of Organizational Controls 17
Figure 5: Summary of Organizational Structure 20
Figure 6: Assessed Valuation History, 2000 – 2006 23
Figure 7: History of Property Tax Levy, 2000 - 2006 24
Figure 8: Operating Budget History, 2000 - 2006 25
Figure 9: History of Cash Carry-Over, 2000 – 2006 25
Figure 10: Cost Per Capita 26
Figure 11: Summary Table of Management Components 29
Figure 12: Summary of District Policies 31
Figure 13: Internal and External Communications Table 34
Figure 14: Planning Processes Table 42
Figure 15: Strategic Planning Table 43
Figure 16: Tactical Planning Table 45
Figure 17: Master Planning Table 48
Figure 18: Personnel Policies Table 52
Figure 19: Volunteer Benefits Table 54
Figure 20: Personnel Records Table 55
Figure 21: Disciplinary and Counseling Procedures Table 56
Figure 22: Personnel Health and Safety Table 58
Figure 23: Personnel Testing and Promotion Processes Table 59
Figure 24: Administrative Staffing Table 63
Figure 25: Administrative Ratio 64
Figure 26: Operational Personnel 65
Figure 27: Firefighters per 1,000 Population – National Comparison 67
Figure 28: Sample Critical Task Staffing Requirements by Risk 70
Figure 29: Facilities and Resources, Regional Comparables 73
Figure 30: Fire Station Summary Table 75
Figure 31: Facilities Table 78
Figure 32: Apparatus Condition Definitions 80
Figure 33: Apparatus Table 86
Figure 34: Notification and Response Table 93
Figure 35: Workload by Call Type 96
Figure 36: Incidents per 1,000 Population, National and Regional Comparables 97
Figure 37: Service Demand Density Map 98
Figure 38: Fires per 1,000 Population, National and Regional Comparables 99
Figure 39: Workload by Station, 2005 and 2006 100
Figure 40: Fire Workload 101
Figure 41: Fire Loss per Capita, National and Regional Comparables 102
Figure 42: Workload by Month of Year, 2005 and 2006 103
Figure 43: Workload by Day of Week, 2005 and 2006 104
Figure 44: Workload by Hour of Day, 2005 and 2006 105
Figure 45: Available Staffing by Hour of Day 106
Figure 46: Mutual Aid, 2006 107
Figure 47: Mutual Aid Provided by CCFD5, 2006 107
Figure 48: Mutual Aid Received by CCFD5, 2006 108
Figure 49: Current Travel Time Coverage 110

Figure 50: Flashover Timeline 113
Figure 51: National Response Time Analysis, Structure Fires 116
Figure 52: Response Time by Call Type, 80th Percentile 119
Figure 53: Average Response Time by Day of Week 120
Figure 54: Response Time by Day of Week, 80th Percentile 120
Figure 55: Response Time by Hour of Day, 80th Percentile 121
Figure 56: Average Response Time by Apparatus/Unit 122
Figure 57: Average Response Time Histogram 123
Figure 58: Incident Response Summary Table 123
Figure 59: Training Support Table 128
Figure 60: Training Competencies Table 129
Figure 61: Training Resources Table 132
Figure 62: Leadership Training Table 134
Figure 63: Training Records Table 134
Figure 64: Recommended Inspection Frequency 139
Figure 65: Codes and Inspection Table 140
Figure 66: Fire Safety/Public Education Table 142
Figure 67: Typical Property Tax Revenue Flow for Fire Districts 159

Executive Summary

Purpose of the Report

This report details the study of current organizational and delivery services in Cowlitz County Fire District #5 (CCFD5). It provides a thorough and detailed evaluation of the agency, its management, assets, operations, and service delivery. The report provides observations and findings, as well as strategies and recommendations for changes or improvements in the overall operation of the fire district.

The recommendations and suggested changes contained herein will be considered by members of the district for inclusion in a strategic plan that is being facilitated by ESCi.

ESCi wishes to thank the staff and elected officials of the CCFD5 for the excellent cooperation we received. All involved were candid in their comments and provided a large amount of information and data in a short amount of time.

Methodology

The approach used by ESCi in performing the evaluation includes utilization and analysis of statistics, review of documents, interviews with key staff and various agency representatives, and direct observation of facilities and apparatus. Information was collected on a variety of important topics pertaining to the quality of fire and emergency services.

This information was used to develop specific *recommendations* for the fire district. The recommendations represent opportunities to improve the quality of service provided to the community.

Contrary to popular belief, these types of evaluations are not normally conducted on organizations that are suffering serious problems. Instead, evaluations of this type are primarily directed at organizations that may be experiencing growing pains or are looking for creative and innovative ways to handle the challenges of the future. Such is the case for the Cowlitz County Fire District No. 5.

Background Information

This report includes a detailed review of the fire district and its various programs. The agency evaluation is arranged by the ten survey objectives shown below:

- Community Baseline and Organizational Overview
- Management Components
- Planning for Fire and Emergency Services
- Risk Management
- Planning Systems and Resources
- Personnel Management
- Staffing
- Capital Assets Management
- Emergency Services Delivery
- Training Program
- Fire Prevention Program

The criteria used to evaluate the fire district have been developed over many years. This report includes relevant National Fire Protection Association standards, the Center for Public Safety Excellence (CPSE), health and safety requirements, federal and state mandates relative to fire protection, fire protection standards of the property insurance industry, and generally accepted practices within the fire and emergency services.

Each survey objective provides the reader with general information about that element, as well as specific observations and analysis of any significant issues or conditions that are pertinent. Observations are supported by data collected as part of the survey and interview process. Specific recommendations are included to resolve identified issues and concerns or to take advantage of opportunities that may exist.

In addition to these evaluation objectives, the fire commissioners requested that ESCi assess the overall morale and organizational culture of CCFD5. This process was conducted through nearly a dozen interviews of employees, members, the public, and others who regularly observe the district's operations. Discussions of the findings are included in this study in the ten evaluation objectives.

Summary of Recommendations

After completing the ten-objective evaluation of Cowlitz County Fire District No. 5, ESCi assembled a list of recommendations for improving current functions of the agency. Individual narrative text describing the issues associated with these recommendations may be found in the appropriate sections of this report.

It should be noted that district staff, while engaged in their day-to-day responsibilities, have already accomplished some of the recommended changes.

Methods for Prioritization of Recommendations

While it may seem as if this list of recommendations is long, the content of the recommendations varies from rather insignificant issues that are easily and quickly dealt with to major organizational changes that will take some time to accomplish.

ESCi considered the following criteria when rating the priority and relative significance of the recommendations. The recommendations have been listed by priority from greatest to least significance.

1. **Issues affecting safety** – Deals with an improvement or initiative that solves an issue that has the potential to affect the safety of firefighters and/or other district personnel or the public. These are not matters that simply make it easier to do a particular function but, in fact, make a potentially unsafe situation safe.

2. **Issues presenting legal or financial exposure** – Resolves a situation that is creating or has the potential to create the opportunity for legal action against the district or its members. It also may be a situation that could subject the district to a significant expense.

3. **Issues that correct a potential deficiency** – Addresses a situation that, while it doesn't create an immediate safety risk to personnel or the public, it does affect the district's ability to deliver service in accordance with its standards of performance. For example, adding a response unit to compensate for a growing response workload, or delivering training needed to allow personnel to deal effectively with emergency responses already being encountered.

4. **Issues that enhance delivery of external or internal services** – Improves the delivery of a particular service. For example, relocating a fire station to improve response times to a particular part of town, or adding a piece of equipment that will improve the delivery of a service.

5. **Issues representing best practices** – Doesn't fit within any of the above priorities, but is still worth doing.

Figure 1: Summary of Recommendations

Issues Affecting Safety
Appoint and train a safety officer or lead person to oversee the safety program.
Develop a risk management program.
Strengthen the role and representation of the safety committee in accordance with the recommendations found in WAC 296-305 and NFPA Standard 1500.
Establish a system to appoint a qualified and trained safety officer to all working fires and major incidents
Review and revise Standard Operating Guidelines as needed and make significant additions in the areas of emergency operational procedures, non-emergency procedures, and safety procedures.
Update current pre-fire plans prioritizing the high hazards occupancies first.
Develop tactical plans for target hazards.
Regularly tour and train at the target hazards.
Review incidents involving employee/member incidents or accidents/damage with fire district assets.
Regularly inspect the fire stations for safety issues.
Install automatic exhaust removal systems in the stations that do not have them.
Issues Presenting Legal or Financial Exposure
Publish policies on workplace harassment and reporting of wrongdoing.
Establish a public complaint procedure; train all personnel on its application.
Update current finance policy to include practices using fire district credit cards. (Completed)
Adopt a formal policy on attendance to conferences, educational events and seminars.
Conduct and update a thorough review of current assets.
Develop an ongoing asset control system for items above a certain cost threshold. (Completed)
Establish a funding formula for the Port of Kalama and the industrial area.
Issues That Correct Current Deficiencies
STAFFING
Hire an additional chief officer (Assistant Chief or Deputy Chief).
Add supervision positions for each shift (Captain or Lieutenant) in order to transfer daily training, work supervision, project management and other administrative functions from the Fire Chief.
Increase current part-time administrative position to a full-time position.
OPERATIONS
Develop current standards of coverage to define level of service.
Conduct a current community risk analysis of potential risks and target hazards.
Identify potential types of incidents; develop critical tasking analysis to establish minimum staffing requirements.
FACILITIES
Consider relocation and replacement of Station #51
Update facilities for staffing and other human needs as updated staffing profiles are developed.

Issues That Enhance Delivery Of External Or Internal Services
Pass an EMS levy.
Develop a Customer-Centered Strategic Plan.
Establish a citizens' advisory committee to provide community input.
Conduct periodic community surveys.
Develop a fire district planning model to involve all areas of the fire district.
Delegate the overall planning and operational planning functions to a series of committees.
Develop fire district goals and objectives at every level for each division.
Identify and establish levels of service.
Conduct more detailed collection and dissection of incident data
Work toward the establishment of pre-designated mutual and automatic aid systems.
STAFFING RECOMMENDATIONS
Explore creative staffing models for career personnel to maximize use throughout the peak demand hours
Explore other creative staffing models using part-time operational personnel such as residents, apprentices, and available volunteer personnel from other surrounding jurisdictions to fill serious service gaps.
Implement a mandatory sleeper program for volunteers.
Consider alternative and creative staffing models using a variety of trained firefighters and supervisors to staff Station 52 and eventually Station 53.
Add another engine to the Station #51 fleet.
TRAINING RECOMMENDATIONS
Appoint or hire a Training Officer capable of managing a training program
Develop minimum training standards and competencies for every position in the organization
Develop a comprehensive training and certification roadmap for all positions.
Design and implement leadership training program for all candidates for promotion and acting promotions.
Develop and implement a comprehensive fire district training plan.
Develop standards, requirements, goals and objectives in a programmatic form.
Consider implementing a formal competency-based approach to the training program.
Implement a comprehensive, structured skills maintenance training program.
Require lesson plans for all training sessions and include a Safety Officer where necessary.
Develop a training facilities master plan to add training amenities to the program.
Establish more multi-agency drills and trainings at least quarterly.
Develop a list of critical field SOGs incorporate them in regular training
Develop and implement a centralized, consistent, training data collection and reporting data base under direct oversight of the training officer.
FACILITIES RECOMMENDATIONS
Develop a Facility Master Plan in accordance with establish standards of coverage and the strategic plan.
Install monitored fire and security alarm systems in all facilities – especially the volunteer stations.
Station locks should be changed on a regular basis.
COMMUNICATIONS RECOMMENDATIONS
Conduct regular staff meetings; including representation from volunteers by conducting a monthly night meeting.
Publishing an internal newsletter.
Develop a customer service policy

PREVENTION / EDUCATION RECOMMENDATIONS
Initiate efforts with other jurisdictions to joint fund a lead Fire Prevention person(s) to manage inspection and fire prevention activities in the region.
Develop and contract fire prevention inspection services to the City of Kalama and Cowlitz County.
Add an additional firefighter trained and certified as a fire inspector.
Survey their jurisdiction and establish the number of inspectable properties; classify them by hazard.
Consider initiating a regional public education program jointly funded by neighboring fire departments.
Issues That Represent Best Practices
Complete the Governing Policies to include polices on attending conferences and seminars.
Develop or update documentation in the manner policies and procedures are written, reviewed, updated, and trained on. Appoint a Policies and Procedures Custodian to maintaining policies.
Publish a 'chain of communications' that parallels the chain of command.
Develop a formal, updated personnel manual; distribute to all personnel.
Publish SOGs in a pocket field guide.
Review and update current job descriptions to include performance measures.
Store back-up computer files at a remote location.

Overview of the Report

ESCi has been privileged to work with Cowlitz County Fire District No. 5 (CCFD5) and its career and volunteer staff. In the course of this study, a great deal of technical information and technical data has been compiled, analyzed, and included in this report. In the spirit of providing this information in a fashion that informs, educates, and provides conclusions to make decisions from a broader spectrum, the project team has authored this document more for the policy-makers and citizens of CCFD5 than for the district's staff. While the tendency at times is for consulting firms to provide a technical brief for the professional staff of the fire agency, ultimately it is the 'external customers' and policy-makers that must grasp what has been compiled in order to make educated and confident decisions based upon the full spectrum of information. It is from that venue that ESCi has chosen to present these findings.

The report begins with a discussion about the CCFD5 and Cowlitz County as they relate to the past, present, and future impact on emergency services providers. This discussion is followed by a review and evaluation of the organizational details of CCFD5. During the evaluation and review of the agency, key stakeholders were interviewed to provide local and internal perspective on organizational culture and other significant issues. Additionally, stakeholder meetings were conduced with members of the Port District and the City of Kalama.

The report includes a full evaluation of all administrative, financial, operational and support functions of CCFD5 based on both field observations by ESCi staff and from data provided by the fire district. The evaluation information was provided to the fire district for review and on January 7, 2007, ESCi received a finalized copy of the Evaluation Matrix with the corrections and information provided by the Chief and the District Secretary.

During the course of this report, ESCi employed a comparison model by which the agency is measured against its peers. The model provides a comparative view of organizational and operational elements from a Western (U.S.) Regional perspective of agencies of nearly identical size and operation.

This comparative data has been collected through a study ESCi participates in with the National Fire Protection Association (NFPA) and the National Fire Academy.[1]

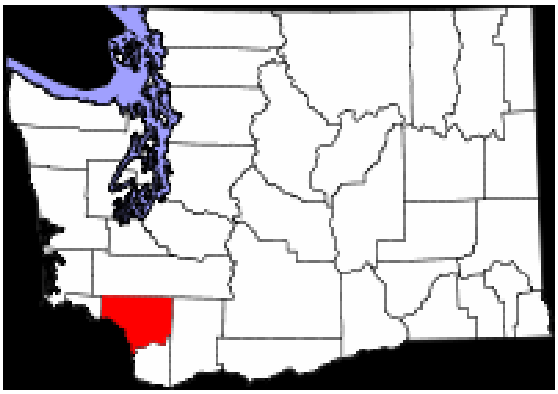
[1] Comparison data from the National Fire Protection Association *Fire Department Profiles 2005*. This report is based on two data sources: the annual NFPA Survey for U.S. Fire Experience, 2005, and the NFPA Fire Service Survey, 2002-2004. The annual fire experience survey is a sample survey of fire departments in the United States, which serves as the basis for making national estimates. The sample is stratified by the size of the community protected by the fire department. Survey returns in recent years have ranged from 2,800 to 3,500 departments annually. National projections are made by weighing sample results according to the proportion of total U.S. population accounted for by communities of each size. The NFPA Fire Service Survey is a three year cycle survey which attempts to survey about one third of the states in the country each year. The survey includes questions on the number of career firefighters, the number of volunteer firefighters, length of work week, number of apparatus and stations, etc. In recent years, the survey has had a response rate of about 30% from departments.

Objective One: Community Baseline and Organizational Overview

The following discussion provides the reader an overview of Cowlitz County and the City of Kalama (City), CCFD5's largest customer, and a brief history of the district. It is vital to this report and to the outcomes of the recommendations that information be provided at the *governance* and *jurisdictional* level of both the county and the City in order to establish 'external factors' which are critical to emergency services operations.

Cowlitz County

Cowlitz County is home to approximately 96,000 residents. Roughly 67 percent of those live in the incorporated cities of Castle Rock, Kelso, Longview, Kalama, and Woodland. The remaining 33 percent live in rural, unincorporated communities such as Ryderwood, Toutle, Yale, Silver Lake, Lexington, Ariel, and Cougar.



The county covers 1,166 square miles within the southwestern region of Washington. 28 square miles (2.37 percent) of the county is in water; the remaining 1,138 square miles is landmass.

The county seat is the city of Kelso. The largest city in Cowlitz County is Longview. Once known as the "Timber Capital of the World," Cowlitz County is home to Douglas fir, hemlock and western cedar trees which cover much of its rugged terrain. Cowlitz County still produces a large supply of logs and finished lumber for domestic and international markets but has become more economically diversified.

Adjacent transportation corridors including Interstate 5, the Columbia River, and a major rail line, have allowed Cowlitz County to access major markets throughout the world. Recently, Cowlitz County has become known for its tourist attractions and tourism has become a growing industry.

The May 18, 1980 eruption of nearby Mount St. Helens forever changed the landscape and the role tourism plays as an industry in Cowlitz County.

Cowlitz County Fire Protection Agencies

Cowlitz County emergency fire protection, medical, rescue and special operations services are provided by:

- Cowlitz County Fire District #1
- Cowlitz County Fire District #2
- Cowlitz County Fire District #3
- Cowlitz County Fire District #4
- Cowlitz County Fire District #5
- Cowlitz County Fire District #6
- Cowlitz County Fire District #7
- City of Longview
- City of Woodland
- North County EMS
- American Medical Response (AMR)

Cowlitz County Fire District No. 5

Cowlitz County Fire District No. 5 is the jurisdiction designated to provide fire protection, emergency medical response, rescue, and other emergency and non-emergency services to Kalama and 56 square miles of Cowlitz County. The fire district jurisdiction encompasses the entire municipal limits of the City.

History

The Kalama Volunteer Fire Department was organized on September 3rd, 1924. Its original 16 members were charged with protecting the properties within the Kalama community with no compensation for the job. Any monies collected for were turned into the treasury and used for purchase of equipment and to plan for the future.

July 23rd, 1965, Cowlitz County Fire District #5 was created in accordance with provisions of Chapter 34 of the Sessions Laws of 1939 through a special election held on July 20th, 1965. As the Kalama community had grown, emergency response to the rural areas had increased.

Emergency services had now grown from the City to 22 square miles. Though the coverage area had increased, the two entities, Kalama Volunteer Fire Department and Cowlitz County Fire District #5 operated together. Jointly housed in the fire station located at 320 N. 1st Street, personnel trained and responded together, yet the apparatus deployed depended on the location of the emergency. If it was a call in the city, the city truck went. If it was a call in the district, the district truck went.

The two organizations co-existed until 1982 when Cowlitz County Fire District No. 5 annexed the City and an additional 34 square miles. At the same time a new station was built with all equipment and operations being moved to that location. Still in use today, Headquarters Station No. 51 located at 382 NE Frontage Road houses the district's ALS transport units, career staff on duty for response, administrative staff, fire response apparatus, and is the main point of contact for the community.

Currently Cowlitz County Fire District No. 5 is a combination fire and emergency medical services department operating from three stations located in the Kalama area. They respond to mitigate over 700 emergency incidents annually in a 56 square mile area of South Central Cowlitz County and serve a population of just over 5,300 residents with a large industrial community.

Current Operations

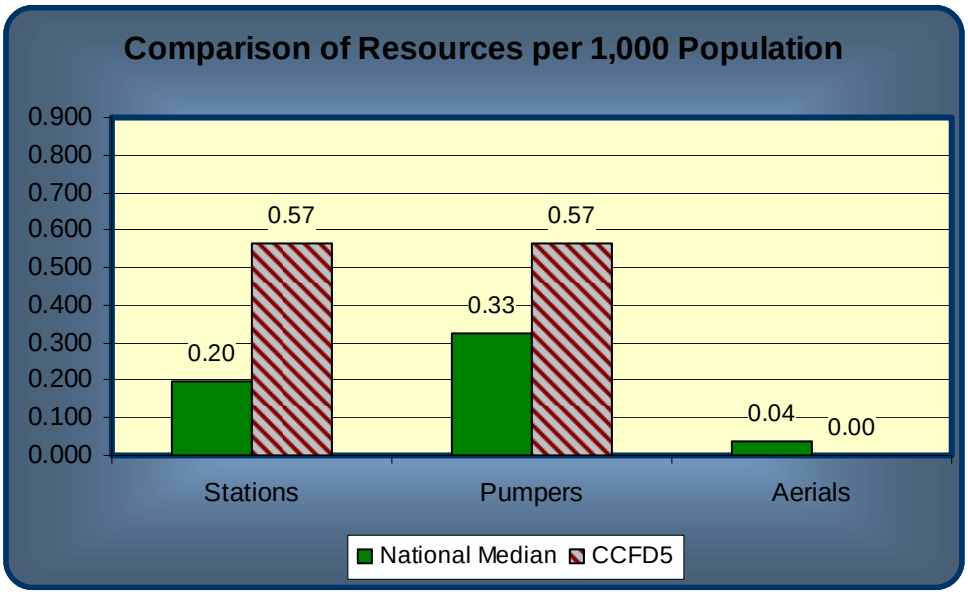
CCFD5 provides emergency services to a population of 5,365 in an area of roughly 56 square miles.[2] These services are provided from three facilities located within the jurisdiction. The district maintains a fleet of vehicles including three fire engines, two water tenders, two ALS ambulances, one medium rescue vehicle, two wildland firefighting vehicles, two command vehicles, a fire boat, and an auxiliary truck.

There are 34 individuals involved in delivering these services to the jurisdiction.[3] The district has a fire chief and two clerical staff. Primary staffing coverage for emergency response is through the use of career firefighters and firefighter/paramedics operating on 24-hour shifts for initial response backed up by an operational volunteer force of 28 personnel.

[2] Current number at time of field research.
[3] Current number at time of field research.

The following figure provides an overview of the CCFD5's fire suppression resources and compares these with the average rate of resource allocation in other communities of similar size within the same region of the United States.

Figure 2: Resource Allocation Comparison



The above chart indicates that CCFD5 has a higher than median allocation of stations for communities of similar population. The district also has a higher than median number of pumpers. The district does not have an aerial device.

The district provides a variety of services including fire suppression, emergency medical first responder and ALS services, victim rescue, operations-level hazardous materials response, maritime response, and public fire safety education.

The Cowlitz County Communications Center located in Kelso provides emergency call receipt and dispatch service. Enhanced-911 telephone service, computer-aided dispatch, and a multi-channel radio system are in place.

Responsibilities and Lines of Authority

Cowlitz County Fire District No. 5 is a fire district formed under the laws of the State of Washington and operates as a statutory, quasi-state agency that is provided the authority to levy taxes for operating a fire protection system and emergency medical services.[4]

The fire district operates under a fire commissioner form of government. The three-member Board is provided with broad power and authority to govern the provision of fire protection and emergency services within the fire district including: organizing a fire protection system, appointing officers and members, purchasing land and equipment, entering into contracts, issuance of bonds, and levying of taxes.

The fire district does not have a formal, written business model in place defining the services of the fire district. Service levels and priorities will be addressed in the upcoming Strategic Planning process.

The role and authority of the fire commissioners is not defined in the commissioner's policy book describing their function and tasks. The fire commissioners maintain strictly policy-level involvement, avoiding direct management and hands-on task assignment.

Figure 3: Lines of Authority Table

Survey Component	Cowlitz Co. Fire District No. 5
Municipality/corporation established	Yes–by adopted resolutions
Organization defined	Yes
Business model established	No
Governing body authority defined	In progress
Governing policies established	Yes

The fire chief is an at-will employee and is provided a formal personal services contract. The fire commissioners provide written evaluations of the chief's performance as a means of documenting effectiveness and establishing personal goals.

[4] Title 52, RCW.

Foundational Policy

Organizations that operate efficiently are typically governed by clear policies that lay the foundation for effective organizational culture. These policies set the boundaries for both expected and acceptable behavior, while not discouraging creativity and self-motivation.

A comprehensive set of departmental operating rules and guidelines should contain at least two primary sections. The following format is suggested.

1. Administrative Rules – This section would contain all of the rules that personnel in the organization are required to comply with at all times. Administrative Rules, by definition, require certain actions or behaviors in all situations. The board of fire commissioners should adopt or approve the Administrative Rules since the chief is also subject to them. However, the district should then delegate authority to the chief for their enforcement on district personnel. The Administrative Rules should govern all members of the district: paid and volunteer. Where rules and policies require different applications or provisions for different classifications of members, these differences should be clearly indicated and explained in writing. Specifically the Administrative Rules should contain sections which address:
    - Public records access and retention
    - Contracting and purchasing authority
    - Safety and loss prevention
    - Respiratory protection program
    - Hazard communication program
    - Harassment and discrimination
    - Personnel appointment and promotion
    - Disciplinary and grievance procedures
    - Uniforms and personal appearance
    - Other personnel management issues

2. Standard Operating Guidelines (SOGs) – These should contain “street-level” operational standards of practice for personnel of the district. SOGs are different from Administrative Rules in that variances are allowed in unique or unusual circumstances where strict application of the SOG would be less effective. The document should provide for a

program of regular, systematic updating to assure it remains current, practical, and relevant. SOGs should be developed, approved, and enforced under the direction of the fire chief.

CCFD5 has developed an extensive set of policies and procedures. In addition, the district is subject to the executive directives issued from the fire chief's office.

Though no formal process policy has been adopted for the development, review, update or adoption of policies, there is uniformity and consistency in the current policy manuals.

Most of the CCFD5 policy documents were reviewed for quality and content. The documents are well organized, and it appears that a great deal of time went into writing the various policies and procedures in a professional and clear manner. The CCFD5 documents include most of the appropriate policies either required by law or focused on reducing the risk of civil liability.

While administrative polices are relevant and fairly complete, there are significant gaps in updated SOGs for emergency incidents. Again, following the recommended format discussed earlier, the Standard Operating Guideline policies should be expanded to include a greater collection of guidelines for actual incident actions. The following is a listing of topics that the district should consider including or updating in its Standard Operating Guidelines.

Emergency Operations SOGs

Alarms and Response Procedures
1. Alarm response procedures
2. Alarm response areas
3. Automatic aid
4. Mutual aid
5. Contractual agreements

Fire Company Operations
1. Standard Company Operations
2. First-to-arrive duties
3. Returning resources to service
4. Use of civilians
5. Fire scene investigations
6. Personal alert safety devices
7. On-scene equipment inventory
8. Personnel Accountability System
9. Two-in, Two-out
10. Initial fireground operations
11. Safety vests
12. Highway incident safety
13. Fireboat ops

Command Operations
1. General strategic guidelines
2. Incident Management System
3. Command Post procedures
4. Welfare / Rehab
5. Helicopter operations
6. Public health considerations
7. Incident critique
8. Area evacuation
9. Incident Command resource request
10. Building evacuation

Firefighting
1. Metal fires
2. Structure fires (General)
3. Operations in sprinklered buildings
4. On-Site auxiliary fire equipment
5. Wildland fires

6. Vehicle fires
7. Industrial fires
8. Bowstring truss roof operations/procedures
9. Carbon Monoxide hazards
10. Thermal Image camera

Medical Emergencies
1. Operational Guidelines for EMS responses
2. Operations with ALS personnel
3. Unsecured EMS scenes
4. Major EMS incidents
5. Triage
6. Exposure to infectious diseases & HazMat
7. Suspected drug overdose
8. Animal incidents
9. Vial of Life and Medic Alert Tags
10. Attempted/potential suicide
11. Suspected homicide
12. D.O.A. (Dead on Arrival)
13. Suspected child abuse
14. Suspected sexual assault
15. Hospital disaster notification
16. EMS reports (MIR's)
17. EMS radio procedures
18. Narcotics accountability
19. BLS rules and regulations
20. ALS rules and regulations

Electrical Emergencies
1. Electrical emergency operations

Rescue Operations
1. Vehicle rescue & extrication
2. Hi/low angle rescue
3. Confined space rescue
4. Rescue from machinery
5. Water rescue
6. Grain elevator emergencies
7. Cave-in, trench and manhole rescues
8. Building collapse
9. Rescue at structure fires

Transportation Emergencies
1. Interstate Operations
2. Railroad Emergencies
3. Aircraft Emergencies

Hazardous Materials Incidents
1. Hazardous Materials (General)
2. Flammable fuel spill (liquid or gas)
3. LPG emergencies
4. Fumigation emergencies
5. Explosives and bombs
6. PCB's
7. Pesticide procedures
8. Radioactive materials
9. Natural gas filled structures - No Fire
10 Natural gas emergencies - inside structure
11. Natural gas emergencies - Fire
12. Natural gas emergencies - No Fire

Major Emergency Operations
1. City of Kalama Emergency Plan - Fire District Annex
2. Cowlitz County Emergency Plan – Fire District Annex

Law Enforcement Liaison
1. Law Enforcement Liaison - General Operations

Several model documents are available through industry trade organizations.[5] The resulting document should be considered for publication in a pocket-sized field guide format.

The fire district maintains legal counsel with a leading legal firm specializing in Washington State fire districts. Legal counsel relating to labor relations and labor-related legal issues is provided by a labor law firm in the Puget Sound region.

The fire district has policies in place that provides guidelines and controls of its financial operations. Though in need of updating, the fire district has adequate checks and balances in

[5] A variety of sample documents is available from the Western Fire Chiefs Association (WFCA), National Fire Service Library.

the manner in which it controls its financial matters. This was confirmed in the review of the last two audit documents provided by the Washington State Auditor's office.[6]

It is noted that a significant amount of financial resources are expended annually on conferences and seminars. The fire district should consider establishing a policy defining and limiting the number and type of out-of-county events officials and members may attend based upon direct benefit to the fire district.

The fire district does not have an accurate, up-to-date inventory of its assets. It also does not have policies or procedures in place with which to consistently update and control the fire district's current assets. These issues should be addressed in the anticipated Strategic Plan.

Our review indicates that meeting notices, official public meetings, minutes and fire commissioners business are in compliance with the requirements of state law.

Figure 4: Summary of Organizational Controls

Survey Component	Cowlitz Co. Fire District No. 5
Organizational, operational policies, rules and regulations established and maintained.	No formal policy adopted. No policy for scheduled review, but Chief/D-S regularly review and update. No specific responsibility assigned for maintaining policies. Policies discussed and distributed to members and employees. Annual review.
Legal counsel maintained.	Yes.
General counsel.	Clark and Brian Snure.
Labor counsel.	Bruce Schroeder.
Financial controls established.	Yes.
Financial policy in place.	Purchasing policy in place.
Internal controls in place.	Yes; Commissioners; career staff; not formally adopted by policy.
Internal audits conducted.	Yes; Commissioners; career staff; not formally adopted by policy.
Credit card/petty cash controls defined.	Outdated petty cash policy – gas cards/Home Depot and credit cards.
Accurate/updated inventory.	System in place.
Inventory/asset controls.	Yes- divided up among staff members.
Periodic external audits.	State of Washington Audit.
Public business/public process.	
Meetings conducted according to statutes, organizational policies	Yes
Governing body minutes maintained.	Yes-District Secretary.
Availability of minutes.	Kept in Minutes book in district office.

[6] Washington State municipalities are regularly audited by the Washington State Auditor's Office for all aspects of financial policy, financial management, and compliance with state law.

Recommendations

- Board of Fire Commissioners should complete the Governing Policies Manual and include polices on attending conferences and seminars.
- Publish or clarify policies on workplace harassment and reporting of wrongdoing (whistleblowers).
- Develop or update documentation (policy) in the way policies and procedures are written, reviewed, updated, and trained on. Appoint a Policies and Procedures Custodian to take the lead in maintaining said policies.
- Review and update Standard Operating Guidelines as needed and make additions to emergency operational, non-emergency, and safety procedures.
- Consider publishing SOGs in a pocket field guide.
- Develop a list of *Critical Field SOGs and incorporate* them into regular training exercises.
- Update finance policy to include a policy on the use of fire district credit cards.
- Adopt a formal policy for attendance at conferences, educational events, and seminars.
- Conduct a review of capital assets.
- Develop an asset control system.

Organizational Structure

A well-designed organizational structure and subsequent organization chart should reflect the efficient assignment of responsibility and authority, allowing the organization to accomplish effectiveness by maximizing distribution of workload. An organizational chart clarifies accountability, coordination, and supervision. The chain of command is the recognized chain of communication for organizational business and authority.

The organizational structure of the district demonstrates a clear unity of command in which each individual member reports to a designated supervisor (within the context of any given position) and is aware to whom he or she is responsible for supervision and accountability. This method of organization encourages structured and consistent lines of communication and prevents

positions, tasks, and assignments from being overlooked. The overall goals and objectives of the organization can be more effectively passed down through the rank and file members in a consistent fashion.

A review of CCFD5's organizational chart reveals that it is organized in a typical top-down hierarchy. The chart indicates a clear chain of command and identifies distribution of responsibility and functions.[7]

The organizational structure is charted with clear, designated divisions that permit the core functions of the organization to be the primary focus of specific supervisors and assigned members. Those individuals supervising or operating within a specific division are positively clear as to the role of the division and its goals and objectives.

There should be a written, adopted, and posted chain of communications document parallel to the chain of command clearly defining the methodology and process for organizational communications. Both of these documents should be readily available to all members and periodically a part of the training curriculum.

Every organization should have clear and concise job descriptions for each position. Thorough and up-to-date job descriptions should provide the details for each position and ensure that each individual's specific role is clear and centered on the overall mission of the organization. Job descriptions only make up a portion of the effective communication of a position's specific requirements. Each job description should include specific performance measures to ensure that all of the requirements of the job can be measured and quantified.

CCFD5 maintains a thorough set of job descriptions that accurately reflect the typical responsibilities and activities of each position. The documents adequately describe the primary functions and activities, critical tasks, levels of supervision, and accountability, as well as reasonable qualifications for each position. CCFD5 does not include performance measures in any job description or classification.

[7] A copy of the CCFD5 organization chart and is included as an appendix of this report.

The chief executive officer (fire chief) supervises three individual groups – the career personnel (6), the volunteer officers (5), and the administrative staff (2). The chief's span of control falls outside of the range typically considered normal and acceptable. This is evidenced by the number and diversity of the work groups the fire chief directs and supervises.

Figure 5: Summary of Organizational Structure

Survey Component	Cowlitz Co. Fire District No. 5
Structure type.	Fire District (Special Purpose District)
Descriptions and performance standards of all jobs maintained.	Job descriptions are complete and current No job performance standards
Job descriptions updated.	No process
Employment agreement(s)	
CFO	Yes
Deputy Assistant chief	N/A
Captain	N/A
Firefighter	Collective bargaining agreement
other uniformed employee	No
Clerical	District policy
Performance evaluations	Yes.
Chain of Command	
Organizational lines of authority/ communications defined - practiced	Chain of command: Yes – by policy Chain of communications: No
Unity of command	Yes
Span of control	
Chief	Three groups: Career FF/PMs (3) EMTs (3) Volunteer Officers (5) Admin staff (2)
Mid-management supervisors	Career –none Volunteers – 5
Line/Company Officers	N/A
Hiring/firing authority	Board of Fire Commissioners

Maintenance of History

CCFD5 has a program for the retention of its history. Appropriate records of all regular and special meetings are maintained in accordance with the laws of the state governing various types of public meetings and decisions involving public funds. This is the primary function of the fire district secretary.

A well produced annual report can serve to satisfy this need. In addition, an annual report is a wonderful communications tool to share the efforts and activities of the district with the public.

The annual report should be printed and distributed to the community and made available at such places as the local chamber of commerce and library. At a minimum, an annual report should include:

- Brief history of the district.
- Summary of events and activities during the report year.
- Description of major incidents handled by the district.
- Descriptions of new or improved services and programs.
- List of people who served with the district during the year.
- Awards received by the district or individuals.
- Financial summary including revenues and expenditures, grants, etc.
- Statistical analysis, with trends, of key community service level indicators.

CCFD5 produces an informative, colorful Annual Report.

The district also maintains items of historical significance, including pictures, newspaper articles, etc. These are helpful when updating a historical perspective of the organization and the major events in its development. A regularly maintained historical record serves as a valuable tool for planning and decision-making. It allows quick recollection of how the district has adapted to changes in the community. It provides valuable historical data to agencies such as the Washington Survey and Rating Bureau for evaluation purposes. It also allows for permanent memory of the people who have contributed to the success of the district in its service to the community. The district's Administrative Secretary has accepted responsibility for this function.

Recommendations

- Review and update current job descriptions to include performance measures for each position.
- Publish and distribute a chain of communications procedure that parallels the chain of command so that all members can be informed the path of fire district communications.
- Conduct a staffing analysis; immediately add one additional staff officer and consider potential for adding a supervisory position for each shift.

Financial Profile

Financial analysis is an important part of the evaluation of an organization. To this end, ESCi has reviewed the financial program for CCFD5.

Taxation within CCFD5 is in accordance with the provisions of the Washington State Constitution.[8] RCW 52.12.021 further grants fire protection districts the authority to levy and enforce the collection of "*taxes and special taxes in the manner and within the limits provided in Title 52 RCW against all lands located within the district".* (Italics added.)

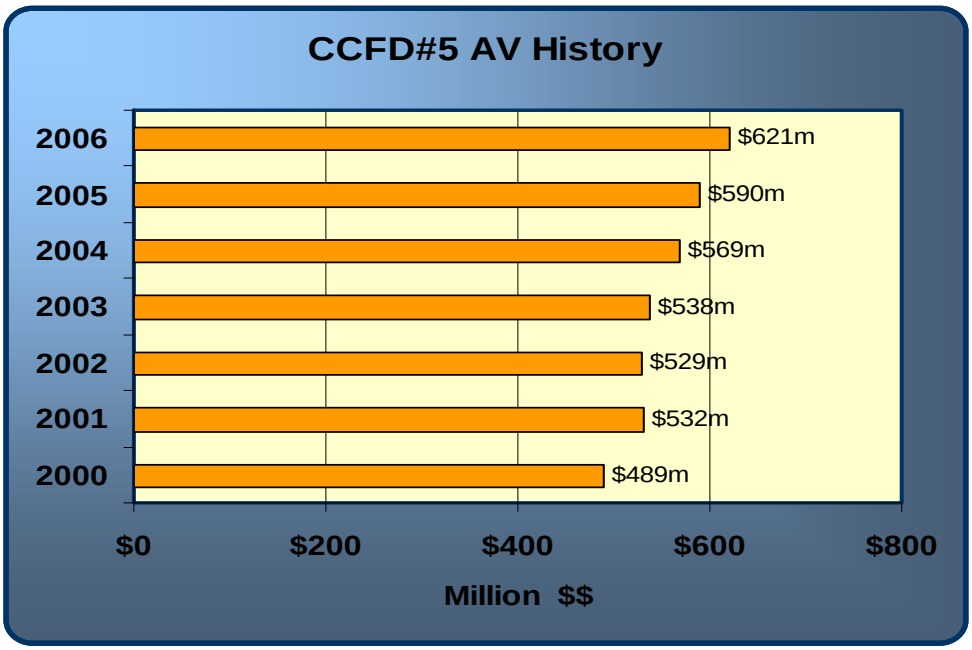
The law, establish in 1939, allowed for the collection of property tax by fire districts up to $1.00 per $1,000 of assessed value on 'improved property'. This levy rate was increased later to $1.50 provided the fire district employed one or more full time employees.

As discussed briefly in the introductory portion of this section, municipal agencies generally have multiple forms of revenue of which property tax plays a lesser role than with fire districts. With fire districts, the primary revenue source for funding the operation lies with the collection of a fire protection property tax levy and an emergency medical services property tax levy--which is why comparing assessed property values becomes foremost in a financial overview. In most fire district budgets, 60 percent of the annual funding comes from the collection of a fire protection levy; 25 percent of the revenue is generated by the collection of a levy for emergency medical services; and the remaining funds come from other sources of revenue such as EMS transport billing, contracts, fees from school districts, investment revenue, and other minor contributors. In the case of CCFD5, there is no EMS levy and, therefore, the largest portion of the fire district's revenue is generated by property tax received for the regular fire tax.

Having provided a background on the importance of property tax, Figure 6 (on the following page) illustrates the historical growth trend for assessed value of property in CCFD5's jurisdiction.

[8] Article XI, section 12, provides that the state will vest the power to assess and collect taxes with a public municipality.

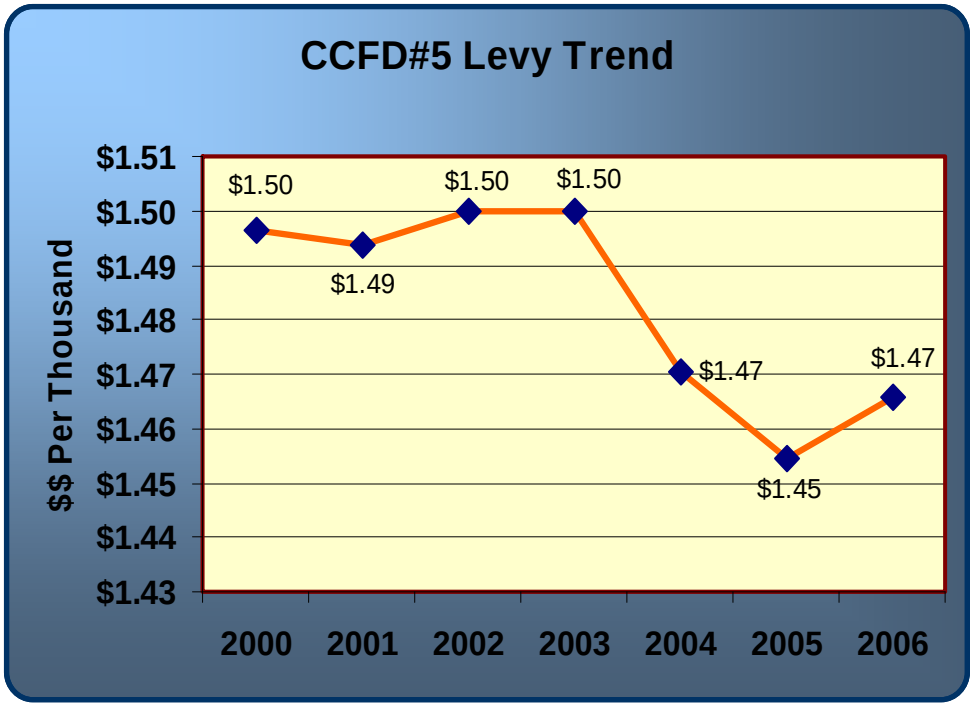
Figure 6: Assessed Valuation History, 2000 – 2006



Cowlitz County is described as a low growth area from an economical and development standpoint. Figure 6 illustrates that CCFD5's assessed valuation grew approximately $132 million from 2000 to 2006 (approximately three percent per year). The effect of this low growth is shown further in Figure 7 by the property tax rates the fire district levied over the same period. With assessed valuation growing at a moderate rate, the property taxes the fire district was able to levy remained stable over the reporting years varying by no more than five cents per $1,000.

The tax levy decline in years 2004-2005 was a result of a re-evaluation of property values causing the tax limitation cap to drive the tax rate temporarily down.

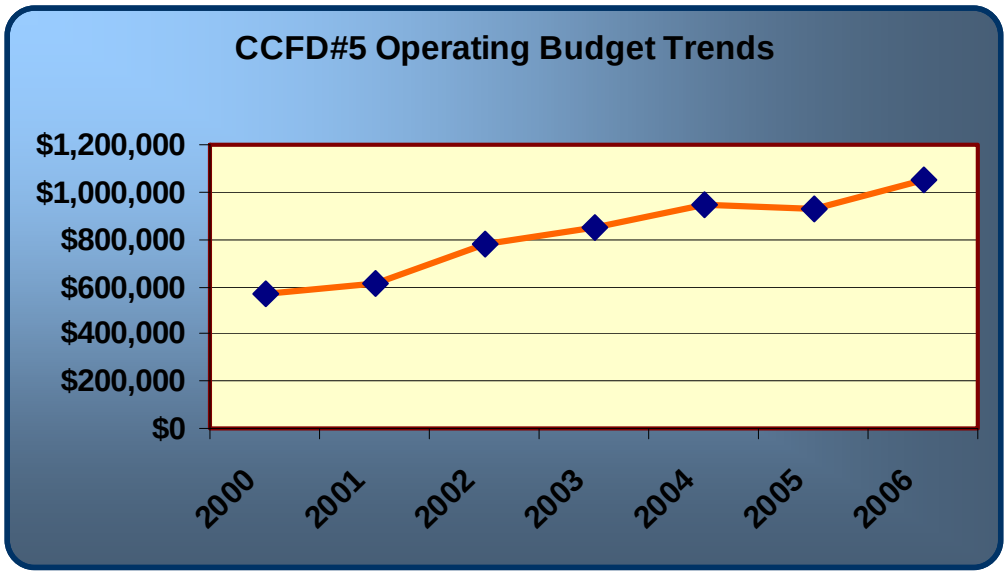
Figure 7: History of Property Tax Levy, 2000 - 2006



The following chart illustrates the operating budget history of CCFD5 has experienced a moderate increase in its operating budget during the past seven years, mirroring the AV growth and tax levy rates indicated earlier.

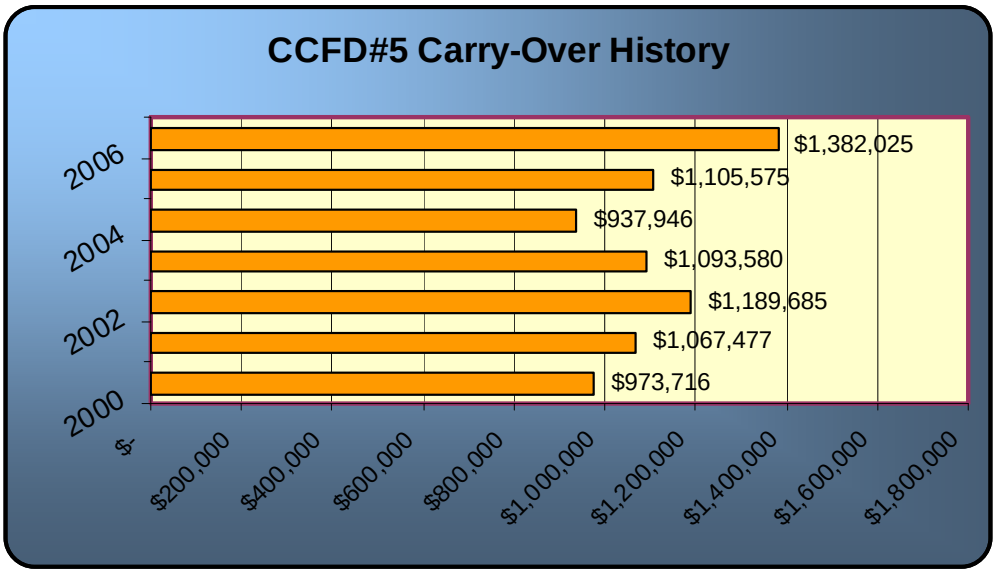
The fire district's largest revenue source is property tax. The following chart provides a visual display of the incremental receipt of property tax revenue over a period of 12 months. As seen, tax receipts are noticeable until April-May of any given year. This means that fire districts bank or carry-over substantial amounts of funds from a previous year's budget to fund operations for the first quarter of the ensuing year.

Figure 8: Operating Budget History, 2000 - 2006



CCFD5 has a responsible approach to the carry-over amounts generated over the reporting period. Adequate funding is held back to continue CCFD5 business during the January-April period as shown in Figure 9.

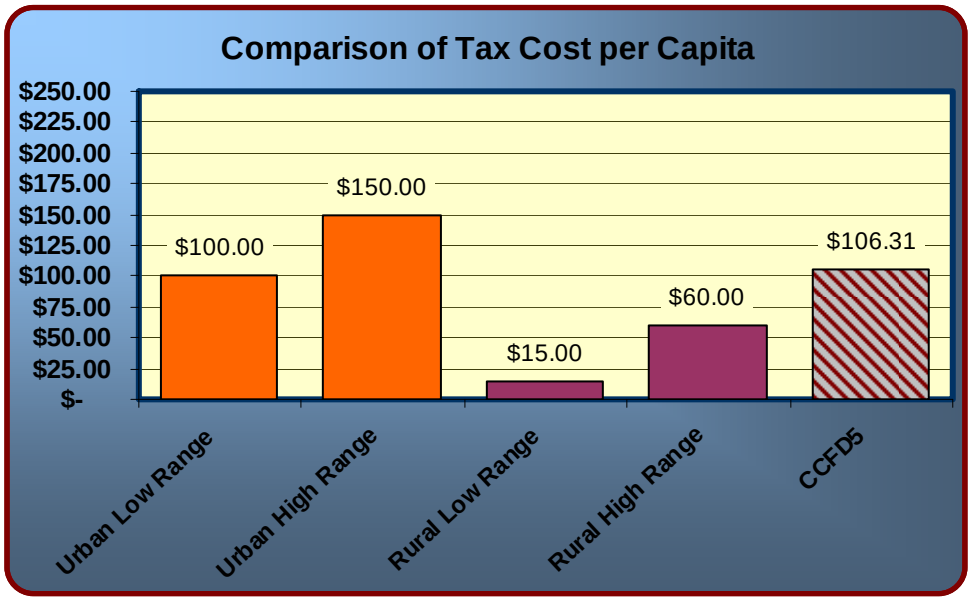
Figure 9: History of Cash Carry-Over, 2000 – 2006



A financial study often compares the cost-per-incident against other peer agencies. Because CCFD5 did not provide local peer agencies with which to compare, ESCi was not able to provide a comparative look at the cost-per-incident ratio with other agencies of similar size in the area. The cost per incident for CCFD5 in 2006 was $1,663.23.

Given the population receiving direct services from CCFD5, the following chart demonstrates tax costs per person[9] and contrasts this with other smaller and larger communities. CCFD5's tax cost indicates a higher tax cost per capita when compared to a strictly *rural* perspective; conversely, the CCFD5 tax cost compared in a more urban setting settles near the bottom of the comparative range. Overall, CCFD5 provides an economical level of service to its taxpayers.

Figure 10: Cost Per Capita



Cost Recovery Efforts

For most emergency service systems, major cost recovery options are limited. Possibilities exist in the area of contracts for service, hazardous materials response, emergency medical transports, and billing for services for out-of-district patients/victims.

[9] Department-generated revenue is deducted from expenses in order to derive the tax cost.

CCFD5 charges an EMS fee for its medical transports. Effort is made in contracting for services to recover some of the costs of providing the service in lieu of an EMS levy.

Other sources of revenue may be derived from response to hazardous materials incidents where *spiller pays* laws often require that districts are reimbursed for mitigation efforts. However, this is typically limited to actual documented expenditures and, with the exception of very busy hazmat teams, provides little predictable revenue income.

Some fire districts have initiated billing for fire suppression, rescue, or vehicle accident responses to non-resident personnel involved in the incident. Most insurance carriers provide coverage for such fees, thus the revenue is worth the political and public relations challenges as well as the administrative efforts for collection.

A significant financial challenge to CCFD5 is those properties, structures and processes currently located in the Port of Kalama industrial area. At the time of this report, the port region maintains one of the area's largest property values; the single most concentrated area of hazardous processes, and the highest degree of target hazards the fire district faces. Yet the fire district is not compensated in any fashion for response, training, or equipping for the potential disasters. While conversations have occurred between the district and the Port, no formal solution has surfaced to bridge the financial inequities of the current arrangement.

Recommendations

- Take advantage of opportunities for revenue by passing an EMS levy to fund the current EMS program. Currently, with EMS responses at approximately 62 percent of the district's total call volume, the majority of tax money collected for fire protection is subsidizing a program that has its own funding mechanism.
- Place high priority on establishing a funding formula for the Port of Kalama and the industrial area in order for those properties to pay their fair share of fire district costs.
- Funds obtained by these two sources should be used to fill identified service and staffing needs of the District.

Objective Two: Management Components

As with most emergency service agencies, CCFD5 faces challenges to organizational growth and management. In addition to the continuing growth of the community and workload, the management, leadership and supervision of career and volunteer personnel always presents unique issues involving the consistency and adequacy of response, maintenance of competencies, and recruitment of future workforce. Additionally, CCFD5 lacks adequate staff resources to consistently address the future challenges to the fire district.

This section of the report examines the fire district's efforts in this area and preparation for the future health of the organization.

Mission, Vision, Strategic Planning, Goals, and Objectives

The process of strategic planning involves clarifying an organization's mission, articulating its vision for the future, and specifying the values within which it will conduct itself.

CCFD5 has not completed a strategic planning process that involves the internal and external stakeholders of the organization charting a clear direction for its future. The district's mission statement is valid and up to date and should be distributed to all members and made a part of the daily mission of the fire district. Clear organizational values have not been established or articulated in writing. An organizational vision statement has not been developed or provided enabling readers to identify where the fire district intends to be in the next several years.

Because there has not been a strategic planning process, the fire district has not stated the specific goals and objectives whereby it intends to meet its vision. These goals and objectives would provide clear guidance in decision-making and focus the district's efforts on the most critical issues that will impact its success in the future. In addition, the plan would provide each member with clear direction of the future and how he or she fits into the process.

Strategic planning is a wonderful opportunity to provide input from all ranks of the agency, including career and volunteer firefighters. Wherever possible, broadened participation of the internal customers or stakeholders, as well as public input opportunities, can provide improved levels of communication, stronger buy-in for district goals, and fresh perspectives on critical issues.

Figure 11: Summary Table of Management Components

Survey Components	Cowlitz Co. Fire District No. 5
Mission Statement.	
Developed and adopted.	Recently adopted. Distributed but not displayed.
Periodically reviewed.	Yes.
Regularly integrated in district business, training, operations.	No.
Vision Statement.	
Developed and adopted.	No.
Integrated in planning/budget process.	No.
Organizational Values.	
Developed and adopted.	No.
Strategic Plan	
Conducted and adopted by elected officials	No.
Published and available	N/A
Periodically reviewed.	N/A
Regularly integrated in district business, training, operations.	N/A
Develop District Goals and Objectives.	
Date developed.	Not yet developed.
Periodically reviewed.	N/A
Tied to division/personnel performance statements/plans.	N/A
Objectives linked to programs.	N/A
Performance objectives established.	N/A
Integral part of budget process.	N/A
District levels of internal/external levels of service.	
Levels of service defined	No
Code of Ethics	
Fire District Code of Ethics developed	Yes
Human Resources Goal Statement Established	
Fire District Human Resources Goal Statement adopted	No
Customer Service Policy	
Customer Service policy/statement established	No

Recommendations

- Conduct a Customer-centered Strategic Plan as high priority of the organization.
- Consider public input opportunities as a component of strategic planning to make the process more customer-centered.
- Continue working on identifying and establishing fire district levels of service
- Develop a customer service policy.

Availability of SOGs, Rules, Regulations, and Policies

As discussed previously in this report, policies, procedures and directives do exist in CCFD5. Regardless of the quality or condition of such policies and guidelines, their availability and familiarity to the district's members is critical.

Fire district members reported that administrative policies and rules and regulations are made available to members somewhat inconsistently. This practice needs improvement since it reduces the importance of established policies. A distribution system should be in place to confirm the receipt of revisions or additions to the documents.

Standard Operating Guidelines (SOGs) have not been made available. Members do not consistently have access to the operational guidelines for reference during training sessions and drills and or have them available to study them at leisure. A distribution process encourages the daily use and application of the guidelines and ensures that outdated ones are brought to the attention of management as early as possible.

Critical Issues

It is extremely important that there be a clear understanding of *critical issues* facing the fire district. Without such an understanding, district leadership cannot be prepared to face these issues. In addition, the enunciation of critical issues to employees and members increases their awareness of the organization's priorities and assists them in becoming focused on solutions.

The following issues should be given consideration for inclusion in the final list. These are items that have been identified by the members of the fire district as issues with significant potential for impacting the success of the organization and the effectiveness of its service.

1. Direction: The fire district lacks a vision and/or strategic plan for the future.
2. Funding: A lack of funding has created shortfalls in operational staffing, supervisory personnel, and equipment/facility updates.
3. Response staffing: There are staffing challenges at all levels of emergency response staffing. This includes recruitment and retention of volunteers as well as adding career staff.
4. Administration and support challenges: Increasing operational staff and community growth is generating increased workload for limited administrative and support staff.
5. Port/industrial area: This high hazard jurisdiction creates significant challenges to the fire district and its operations while not contributing from a financial standpoint.

As with all critical issues, it is important for any agency to have an appropriate level of "future" thinking. This permits an agency to identify what internal and external challenges may present themselves to the organization in the coming years. This awareness of future challenges ensures that the agency does not miss out on opportunities or blindly stumble into crisis unprepared.

Figure 12: Summary of District Policies

Survey Component	Cowlitz Co. Fire District No. 5
Policy for adoption/format/revision.	No.
Copies of rules provided.	Yes.
Last date reviewed.	Regularly.
Copies distributed/made available.	No.
Regular review/update.	Yes-reviewed / no method adopted.
Process for development of new SOPs.	Yes – input by employee. Yes – chain of approval.
SOPs used in training evolutions.	Yes.

Internal and External Communications

Quality communications is an achievable goal for any organization, but one that always seems to be most elusive. To its credit, there are several communication processes within CCFD5 that provide opportunities for district personnel to be heard and be involved. However, these can be expanded.

Staff meetings are conducted consistently at CCFD5 on the first working day of each quarter. Consideration should be given to add one more meeting per month to improve district communication as well as daily teamwork and problem solving. In addition, the fire chief should incorporate a five to ten minute update of pertinent district information at the beginning of each volunteer drill session. Regularly scheduled meetings permit personnel to openly exchange ideas on a regular basis, share issues/concerns, apply creative teambuilding/problem solving and improve the overall flow of communications. Consideration should be made to conduct one of those staff meetings in the evening in order for volunteer personnel to attend.

Written and formal memorandums are regularly utilized for distribution of information, ensuring that all members receive critical data in an organized and consistent fashion. This process provides a critical written record of internal communications that are important for organizational efficiency. A systematic method for distribution of written communications is in place and is followed regularly in order to make certain that no members are left out of the information loop. When certain types of critical memos or policies are released, a system should be established for verification of the distribution to all personnel by way of individual mailing or emailing. This system provides a record of confirmation that the information was received and improves accountability.

Opportunities such as open personnel meetings or forums are conducted once a year for the purpose of exchanging and discussing concerns, ideas, or issues directly with the fire chief. Labor-management meeting opportunities are being considered in the latest draft of the collective bargaining agreement. These types of opportunities enhance the feeling of teamwork, open lines of communications, and encourage a feeling of ownership among the members.

An employee/member newsletter has not been initiated by the district. Newsletters provide an excellent opportunity for distribution of internal news and information, as well as less formal information about members such as birthdays, marriages, or personal off-duty accomplishments. Newsletters are especially effective when mailed to member's residences whereby family members have an opportunity to be informed of fire district information.

Fire district bulletin boards are adequately controlled and organized, with information being sorted and updated on a regular basis.

Departmental business e-mail addresses have been issued to all fire district personnel, offering an efficient and verifiable method of information distribution. Individual station/shift mailboxes are provided for all career personnel and volunteer officers which are used to exchange important hard-copy documents and prevent missing or misplaced documents. Voicemail, another modern and useful means of exchanging information, has been put in place for primary staff and volunteer officers permitting other members or the external customer to efficiently and quickly leave personal contact messages.

Various efforts are made to communicate with the public. The fire district publishes a community newsletter for distribution to the public. The newsletter permits the release of specific and detailed information, authored directly by the fire district, to those served by its programs and is an excellent tool for improved public relations.

No formal procedure has been established for handling complaints from the public. Such a policy should be established and all members should be made familiar with its contents in order to make certain such complaints are handled consistently, quickly, and with due process.

An active and useful website is currently maintained at *www.cowlitzfd5.org,* providing an additional means of distributing information and communicating with the public. The site is kept current and provides contact information for major programs operated by the district.

The fire district does not conduct a public survey/questionnaire for the purpose of obtaining customer feedback on service priorities, quality issues, or performance efforts. These surveys, when utilized appropriately, can provide valuable input for organizational planning.[10]

Consideration should be given by CCFD5 to develop a regular Citizen's Fire Academy. Such an academy would have two specific types of participants. The first would be opened only to public and elected officials from jurisdictions served by the fire district. This one-day training opportunity results in a more personal understanding of the needs of today's fire service. Separately, a similarly focused one-day academy could also be conducted for members of the media.

[10] ESCi will be developing and distributing a community wide survey during the months of May and June 2007.

Figure 13: Internal and External Communications Table

Survey Component	Cowlitz Co. FD No. 5
Internal communications.	
Regularly scheduled staff meetings.	Yes – first working day of quarter.
Staff meeting minutes.	Yes – not distributed.
Memos.	Electronically.
Employee/member newsletter	No.
Employee/member forums	One SOD meeting – in proposed union agreement; leadership meetings twice a month; Wednesday night.
Open door policy.	Yes.
Bulletin board.	Yes.
Vertical communications path clearly identified.	SOP – job descriptions – org chart.
E-mail.	All members have email Email policy adopted – computer.
Mail box for each member.	Yes – for career
Voice mail.	Yes – Career staff and Volunteer leadership.
External communications	
Community newsletter.	Sporadically – at least one per year.
Community advisory committee(s).	Care group/joint entity groups.
Complaint process.	Yes. Nothing formally adopted.
E-mail/website.	Yes.
Community survey.	No.
Local community planning organizations.	Yes – Kalama Community Awareness & Emergency Response Group, Kalama Community Planning Commission.

Recommendations

- Conduct regular staff meetings and consider including representation from volunteers by including a monthly night meeting.
- Publish an internal newsletter to improve better communications.
- Establish a complaint procedure for the public; all personnel trained in its application.
- Identify specific dates and frequency a community newsletter will be sent to enable seasonal messages to be incorporated into public education for the residents of the district.

Document Control and Security

Records management is a critical function for any organization. A variety of uses are made of written records and, therefore, their integrity must be protected. State law requires public access to certain fire and EMS documents and data. Clear written procedures are currently in place which provide for public records access and media access through the fire district administrative staff.

Paper records (hard copy files) are adequately secured with passage and container locks with limited access. Important computer files are backed-up to a secure data location on a regular and consistent basis.

CCFD5 has a system in place for documents, records and record keeping. For a fire district of this size and limited staffing, the administration and management of fire district records is excellent.

CCFD5 has a significant investment in facilities, apparatus, equipment and other items, along with its financial assets. Protecting these assets is very important. Stations are reported to be consistently locked and secure from unauthorized entry. Steps have been taken to address security issues where the public enters the building. Public access to the buildings is limited to business areas. Access to other areas should require a district member escort.

Locks should be periodically changed to prevent use of orphan keys and unauthorized entry. No security alarm systems are used to provide for automatic notification of unauthorized entry or break-in. There are no monitored fire alarm systems in the fire stations providing early smoke and fire detection for the buildings, as well as an additional life-safety measure for occupants in the event of a fire. This is especially acute at fire stations that are unstaffed (Station 52 and Station 53).

District computers are programmed with password security on sensitive file access and software to provide an additional level of security and data integrity. Firewall protection is in place for computers accessing the internet and other outside servers. The protection is adequately up to date and capable of preventing most unauthorized network intrusions. Up-to-date virus protection software is utilized on all incoming email and files or operating systems are regularly scanned for undetected virus infection.

The Health Insurance Portability and Accountability Act (HIPPA) includes regulations that require all individually identifiable health care information be protected to ensure privacy and confidentiality when stored, maintained, or transmitted. Medical incident records contain protected medical information and sufficient personal information regarding the patient to create a concern over HIPPA requirements. The fire district has adequate security provisions in place to protect this information.

Reporting and Records

The district's records management system for incidents is effectively computerized. The methods used are fully compliant with NFIRS (National Fire Incident Reporting System) standards. Incident information, activity summary, and other analysis is available.

Personnel records are complete and up to date, and maintained in a manner that protects private medical information. Records are maintained on employment history, discipline, commendations, work assignments, injuries, exposures, and leave time. Financial activities, including budgets, expenditures, revenues, purchase orders, and other encumbrances, are kept in a financial records management data base permitting consistent and up-to-date monitoring of all financial activities and accounts.

The district uses a PC-based computer system, with Windows XP as its primary operating system; all computers in headquarters are networked to a server.

Recommendations

- Change station locks on a regular basis to prevent the use of orphan keys.
- Install monitored fire and security alarm systems in all facilities, especially the non-staffed stations. The use of security cameras could also be considered.
- Maintain back-up computer files at a remote location.

Objective Three: Risk Management

The responsibility of risk management to safeguard the assets of an organization is just as applicable to a fire district as it is to any business. Although their mission is to manage community risk, the fire service needs to be concerned with risk to itself as well. These risks can keep an organization from successfully completing its primary mission. The fire service is open to a variety of risks similar to those faced by every private organization.

There are interesting parallels between a fire district and private enterprise. A risk manager in the private sector tries to protect the assets of the enterprise and ensure that it can stay in business. Similarly, a fire department risk management should try to protect public assets including personnel, facilities, equipment, apparatus, etc. that ensures the district can continue to perform its mission.

As custodians of public funds, risk managers of fire departments must attempt to restrict any undesirable outcome or loss that may cost money, consume public dollars, or reduce the capability to place those funds where they can be most effective.

Risk managers have known the simple truth of this process for years – "If it's predictable, it's preventable." This phrase provides the foundation for the process we call risk management. By reviewing the past losses, the losses and experience of other similar organizations, the national standards created to prevent or mitigate such losses, the fire district can identify positive preventative actions that will keep the risk of loss of life or property at a minimum.

Risk Management Process

Within CCFD5, risk management is provided at the management level. The fire chief is responsible for all risk management functions. Risk management is accomplished on an as-needed basis.

The risk management function of CCFD5 documents the frequency and nature of injuries of fire district personnel. This information, when followed up, can allow targeted injury prevention and reduction education and workplace modifications to be developed and delivered as part of a loss reduction strategy. A fire department management and the risk management function typically should include:

- Periodic safety and risk inspections of fire department facilities
- Review of fire department rules, regulations and procedures for potential risk exposure
- Review of contracts and agreements entered into by the fire department for potential risk exposure
- Training of fire officers on emerging risk such as national liability claim trends, injury prevention, etc
- Periodic review of risk coverage

Safety Officer

A Safety Officer typically handles those items that directly affect personnel on duty and at training activities. The position is also designed to ensure that fire and EMS operations are conducted in a manner that is consistent with national standards, state and local law governing firefighter health and safety. In the absence of an appointment, by default, the CCFD5 Fire Chief must assume the role of the district's Safety Officer.

A Safety Officer should be responsible for accomplishing the following:

- Develop an overall CCFD5 safety program. In Washington, WAC 296.305 is the legislation for fire department health and safety. It is patterned after NFPA 1500.
- Serving as chairperson of the Safety Committee.
- Conducting or directing the periodic safety and risk inspections/analysis of the district's facilities.
- Reviewing and recommending changes to districts rules and regulations, and SOGs to reduce exposure to risk. In some cases, propagate the process by developing and submitting SOGs addressing safety issues.
- Ensuring that CCFD5 personnel receive training in accident and injury prevention.
- Keep abreast of emerging risks and national trends to assure injury and loss prevention.

Liability Issues

Nothing is accomplished without some element of risk. Since avoiding risk altogether is impossible, effective management of risk is necessary. This involves a variety of strategies including transferring risk to a third party via insurance. CCFD5 maintains insurance that transfers the risk from a variety of incidents.

Cowlitz County Fire District No. 5	
Liability Insurance Coverage	**Amount**
General Liability	
Personal and ADV Injury Each Occurrence	$1,000,000/3,000,000
Medical Expense any one person	$5,000
Automobile Liability	
Bodily Injury	$1,000,000
Bodily Injury – per accident	$1,000,000
Property Damage	$1,000,000
Umbrella Excess Liability	
	$12,000,000 / 6,000,000

Workers compensation and employer's liability are listed at statutory limits. At the time of this report, CCFD5 reports no open claims or pending legal action is in process against the district.

The district maintains official personnel files for employees including items such as performance evaluations, training records and evaluations, examination records, and documentation of disciplinary actions, and attendance. Formal documentation is required for disciplinary actions and terminations with legal counsel reviewing all terminations prior to their issuance.

CCFD5 requires an entry-level medical physical evaluation that includes respirator fit testing, blood pressure check, and if needed, further consultation with a physician. Annual medical examinations are provided for all personnel. This medical evaluation is based on standards recommended in the National Fire Protection Association (NFPA) Standard 1582.[11]

An ongoing fitness program is an important aspect of an overall firefighter training and performance system. NFPA Standard 1583 provides excellent guidance to the development of a comprehensive fitness screening, improvement, and maintenance program.[12] Another good source of guidance for ongoing fitness programs is the Wellness/Fitness Initiative jointly

[11] *NFPA 1582: Standard on Comprehensive Occupational Medical Program for Fire Departments*, National Fire Protection Association, 2003.
[12] *NFPA 1583: Standard on Health-Related Fitness Programs for Fire Fighters*, National Fire Protection Association, 2000.

produced by the International Association of Fire Chiefs and the International Association of Firefighters.

CCFD5 maintains a Safety Committee. The stated function of the committee is to advise department management in areas related to health and safety in the workplace, and to recommend from time to time policy, procedures, and technology available to address a safe working environment.

Fire department safety committees should be organized in compliance with NFPA Standard 1500 requirements. In addition to these requirements, the safety committee should, at a minimum, be involved in the following:

- Reviewing safety complaints.
- Conducting safety inspections and making corrective recommendations.
- Review accidents and make recommendations to prevent future occurrences.
- Develop safety procedures.
- Research new equipment to improve safety.
- Document and distribute minutes and maintain records of activities and findings.

Committee membership consists of the fire chief and representatives from labor, the volunteers, and administration. The Safety Committee meets periodically. Proper documentation and records are kept for each meeting.

Recommendations

- Appoint and train a safety officer or lead persons, in addition to the Fire Chief, to be involved in and/or oversee the safety program of the fire district
- The safety committee should inspect the fire stations for safety issues.
- The safety committee should review incidents involving employee/member incidents or accidents/damage with fire district assets.
- The safety officer and safety committee should develop a risk management program.
- Minutes of all safety committee meetings should be kept and conspicuously posted in district facilities.

Objective Four: Planning Systems and Resources

Fire and emergency medical services exist in a rapidly changing environment. Along with improvements in tools and methods used to provide service comes increased regulation of activities, new risks to protect, and other challenges that can quickly overwhelm the unsuspecting or unprepared. Only through continuous internal and external environmental awareness and periodic course corrections can an organization stay on the cutting edge.

Smaller organizations such as CCFD5 find it very difficult to assign resources on an ongoing basis to consistently provide planning efforts. ESCi notes that the fire chief is the only career fire officer with the fire district and that he attempts to maintain a span of control over three different work groups. In both the short term and the long term, the fire district will continue to operate on a day-to-day basis unless efforts and resources are committed to developing a planning process for all aspects of its operations. Time and resource allocation to the planning function is very important to CCFD5.

Organizational Planning Process

The process of planning in advance for occurrences that will take place in the future requires both discipline and organization. In order to be truly effective, an emergency services agency must consider planning on several distinct levels - strategic planning, tactical planning, operational planning, and master planning.

Strategic planning is a valuable process for providing a short-term roadmap of strategic initiative and critical issues for an organization. Successful organizations use strategic planning as an important management and decision-making tool, focusing day-to-day decisions on the mission, vision, and values of the organization while striving to complete established goals and objectives.

Tactical planning is practical preparation of incident strategies for potential emergency incidents. Operational and strategic planning is preparation for the day-to-day activities of the agency and its integration into other regional or national response networks. Master planning (long range planning) is preparation for the future success and effectiveness of the agency in a changing environment.

Creating a truly long-term perspective is important for the organization. The capability to conduct qualitative and quantitative analysis of level or quality of service cannot be underestimated. Developing well defined objectives at the fire district level will allow the organization and policy makers to more readily identify and address future service delivery issues. Many of the CCFD5 members are looking to this report as a benchmark with which to help determine the future direction of CCFD5.

Figure 14: Planning Processes Table

Survey Component	Cowlitz Co. Fire District No. 5
Formally adopted planning process.	Not currently.
Operational planning.	
Response planning.	No.
Regional incident command.	Yes.
Mutual aid planning.	Yes.
Hazardous materials planning.	Yes.
Disaster planning.	Yes.
Homeland security.	No.
Review and Evaluation of the Current Planning Process.	
Planning group	
Planning group or team established.	No.
Planning process established.	No.
Organizational/Divisional strategies.	
Organizational and divisional strategies developed.	Not formally.
Performance objectives.	
Levels of service defined.	No.
Performance statements by division or area.	
Established.	No.
Used in budget process.	No.
Used in performance evaluations.	No.
Identifying Critical Issues; Analyzing Current and Future Services	
Customer survey.	No.
Citizen involvement.	No.
Business community involvement.	No.
Elected official involvement.	Yes.

Recommendations

- Develop a fire district planning model to involve all areas of the fire district.
- Develop fire district goals and objectives at every level for each division.

Strategic Planning

A comprehensive fire district strategic plan[13] should incorporate the input from representative community/department leaders (customers) and fire district members/employees. With this input, a planning team consisting of a cross section of all ranks and disciplines could more effectively create a mid-term organizational development plan.

From the strategic planning process, a roadmap is developed for the next two to five years that provides significant strategic goals, objectives, and priorities for the fire district. With the development or updating of the mission, vision, and values elements, *daily decision making* is based on and measured by the whole of the strategic plan. Used correctly, a strategic plan should be the organization's *playbook* and should be a part of any budget meetings, staff meetings, training sessions or Board of Fire Commissioners meetings.

Figure 15: Strategic Planning Table

Survey Component	Cowlitz Co. Fire District No.5
Strategic or master plan	
Current strategic plan in place.	No.
Adopted by elected officials.	N/A
Published and available.	N/A
Periodic review.	N/A
Regularly integrated in FD business, training, operations.	N/A
Agency goals and objectives	
Updated organizational goals/objectives established	No.
Date developed	N/A
Periodic review	N/A
Tied to division/personnel performance statements/plans	N/A
Objectives linked to programs	N/A
Performance objectives established	N/A
Integral part of budget process	N/A
Internal/external levels of service.	
Fire district external levels of service defined and updated.	No.
Fire district internal levels of service defined and updated.	No.

[13] A strategic plan will be developed in May 2007 as part of this project.

Tactical Planning

A firefighter's typical work area is usually unknown and foreign. Normally, a firefighter's first visit to a building is when the building is involved in fire or some other emergency. This is also the point in time where the internal environment is at its worst. Contrary to Hollywood's portrayal of the inside of a building on fire, visibility is at or near zero due to smoke. A lack of familiarity with a building can easily lead a firefighter to become disoriented or injured by an unfamiliar internal layout or by equipment or other hazards that might be encountered.

It is critically important that firefighters and command officer personnel have comprehensive, accurate information readily at hand to identify hazards, to direct tactical operations, and to use built-in fire resistive features. The best way to compile and update this information is to develop building familiarization tours, pre-fire (pre-incident) plans, and to conduct tactical exercises either on-site or by tabletop simulation.

Emergency services exist in a rapidly changing, all risk environment. With improved methods of providing service come increased regulation of activities, new risks to protect, and other challenges that can quickly catch the unwary off guard. Only through continuous internal and external environmental awareness and periodic course corrections can an organization stay on the leading edge.

A list of target hazards in the fire district should be regularly updated and aggressive efforts taken to ensure response crews have copies of these plans available. Target hazards are defined by:

- Buildings with large potential occupant loads
- Buildings with populations who are partially or completely non-ambulatory
- Buildings of large size (greater than 12,000 square feet)
- Buildings that contain process hazards such as hazardous materials or equipment
- Buildings with significant governmental or community infrastructure responsibility
- Buildings that exceed the capability of engine company or aerial apparatus personnel and equipment

National Fire Protection Association 1620[14] provides excellent information on the development and use of pre-incident plans and should be used as a reference. Once pre-plans are re-established and updated, training should be provided to all personnel who may respond to an incident at target hazard locations.

Pre-incident plans should be easy to use, serving as quick reference in the event of emergencies in special hazard occupancies. At a minimum, a pre-incident plan should include information such as:

- Building construction
- Occupant characteristics
- Hazardous materials or processes
- Incorporated fire protection systems
- Capabilities of public or industrial responding personnel
- Water supply
- Exposure factors
- Facility layouts
- Firefighter hazards

The process to create and maintain pre-incident plans is well known to CCFD5. However, the dissemination of pre-plan information and training on tactical SOGs is infrequent.

Figure 16: Tactical Planning Table

Survey Component	Cowlitz Co. Fire District No. 5
Tactical Planning.	
Community risk assessment.	No.
Pre-fire planning.	Yes.
Specific hazard plans.	Yes.
Trained with regularly.	Somewhat.

Recommendations

- Update current pre-fire plans prioritizing the high hazards occupancies.
- Develop and/or update tactical plans for target hazards.
- Regularly tour and train at the target hazards to refresh fire personnel familiarization and to observe changes.

[14] *NFPA 1620: Recommended Practice for Pre-Incident Planning*, 2003.

Disaster Planning

Cowlitz County maintains formal responsibility for emergency management of disasters[15] and serves as the Local Emergency Planning Committee. Cowlitz County has had numerous opportunities to practice and update the use of its Disaster Plan with an unusual number of major events in the county. Efforts are continually made to ensure CCFD5 has internal disaster planning policies and modest emergency operation center (EOC) capabilities as well.

It is important to note that in region-wide disasters – despite the best intentions of a State or County Disaster Plan – *smaller jurisdictions are consistently overlooked for at least the first 72-96 hours of a disaster as resources are funneled into larger population centers.* Communities must understand this fact and prepare plans, resources, communications, and management components to be self-sufficient and to provide for its own continuity of government services. Therefore, it is vital that local jurisdictions conduct a disaster risk analysis and develop departmental disaster planning processes.

CCFD5 has recognized the need for local disaster planning and has informally developed plans and resources for local efforts. While Kalama has jurisdiction to develop local disaster plans and mitigation measures, it is unclear whether those efforts have been made, or whether CCFD5 has been involved with those efforts.

The Superfund Amendment and Reauthorization Act found in Title III of the Federal Code (SARA Title III) defined requirements for the tracking of hazardous materials used in fixed facilities and established requirements for emergency response planning. The Cowlitz County Department of Emergency Management facilitates the Local Emergency Planning Committee (LEPC), which is responsible for CCFD5. The LEPC is responsible for identifying and collecting information on the public and private use of hazardous materials. Information collected includes the type, quantity, and location of this material. Additionally, the LEPC is charged with ensuring that local response plans are adequate based on potential risk and that they are updated annually.

[15] RCW 38.52.

SARA Title III requires extremely hazardous substance (EHS) facilities to develop comprehensive emergency plans. (EHS facilities are those using more than the threshold limit established for certain materials.) SARA requires that local fire departments coordinate with the involved industries to ensure quality responses to emergencies.

The Port of Kalama and industrial areas of CCFD5 are host to a number of large, extremely hazardous occupancies, both mobile and fixed. The fire district, in concert with the Cowlitz County Department of Emergency Management (DEM) and the LEPC, needs to confirm that all EHS facilities within their service areas have been identified to ensure that local plans have been developed and that fire district operations have been coordinated with each local plan. Additionally, the fire agency needs to confirm that mandated Tier II reporting forms are being received, reviewed, properly filed with the Department of Ecology, and available for training and use during emergency responses. The status of this process is in question. At a minimum, pre-incident planning should include the cataloging and identification of all occupancies with hazardous materials and hazardous processes.

Master Planning and External Customer Planning Involvement

Master planning is different from organizational strategic planning in that it is a more technical tool based upon current conditions, current organizational performance and future projections of a jurisdiction's population, demographics, future community land use/growth, and the subsequent impact on emergency services. Master planning involves the establishment of a 'standards of coverage' doctrine with certain response performance requirements that must be met. A master plan continually evaluates the current performance of a fire agency against these adopted response performance standards. The master plan, after modeling the future growth of a jurisdiction, projects the future incident workload of a community against these standards to assist in identifying the resources necessary to meet the established standards of coverage (performance standards) and future performance objectives.

Because the community is the recipient of services and the source of funding for services, its needs and expectations must be a key consideration in selecting the type and level of services provided. Though efforts are made to solicit these views, the fire district needs to consider additional involvement methods.

A well crafted survey can provide invaluable information to the organization and should be considered. Surveys should be conducted periodically to ensure that the agency's knowledge of community expectations is current, and that any concerns are documented and dealt with appropriately.

The fire agency may wish to consider establishing a citizen's advisory committee (or board) to provide advice and input to the agency and to elected officials on such matters as:

- Long-term strategies
- Staffing strategies
- New services and programs
- Performance objectives and targets
- Cooperative effort

This third-party approach can provide another perspective to agency needs and provide additional credibility to district budgetary, policy, and resource requests.

Figure 17: Master Planning Table

Survey Component	Cowlitz Co. Fire District No. 5
Master (Long Range) Planning.	
Strategic planning.	No.
Capital improvement planning.	Yes; older; apparatus only.
Financial planning.	No.

Recommendations

- Consider establishing a citizens' advisory committee to provide community input to the fire chief and CCFD5 senior staff.
- Conduct periodic community surveys to ensure that CCFD5 priorities match those of the community.
- Consider the development of a master plan. This process will assess community risk, address deployment strategies along with coverage and demand for district services to date and into the future.

Internal Customer Planning

The employees and members of a fire agency are also, in a fashion, customers of the organization. They depend on management and support personnel for the tools, training, and support that they need to be successful.

Some fire agencies have developed internal committees to focus and plan specific programs for their organization. The committees are usually comprised of employees, volunteers, and leadership. These committees usually include:

- Deployment Task Force
- Capitol Improvement Committee (CIP)
- Long Range Planning Committee
- Policy and Procedures Committee
- Joint Committee of Personnel and Special Events

In addition, some fire districts have *operational* committees that assist with oversight and maintenance of specific operational needs. These committees may address the following operational functions:

- Fitness
- Apparatus
- Safety
- SCBA
- Training
- EMS
- Hazardous materials
- Service delivery and quality management

Recommendation

- CCFD5 should consider assigning the overall planning and operational planning functions into committees. This would free up the fire chief and other staff personnel to provide more oversight, rather than the fire district depending on them for all planning efforts.

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Objective Five: Personnel Management

An organization's people are its most valuable resource. Careful attention must be paid to managing that resource to achieve maximum productivity for the organization and provide satisfaction for the individual, regardless of whether they are full-time or volunteer personnel. A safe working environment, fair treatment, and recognition for a job well done are key components to job satisfaction for any work group

Personnel Policies and Rules

It is important that members know to whom they should go when they have a problem, question, or issue related to their employment or volunteer experience. In large fire departments, a human resource department typically handles this function. Staff members within such a department handle questions, issues, and tasks related to appointment, benefits, performance, disciplines, promotion, or termination of employees.

For smaller agencies such as CCFD5, human resource functions are provided from a centralized system managed by the fire chief and fire district secretary. The chief and/or district secretary act as the primary liaison between the fire district and the career/volunteer members of the organization.

CCFD5 is currently negotiating its first labor agreement with the newly formed bargaining unit, IAFF Local 4447. Within the current draft agreement, most conditions of employment, compensation, leave benefits, discipline, promotional, and terminating issues are addressed. Again, it must be noted that the collective bargaining agreement is the first of its kind within the organization and is still in the negotiation process.

A variety of other written policies are in place within fire district documents that describe (for *non-represented* personnel) hiring processes, salary and benefits, the conditions under which leave time may be utilized, systems for evaluating personal performance, methods of discipline for unacceptable behaviors, processes and qualifications for promotion to higher positions, and systems for termination or separation. Though they are in various stages and not organized into a formal personnel manual, most of these policies are documented. These apply specifically for non-represented employees, which include the fire district secretary and the administrative assistant. Some of the policies may not apply to the fire chief where the subject may be

referenced in his personal services contract. There are also some policies written specifically for volunteer personnel as well. These policies have been made available to each individual member, in manuals at the station and through the district's email system.

The policies are updated periodically and some of them, such as issues in the workplace are trained on periodically.

Figure 18: Personnel Policies Table

Survey Component	Cowlitz Co. Fire District No. 5
Human resource manager.	
HR manager appointed.	No; Fire Chief/District Secretary.
Personnel policy manual.	
Personnel manual developed/maintained.	Partially; most HR issues addressed for both career and volunteer personnel.
Policies provided at initial hiring or selection as a volunteer member.	Yes.
Personnel training provided.	Yes for career; some for volunteer initially and annually.
Personnel related policies periodically reviewed and updated.	Yes.
Operational guidelines provided.	Yes.
Collective Bargaining Unit.	
Bargaining unit established.	Yes.
Contract current.	First contract still in draft.
CBA contain HR items.	Yes.

Compensation and Benefits

The fire district uses a combination of fully paid staff and volunteers to provide services to the community. All daily operational response duties are primarily assigned to career staff at Station 51, the headquarters fire station. The volunteers do conduct some cleaning of the fire stations.

Typical forms of compensation are provided to the full-time staff members including salary, health insurance, retirement pension, dental insurance, and vision insurance. These are currently addressed in the draft collective bargaining agreement. For general reference purposes, a full-time, Step E Firefighter in 2007 will receive an annual total compensation package of approximately $71,346 plus overtime. A Step E Firefighter/Paramedic will receive an annual total compensation package of approximately $76,341 plus overtime. The full Total Compensation Chart (TCC) is included in the appendix of this report. That TCC includes

employee contributions for

- Salary
- Deferred compensation (district does not contribute)
- Labor and Industries
- Method for calculation of hours worked (including sleep time deductions)
- Standard workweek (average hours per week)
- Work schedules
- Health (district 90%, employee 10%) and life insurances (district 100%)
- Pension benefits
- Leave time
- Overtime pay
- Education/certification pay
- Holiday pay

The purpose of this study was not to conduct a thorough compensation analysis and does not attempt to perform in-depth comparisons with other agencies of similar type and makeup. It is important that, within the context of this emergency services evaluation, we determine whether the salary and benefit packages appear to be a strength or a weakness of the organization as it affects employee morale and turnover. The benefit package across all ranks for members of the CCFD5 appears to be right at the average when compared to other similar organizations in the region.

CCFD5 has a well defined reimbursement system for their volunteer personnel for services that they provide for the fire district. The fire district uses a stipend point system to reimburse out-of-pocket costs to a volunteer for services they provide. Volunteers are reimbursed $4 per point for response, training activities, and various duties. A schedule of the volunteer point system is included in the appendix of this report.

The fire district also pays the CCFD5 Volunteer Firefighters Association $300 per month for cleaning services for the fire district facilities. In addition, the fire district provides a supplemental disability insurance and life insurance policy for any line of duty injury or line of duty death to a volunteer member as well as paying the annual installment for each volunteer to the Board for Volunteer Firefighter's Length of Service program. All in all, the fire district shows the value of their volunteer personnel by providing these additional benefits as well as the reimbursement

stipend. This aids greatly in retaining valuable volunteer personnel while other departments experience high attrition rates.

Figure 19: Volunteer Benefits Table

Survey Component	Cowlitz Co. Fire District No. 5
Volunteer association(s)	District pays $300 month for cleaning contract
Volunteer compensation	Individuals – quarterly
Rate of compensation	Points ($4 per point)
Additional compensation or benefits	BVFF/Supplement life/disability/uniforms

Recommendation

- Update and formalize the personnel manual.

Personnel Records

The CCFD5 keeps written or computerized records of its personnel. Original application and personnel materials are retained at the CCFD5 headquarters. In order to create a full historical record of the member's participation in the organization, from initial appointment to separation, additional documents and records referring to assignments, promotions, commendations, discipline, and other personnel actions are kept organized and updated. Forms or other documentation pertaining to performance of probationary members are retained for an appropriate period of time. Reports describing details of accidents or other injuries or injury-related incidents are maintained for future reference and cumulative evaluation or analysis.

Records of health evaluations, exposures to hazardous substances or contagious diseases, and other medical records appear to be adequately maintained. All medical-related records, protected under federal privacy laws, are kept separate from routine personnel records and access is strictly limited. These records are kept for both full-time and volunteer members of CCFD5 in an organized fashion.

Figure 20: Personnel Records Table

Survey Component	Cowlitz Co. Fire District No. 5
Personnel records maintained.	Yes.
Application retained.	Yes.
Historical records retained.	Yes.
Performance evaluations retained.	Yes.
Injury and accident records retained.	Yes.
Health and exposure records maintained	Yes.

Disciplinary Process

A formal progressive disciplinary process is identified in written policies. Most of the policies pertain to both career and volunteer personnel. There are additional discipline features in the current draft collective bargaining agreement under negotiations. The fire district discipline process provides for various levels of discipline focused on correcting unacceptable behaviors with the most reasonable actions considered appropriate and effective. The discipline policy includes provisions for an appeal process for each work group.

None of the supervisory personnel within the fire district have been provided formal training in conflict management and application of discipline. This should occur as a part of leadership training. Informal interviews with both career and volunteers give the impression that members feel organizational discipline practices are inconsistent and unpredictable. Some members feel favoritism sometimes interferes with equitable application of rules. Whether true or a matter of perception, issues of inconsistent application of rules and discipline are often cited as one of the leading causes of low morale and distrust in management.

Recommendation

- Conduct initial and ongoing training in disciplinary processes and conflict resolution.

Counseling Services

Emergency services bring otherwise ordinary people into life and death situations that sometimes end very tragically. Even though fire district personnel are trained responders, they do not have an impregnable shield that prevents them from being affected by traumatic events.

Critical incident stress is a very real condition that affects all emergency service workers to some degree or another. The trigger for significant psychological trauma may be a single event, or a series of events compounding on each other.

Fire and EMS agencies have recognized the need to provide a support system for their personnel who are exposed to traumatic incidents. Fire districts in Cowlitz County may call upon the services of trained personnel to conduct critical incident stress debriefings through a regional program. Critical incident stress interventions by this group are short-term processes only. Though normally sufficient to help emergency personnel cope with the event, on occasion longer term support is needed. Failure to provide that support can ultimately lead to the loss of a very valuable member.

CCFD5 provides formal training in critical incident stress for its personnel either in the initial stages of employment and membership or periodically. CCFD5 does not currently have an internal employee assistance program; however, if an employee or member of the fire district needs additional assistance, the fire district does make referrals.

Figure 21: Disciplinary and Counseling Procedures Table

Survey Component	Cowlitz Co. Fire District No. 5
Disciplinary Procedures.	
Disciplinary policy established.	Yes.
Disciplinary process communicated.	Yes.
Appeal process provided.	Yes.
Counseling Services	
Critical incident debriefing.	Yes.
Counseling services.	Yes.
Intervention program.	No

Health and Safety

CCFD5 has a Safety Committee that reviews safety related issues for the fire district, the committee needs to be more proactive in general health and safety programs. Safety on the fire ground is different than any other workplace environment. The fire ground frequently deteriorates the longer firefighters are in the area, and safety must remain a paramount concern for the Incident Commander throughout the emergency. Washington State law requires it and the National Fire Protection Standard for Fire Department Safety and Health (NFPA 1500) calls

for the establishment of such a group within fire agencies. [16] Representation should include but not be limited to line firefighters, officers, the fire chief, and a designated fire district safety officer. Standards should provide detailed information regarding the roles and responsibilities of the committee.

The safety committee should conduct regularly scheduled meetings at least once per quarter, as the standard recommends. The committee should meet regularly to discuss safety issues and concerns. At a minimum, the committee should be charged with:

- Reviewing safety complaints
- Conducting safety inspections and making corrective recommendations
- Review accidents and make recommendations to prevent future occurrences
- Develop safety procedures
- Research new equipment to improve safety

As stated earlier, the fire district has not appointed a designated safety officer whose responsibilities are in accordance with the WAC 296-305 and NFPA standards. However, a safety officer needs to train additional personnel and officers in this specialized training regarding health, safety, risk management or injury investigation. In addition, a properly trained safety officer needs to be appointed at all working fires or other significant events, to see that SOGs are followed and functions are completed in accordance with state law and NFPA 1501.

Emergency services can be very stressful and strenuous activity at times and the ability for firefighters to adequately perform to save lives as well as to protect themselves and their fellow workers often depends upon an individual's personnel health and fitness. Other than the initial physical examination at the time of employment, there are no health standards adopted for CCFD5. There are no ongoing health or fitness testing efforts for either the career or volunteer personnel.

Physical capacity testing cannot detect all potential limiting conditions of an individual's health and fitness levels. A periodic medical evaluation is necessary. National safety standards for firefighters recommend annual medical evaluations and bi-annual physical examinations. The examination should include all the criteria included in the entry-level exam, as well as periodic

[16] WAC 296-305 Firefighter Safety and Health Standard.

stress EKGs for persons over 40 and regular blood toxicology screening. Communicable disease vaccinations can also be updated as needed during this process.

Recommendation

- As a part of the risk management program and the need for fit firefighters, the fire district should adopt medical standards for the initial processing of its members. Additionally, the fire district should require periodic physical examinations for personnel over a certain age.

Another important program the fire district should strictly enforce is some form of annual fitness or 'combat' testing and screening to insure that its members are able to do the job and to detect potential health problems early on with its members. These standards and testing should be mandatory for any member or employee of the fire district who participates at the emergency scene. There are a number of examples of fitness standards and testing available from other fire departments.

Figure 22: Personnel Health and Safety Table

Survey Component	Cowlitz Co. Fire District No. 5
Medical standards.	
Medical standards established.	No.
Periodic medical exam.	No.
Periodic fitness testing conducted.	No.
Safety committee established.	
Established by resolution.	Yes.
Membership.	Work group reps.
Meetings.	Yes.
Function defined.	Yes.
Meeting minutes available.	Yes.

Recommendations

- Strengthen the role and representation of the safety committee in accordance with the recommendations found in WAC 296-305 and NFPA 1500.
- The board of directors should adopt a resolution establishing a safety committee.
- Establish a system to appoint a qualified and trained safety officer to all working fires and major incidents.

Ongoing Competency Evaluation

Once hired as an employee or appointed as a volunteer member of the fire district, personnel should be evaluated periodically to ensure their continued ability to perform job duties safely and efficiently. Technical and manipulative skills should be evaluated on a regular basis. This provides documentation about a person's ability to perform their responsibilities and provides valuable input into the training and education development process.

Regular evaluation and feedback for both career and volunteer personnel is critical to behavior modification and improvement. It has long been proven that employees and members sincerely wish to perform well and to be a contributing part of any organization. This desire to succeed is best cultivated through effective feedback that allows a member to know what he/she is doing well or what needs improvement. The honest and effective presentation of this feedback encourages the member to reinforce those talents and abilities they already excel in and to work harder to improve the areas where they fail to perform as desired.

All full time personnel and personnel in leadership positions should receive a periodic evaluation in an attempt to bring consistency in evaluation scores and recognition for exceptional performance. The employee or officer and his/her immediate supervisor should always discuss the final evaluation face-to-face, and areas needing improvement should be reviewed for progress with the employee at least on a quarterly basis. This is an excellent time to identify future goals and expectations, recognize and document positive performance and contributions, and afford the member an opportunity to ask questions or request clarification. "Coaching tips" and a discussion of strategies to assist the member with career development would also be appropriate.

Figure 23: Personnel Testing and Promotion Processes Table

Survey Component	Cowlitz Co. Fire District No. 5
Periodic competency testing.	No.
Periodic physical competence testing.	No.
Periodic performance evaluations.	No.
Promotional testing.	No.

Recommendations

- Establish an annual skills competency and physical ability test for all operational suppression personnel to assess ongoing capability to perform the basic, critical tasks of the firefighter.

- Conduct a formal performance evaluation for all employees and members at least annually utilizing an evaluation system designed for their level of participation/appointment to the fire district.

- Conduct annual fitness or 'combat' testing based on standards adopted by the fire district.

- Establish career development program and promotional testing procedures as appropriate.

Objective Six: Staffing

CCFD5 uses a combination of career and volunteer personnel to accomplish its operational mission and responsibilities to the city of Kalama and the fire district.

The evaluation of a fire district includes profiling and evaluating the quantity and organization of two typical work groups. Those groups would be 1) the *operational* or *line personnel* who are generally assigned to respond to emergency and non-emergency requests for service from the community via the 9-1-1 system and maintaining a state of readiness to do so; and 2) the *fire prevention, public education, life safety, and administrative/support personnel* who run the business and support functions of the organization. Both groups are vital to the success of delivering services to both the internal and external customers of the fire district.

CCFD5 uses full-time career personnel supplemented by a volunteer force to accomplish its mission and deliver services and programs to the fire district. Administrative functions are handled by the fire chief and the administrative employees.

Staffing for emergency response to fire, emergency medical, and related incidents is provided by career personnel working an average 54-hour workweek. This system calls for personnel to work 24 hours on duty, then 24 hours off duty for three cycles followed by four days off. The volunteer force always supports multiple resource responses.

Administration and Support Staff

One of the primary responsibilities of the fire district's administration and support staff is to ensure that the operational entities of the organization have the ability and means to accomplish their responsibilities in emergency incidents. These are generally referred to as 'internal customer' services. Efficient and effective administration and support are critical to the success of any fire district. Without sufficient oversight, planning, documentation, training, and maintenance, the operational entities of the district will fail any operational test. Additionally, like any other part of the district, administration and support require appropriate resources to function properly.

The appropriate balance of the administrative and support personnel to the operational component is crucial to the success of the district's mission and responsibilities. There is a long

list of fire district administration operations and support functions. As a matter of practicality, many of these functions must be assigned to line personnel. Those functions would include but are not limited to:

- Leadership/Vision
- Risk management
- Safety and loss prevention
- Personnel management/HR
- HIPPA requirements
- Logistics/Supply
- Ambulance billing
- Technology
- Training
- Facilities
- Records management
- Finance
- Fleet maintenance

From a practical standpoint, each of the above functions does not necessarily require a full-time person to be assigned to it. In smaller organizations, these functions are divided among existing administrative and support personnel.

For CCFD5 the administrative and support staff is generally found to be significantly *lower* in comparison to comparably sized fire district operations. In most municipal (city) fire departments, a good share of the administrative functions is provided by a city hall. Not so with fire districts, which must provide nearly all administrative and support services unless they are contracted out to private companies or other agencies.

Figure 24 is a representation of the staffing configuration of CCFD5. As shown, there are very few positions filled in the fire district operation.

Figure 24: Administrative Staffing Table

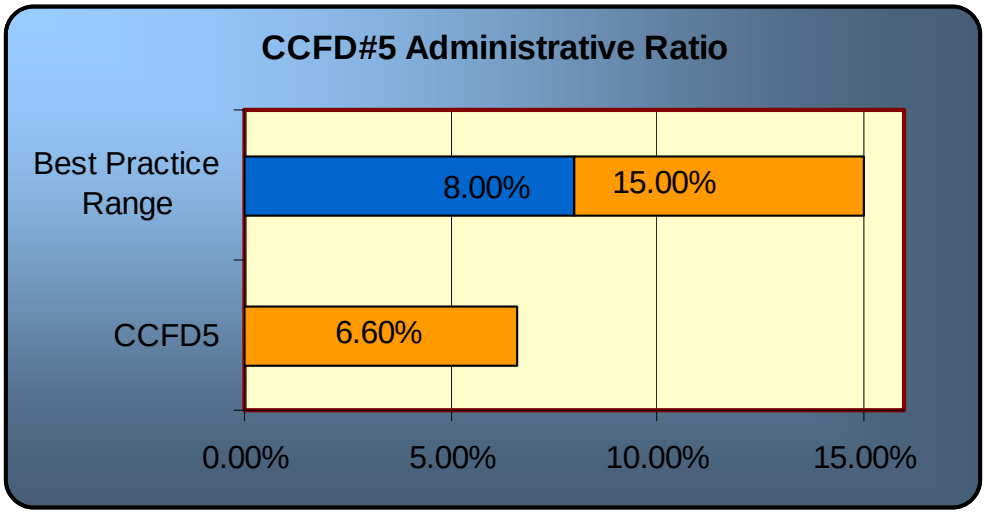
Staff Position	No. of Personnel
Fire Chief	1
Deputy Chief	0
Assistant Chief	0
Battalion Chief	0
Captain	0
Fire Marshal	0
Inspector	0
Public Education[17]	0
Admin Director	1
Admin Assistant I	.5
IT Tech[18]	0
Maintenance Supervisor	0
Mechanics[19]	0
Facility Supervisor	0
Facilities Maintenance[20]	0
Logistics Supervisor	0
Total	**2.5**

Based on experience with similar organizations, ESCi has determined that emergency services organizations require an 8 to 15 percent ratio of administration and support to operational personnel.[21]

Analyzing the ratio of administration and support positions to the total positions of the district facilitates an understanding of the relative number of resources committed to this important function. The appropriate balance of the administration and support component to the operational component is crucial to the success of the district's mission and responsibilities. The following figure summarizes the personnel FTEs (full-time equivalents) assigned to administration and support.

[17] This function is assigned to operational personnel.
[18] Ibid.
[19] Ibid.
[20] Ibid.
[21] ESCi recognizes that organizational goals, regulatory environment, and workload are the actual drivers that determine the number of administrative personnel required to deliver support services. The 10 to 15 percent ratio is used for comparison purposes.

Figure 25: Administrative Ratio



The administration and support staff for the CCFD5 is comprised of an authorized complement of three FTEs (currently at 2.5 FTE). Statistically, the CCFD5 maintains a ratio of 6.6 percent of administration and support staff to total personnel. Each organization should determine the proper ratio of administration and support staff to operational positions dependent upon local need. Based on our experience with similar organizations, however, we have determined emergency service departments usually average a 10 to 15 percent ratio for administration and support. The CCFD5 administrative and support staffing ratio is significantly low in comparison to the typical range.

In reviewing the district's current administrative and support positions, we find a surprisingly low number of officer positions involving leadership and supervision. This results in an inefficient use of some of the most expensive members' time (the fire chief) of the organization for functions that could be performed by a lower wage employee. The addition of staff and line officers would help the fire chief to return his focus to the more advanced functions and managements processes for which he was appointed.

Recommendations

- Hire an additional chief officer (assistant chief or deputy chief) to divide up the current leadership responsibilities of the fire chief
- Add supervisory positions for each shift (captain or lieutenant). Responsibilities would include daily training, work supervision, project management and other administrative functions.
- Consider increasing the current part-time administrative position to full-time and expand administrative and business functions of CCFD5

Operational Staffing

It takes an adequate and well trained staff of emergency responders to put the appropriate emergency apparatus and equipment to its best use in mitigating incidents. Insufficient staffing at an operational scene decreases the effectiveness of the response and increases the risk of injury to all individuals involved. The following figure summarizes the personnel assigned to street-level service delivery.

Figure 26: Operational Personnel

Operations Positions	No. of Personnel
Battalion Chief (FTE)	0
Captain (FTE)	0
Captain (Vol)	2
Lieutenant (FTE)	0
Lieutenant (Vol)	3
Firefighter/PM (FTE)	3
Firefighter (FTE)	3
Firefighter (Vol)	20
Total	**31**

In addition to emergency response, the district may also deliver non-emergency services that are valued by the customer, such as public education, fire prevention, etc. Adequate staffing for these functions is also critical to the district's overall success and impact on its effort to protect the public.

Incident management tasks involve organizing the emergency scene and emergency functions for maximum effectiveness with available forces that respond. The fire flow component involves

delivering sufficient water to extinguish the fire and create an environment within the building that allows entry by firefighters.

The number and types of tasks needing *simultaneous action* will dictate the minimum number of fire personnel required to combat different types of fires. This is called *critical tasking*. In the absence of adequate personnel to perform concurrent action, the command officer must prioritize the critical tasks and complete some in chronological order rather than concurrently.

Emergency incidents are unpredictable in many ways. While it is possible to state what critical tasks must be accomplished, it is not always possible to predict how many personnel it will take to accomplish those tasks. The number of personnel and the amount of equipment needed to accomplish the critical tasks listed will vary due to the following factors:

- Delayed responses
- Building construction
- Number of occupants
- Extent of fire beyond flashover
- Built-in fire protection
- Area of fire involvement
- Number of rescues
- Civilian injuries
- Firefighter injuries
- Physical and emotional condition of occupants
- Availability and distance of resources

The Center for Public Safety Excellence[22] (CPSE) has produced a sample critical tasking analysis for the number of personnel required on a fire scene for various levels of risk. Those tasks include:

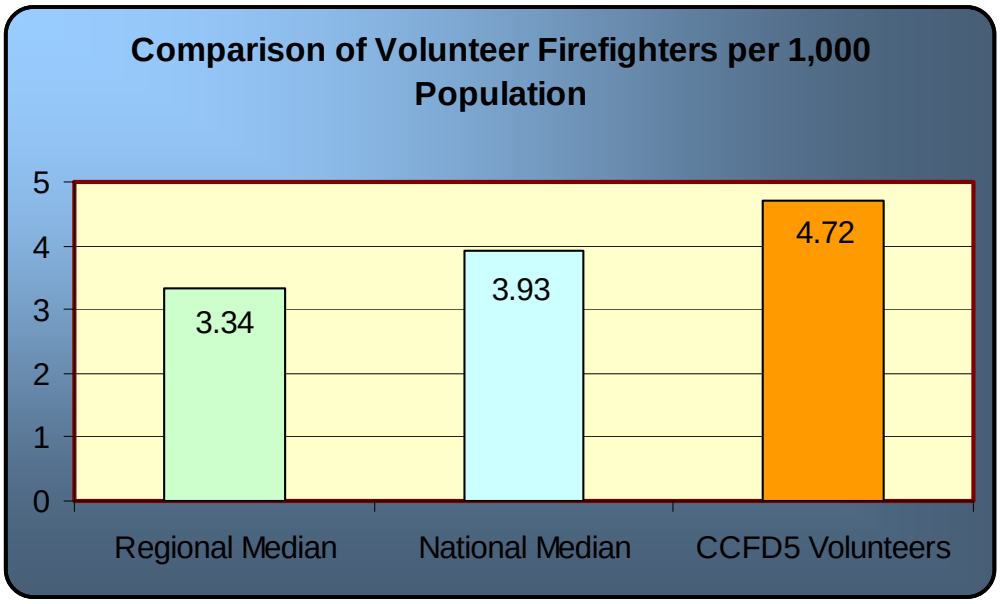
- Command
- Water supply
- Scene safety
- Pump operation
- Search and rescue

[22] Formally Commission on Fire Accreditation International.

- Ventilation
- Fire attack
- Back-up/rapid intervention

An analysis of fire district staffing begins with a comparison of available emergency service personnel to other communities of similar size and organization. The following charts, using NFPA benchmark data for the region,[23] provides an overview of the volunteer staffing level of CCFD5 on the basis of firefighters per 1,000 population. Figure 27 provides a good indication that CCFD5 has above average volunteer staffing. Career staffing comparison statistics are not collected for populations below 25,000. While this speaks well of the commitment of the fire district to having adequate staffing available and a strong volunteer recruitment program, this does not necessarily reflect on the response performance staffing index.

Figure 27: Firefighters per 1,000 Population – National Comparison



CCFD5 has 31 career and volunteer personnel on their roster. In is unclear how active this group of volunteers actually is or the actual size of the core group of regular, consistent responders. Additional factors involving this group also include the location of their primary employment. In some bedroom communities, a majority of volunteer personnel are employed

[23] Comparison data is from the National Fire Protection Association's *Fire Department Profiles - 2005*.

outside of the respective fire district, which has negative impacts on the staffing coverage during the work week.

Regardless of the number of personnel available, what matters most is actual numbers of emergency responders the agency is able to produce at an emergency scene. This almost always relates to the actual number of emergency responders available for immediate deployment.

CCFD5 staffs one fire station with up to two career personnel per 24-hour shift. The district has an informal minimum staffing policy of two career personnel. Career shift personnel assigned to operational duty work a shift schedule comprised of 24 hours on duty, then 24 hours off duty for three cycles, followed by four days off.

Incident Staffing Performance

One of the most critical elements of measuring the effectiveness of a fire district is its ability to provide adequately trained and equipped forces to mitigate emergency situations. Though national standards and practices are developed to quantify success and minimize danger, a jurisdiction's budget most often dictates the level of service and expertise its community will have for fire protection and emergency services.

Delivering enough personnel to the scene to perform all of the concurrent tasks required to deliver quality emergency care is critical. For a cardiac arrest, this can be up to six personnel; two to perform CPR, two to set up and operate advanced medical equipment, one to record the actions taken by emergency care workers, and one to direct patient care and take care of family members. Thus, for a medical emergency the real test of performance is the time it takes to provide the personnel and equipment needed to deal effectively with the patient's condition, not necessarily the time it takes for the first person to arrive.

Fire emergencies are even more resource critical. The true test of performance is the *time* it takes to deliver sufficient personnel to initiate application of water on the fire. This is the only practical method to reverse the continuing internal temperature increases and ultimately prevent flashover. The arrival of one person with a portable radio does not provide fire intervention capability and should not be counted as *arrival* by the fire district.

NFPA 1710 and NFPA 1720 define the principle of adequate personnel as an "*effective work force*" in their standards of coverage documentation. The first three elements of a standard of coverage are time benchmarks and the fourth is the effective workforce element.

Effective Response Force

A response force is defined as the amount of equipment and personnel that must reach an incident within the maximum identified response time. An effective response force must be able to complete the critical tasks shortly after arrival in order to control the emergency. The full assignment of response units must be located close enough to effectively deliver personnel and equipment capable of completing the critical tasks.

Prevention efforts and protection systems alone cannot eliminate the risk of fire or medical emergencies; thus, emergency events cannot be held to zero. The objectives of a standard of coverage study are to identify a balance among distribution, concentration, and reliability of response force resources.

Tasks that must be performed at a fire can be broken down into two key components - life safety and fire flow. The life safety tasks are based upon the number of building occupants, their location, status, and ability to take self-preservation action. Life related tasks involve the search, rescue, and evacuation of victims. The fire flow component involves delivering sufficient water to extinguish the fire and create an environment within the building that allows entry by firefighters.

The Center for Public Safety Excellence of the International Association of Fire Chiefs (IAFC) has sample critical tasking analysis for the number of personnel required on scene for various levels of risk. This information is shown in the chart on the following page.

Figure 28: Sample Critical Task Staffing Requirements by Risk

Minimum Firefighting Personnel Required Based On Level of Risk				
Critical Task	Maximum Risk	High Risk	Moderate Risk	Low Risk
Attack line	4 (16-18*)	4	2	2
Search and rescue	4	2	2	
Ventilation	4	2	2	
Backup line/rapid intervention	2	3	3	
Pump operator	1	1	1	1
Water supply	1	1	1	
Utilities support	1	1	1	
Command/safety	2	2	1	1***
Forcible entry	*			
Accountability	1			
Salvage	*			
Overhaul	1*			
Communication	1			
Chief's aide	1	1		
Operations section chief	1			
Administration	*			
Logistics	1			
Planning	*	1*		
Staging	*	1*		
Rehabilitation	1			
Division/group supervisors	1(4*)			
High-rise evacuation	10-30*			
Stairwell support	10*			
Relief	*			
Investigation	*			
Total	**25-65***	**17**	**13**	**3-4**

* At maximum and high-risk fires, additional personnel may be needed for these tasks
** Backup line may not be required for certain incidents
***Can often be handled by the first due officer.

Emergency service agencies should have clearly defined response performance objectives established to allow evaluation of capability and service delivery. An organization's performance objectives should clearly state both the current and desired emergency service capabilities in very measurable terms. For emergency response, performance objectives should define response performance using both time and resource criteria. For example:

- Provide for the arrival of adequate resources to initiate basic emergency medical services at the scene of any medical emergency within "X" minutes following dispatch, 90 percent of the time.

- Provide for the arrival of adequate resources to initiate interior fire suppression operations at the scene of any fire within "X" minutes following dispatch, 90 percent of the time.

With specific performance criteria, a fire district can develop deployment methodologies to achieve desired levels of performance and can quickly identify when conditions in the

environment degrade performance. A more thorough discussion on standards of coverage is provided in the Delivery Section of this report as it relates to CCFD5.

In the course of this study, ESCi found that CCFD5 does not currently have measurable standards of coverage. Additionally, there are no instruments or policies in place to regularly evaluate response performance.

Staffing for a low-risk incident would typically come from the initial response from the three stations at the time of dispatch depending on the time of day and availability of volunteer personnel. Current staffing levels do not necessarily provide consistent engine company staffing at all times as outlined by NFPA Standard 1720 - *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments.* Fully staffed engine companies in some instances can only be assembled by combining the crews from multiple units arriving at the incident.

Based upon the number of career personnel assigned to a shift and the number of volunteer personnel available during workweek hours, it can be assumed that at times of the day – and even evenings and weekends – there is minimal response to provide consistent coverage in accordance with any minimum critical tasking analysis CCFD5 may do for its district. EMS transports also affect the coverage available.

This most likely reflects a difference in evaluation of critical tasking. For example, if CCFD5 provided a critical tasking analysis of three persons for a vehicle fire, the CPSE model recommends four. CCFD5, depending on staffing levels, may at times only be able to muster two personnel to such an incident. CPSE's model may anticipate the use of Self-contained Breathing Apparatus (SCBA) due to the potential for an atmosphere considered *Immediately Dangerous to Life and Health* (IDLH). In such cases, OSHA regulations (29 CFR *Respiratory Protection* - 1910.134[g][4] *Procedures for Interior Structural Firefighting* – (*two-in, two-out rule*) would require the presence of at least four persons in air packs. Based on these comparisons, CCFD5 may wish to have its standard response reflect guidelines to ensure that four-person companies can be assembled at the scene quickly, particularly if SCBA use is anticipated.

According to the CCFD5 staffing profiles, insufficient staffing occurs for initial critical tasking at certain types of high-risk incidents, such as multi-family dwellings and commercial structures, most of the time. The staffing assignment for multi-family and commercial structure fires may also be inadequate when compared to the CPSE model. In certain cases, however, additional resources may be provided through a second alarm or manual request for additional companies or mutual aid from neighboring jurisdictions.

Recommendations

- Develop standards of coverage to define the level of service that will consistently be provided in low to high risk incidents.
- Conduct a community risk analysis of all potential risks and target hazards.
- Identify all of the potential types of incidents district may be dispatched to and develop a critical tasking analysis establishing minimum staffing and response requirements for each type of incident.
- Explore other creative staffing models for career personnel to maximize their use throughout the peak demand hours.
- Explore other creative staffing models using part-time operational personnel such as residents, student interns, on-duty volunteers, apprentices, and available volunteer personnel from other surrounding jurisdictions to fill serious service gaps.
- Implement a sleeper program for its own volunteers in cooperation with the other recommended staffing programs to maximize their use, improve their training, and increase their opportunities to work closer with career personnel.

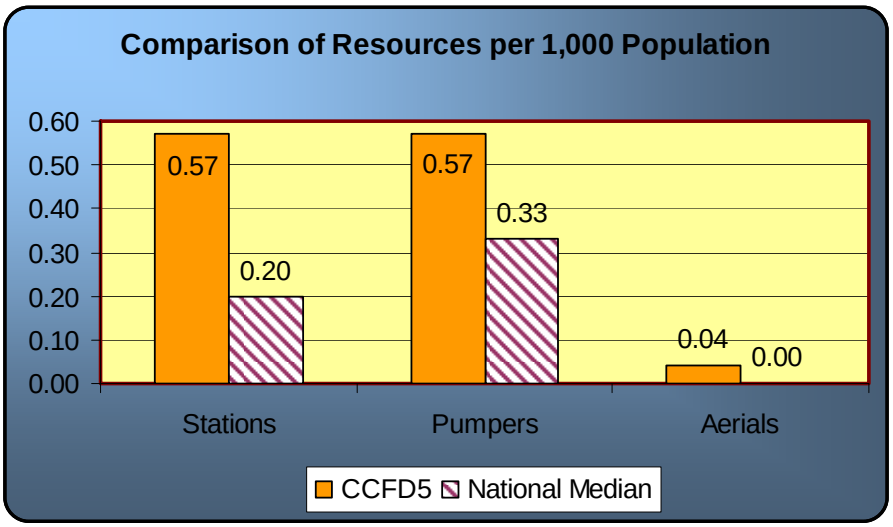
Objective Seven: Capital Asset Management

Fire districts need a balance of three basic resources to successfully carry out their emergency mission: specifically people, equipment and facilities. Because firefighting is an extremely physical pursuit, the adequacy of personnel resources is a primary concern, but no matter how competent or numerous the firefighters are, the district will fail to execute its mission if it lacks sufficient fire apparatus distributed in an efficient manner.

CCFD5 has capital assets worth several millions of dollars. These assets are necessary to provide service and must be maintained and replaced as needed. Maintenance and replacement plans should be maintained for facilities, apparatus, and other high value equipment. A funding mechanism should be established to ensure money is available to cover the cost of this effort.

When compared to fire departments in the Western region of the United States,[24] CCFD5 possesses an above average number of fire stations and apparatus (figure 29). However, the district has significant geographic challenges that require the utilization of three stations to provide consistent response to all areas. As will be seen later in this report, response coverage is a challenge but has been met fairly well by current facility distribution.

Figure 29: Facilities and Resources, Regional Comparables



[24] National Fire Protection Association (NFPA), Michael J. Karter Jr., *U.S. Fire Department Profile Through 2004*, January 2005.

Fire agencies across the country are struggling with the question of how to address the staffing issue within the boundaries of both existing and new fire stations. This appears to be a problem with CCFD5 due to the design of the headquarters fire station (Station 51). Provisions and/or space may be available at the other fire stations (Station 52 and Station 53) to address this at a time when these facilities are ready to be staffed around the clock.

Important issues to consider when designing a fire station suitable for both men and women and multiple crews must include establishing district goals, considering space for bunk rooms, restrooms, locker rooms, and other amenities connected with human habitation. Cubicles or separate rooms are a good idea when separate dorms are not possible. CCFD5 should consider this a priority and work to provide firefighters with a higher level of privacy.

Fire Stations and Other Facilities

While fire districts may have certain unique facility requirements, there are basic needs each fire station has to address: efficient response time, adequate living and work areas for personnel, and safe housing of apparatus and equipment. Everything else depends on a particular district's budget and needs. Fire station designs are unlike any other type of project. There are many subtle elements and specialized systems that must be included in a fire station.

Consideration should be given to the ability of the facilities to support the functions of the district as it may exist today and in the future. The primary functions that take place within the fire station environment should be closely examined and adequate, efficient space for all functions should be provided. Considerations would include:

- Adequate site and building security
- Communications capability
- Adequate space for apparatus
- Residential living for on-duty crew members (male and female)
- Light maintenance of equipment
- Adequate cleaning and decontamination facilities for equipment
- PPE cleaning equipment and drying facilities
- Administrative office area
- Self-contained/self-sufficiency capabilities
- Disaster supplies and capabilities

- Fire/EMS personnel training
- Wellness activities
- Storage

The CCFD5 has three fire stations: the newest built in 2003-2004, the oldest is believed to have been built in 1982 – that being the headquarters facility, Station 51 in Kalama.

Figure 30: Fire Station Summary Table

Station Number	Year Built	Square Foot of Building	Condition	General Appearance
51	1982	8,200	Fair, not suited for headquarters.	Fair
52	1991	12,100	Good, spacious	Good
53	2003	3,200	New	Good

Each fire station was given a physical on-site review for general condition, maintenance, size, efficiency, and staffing capability. Particular emphasis was placed on the ability of the station to support the mission of the district now, as well as into the future. The summary of these reviews are provided in the following matrices.

Station 51

This facility, built in 1982, began as a volunteer fire station and has been remodeled into a marginal headquarters fire station. Its proximity to a major interstate highway and frontage road, design deficiencies, and space needs make this facility a high priority in relocating.

• **Design**	The size and use of this facility is inadequate as a headquarters fire station. Limited space and cramped crew quarters make conducting business a challenge.
• **Construction**	Flat roof has required high maintenance.
• **Safety**	Building not sprinklered. Automatic door stops not working consistently. No exhaust removal system. Poor design for crew quarters. No safety space for backing into fire station from front ramp.
• **Environment**	No problems noted.
• **Code Compliance**	Built to 1982 code, has not been updated to meet current code.
• **Staff Facilities**	This facility was not designed for use as a headquarters station.
• **Efficiency**	Not energy efficient. Flat roof has experienced problems.

The headquarters fire station (Station 51) is in need of significant updates, modernization, or replacement. It was designed without adequate space for efficient housing of the staff now located in the facility. Also, it does not have adequate space for any of the other functions necessary for a headquarters facility and its operations.

The station appears it has not been given any significant updating and is marginally efficient. It provides for only the basic needs of the assigned staff.

Station 52

A spacious facility built in 1991. Fire station houses training facility and some office space. Located on a large parcel of property with an additional support facility.

• **Design**	The size of the facility and parcel is spacious and adequate for the uses it was built for. This is an unstaffed fire station.
• **Construction**	Construction is a metal building with a flat roof and large, spacious bays.
• **Safety**	Not sprinklered. Not equipped with exhaust removal system.
• **Environment**	No problems noted.
• **Code Compliance**	Appears to be code compliant with the exception of a few ADA issues.
• **Staff Facilities**	Office space is limited. Crew quarters adequate with spacious meeting/training room.
• **Efficiency**	Not energy efficient. Flat roof has experienced problems.

Station 52 appears modern and efficient. It is adequate for the purpose it serves.

Station 53

Built in 2003 this 3,200 square foot facility houses two apparatus bays. This is a single company station located in the rural area of the fire district. There are a few concerns about maintenance, public access, staff facilities, safety and efficiency.

• **Design**	The size of this facility is not adequate for staffing.
• **Construction**	Flat roof has potential for problems.
• **Safety**	Not sprinklered. No exhaust removal system.
• **Environment**	No problems.
• **Code Compliance**	Code compliant except for ADA items
• **Staff Facilities**	Adequate for a rural station house.
• **Efficiency**	Not energy efficient. Flat roof has experienced problems.

Station 52 appears to be adequate for the purpose it serves.

Figure 31: Facilities Table

Survey Component	Cowlitz Co. Fire District No. 5
Facility Master Plan.	
Facility Master plan developed.	No.
FMP updated periodically.	N/A
Period of plan (from-to).	N/A
Funding mechanism identified.	N/A
Driven by strategic or master plan?	N/A
FD facility committee involved.	N/A
Construction projects planned for:	
2006	None.
2007	Station 51 flooring & furniture, Station 52 paint.
2008	Unknown.
2009	Unknown.
Construction process.	Limited.
Strategic or master plan.	No.
FD committee.	No.
Architect/design.	When needed.

A long-range facilities management plan should include a variety of items, such as:

- Community risk analysis
- Evaluation of local comprehensive plan for growth and land use projections
- Establishment of a reasonable standards of coverage policy
- Development of deployment model for the respective jurisdiction
- Location, timing, and cost of any new facilities
- Identified long-term maintenance needs for existing facilities
- Ongoing funding plan

Recommendations

- Develop a Facility Master Plan in accordance with establish standards of coverage and strategic plan.
- Consider relocation and replacement of Station 51.
- Develop and adequately fund a long-range facilities management plan in accordance with recommendation for projected service delivery for all stations or when there is annexation.
- Initiate efforts to correct existing deficiencies as indicated.
- Install automatic exhaust removal systems in the stations that currently do not have them.
- Update facilities for staffing and other human needs as updated staffing profiles are developed.

Apparatus

CCFD5 maintains a fleet of response vehicles that is modern and well maintained. Some of the fleet has exceeded the front-line lifespan considered to be typical in the industry for each vehicle type. The average condition of vehicles is considered good. The district needs to keep apparatus replacement a priority issue in both the short and long-term to ensure continued reliability of the emergency vehicle fleet.

All apparatus of CCFD5 were reviewed and a basic inspection was performed to determine the general condition and the life expectancy, along with any specific problems. The following chart is used to determine the condition and safety status of the fire apparatus.

Figure 32: Apparatus Condition Definitions

Excellent:	Like new condition. No body or paint defects. Clean compartmentation. Interior, cab complete and in full working order with no modifications. No significant defect history. Age is less than 25% of life expectancy.
Good:	Body and cab have good appearance with no rust and only minor cosmetic defects or dents. Clean compartmentation with no visible rust or corrosion. Interior, cab is in full working order and good appearance. Normal maintenance history with no significant defects or high downtime. Age is less than 75% of life expectancy.
Fair:	Body and cab have weathered appearance with minor surface rust and some cosmetic defects or dents. Unimpeded compartmentation with only surface rust or corrosion. Interior, cab is in reasonable working order and appearance. Only repairable tank or plumbing leakage. Showing increasing age-related maintenance, but with no major defects or unreasonable downtime. Age is less than 100% of life expectancy.
Serviceable:	Body and cab have weathered appearance with surface corrosion, cosmetic defects or dents, and minor rust-through of non-structural metals (body panels). Unimpeded compartmentation with significant surface rust or corrosion and/or minor rust-through (not affecting use). Interior, cab is in rough, but working order, often with local repairs or modifications to compensate for problems. Occasional or intermittent tank or plumbing leakage. Showing increasing age-related maintenance, but with no major defects or unreasonable downtime. Most service parts still available. Age is greater than 100 percent of life expectancy.
Poor:	Body and cab have weathered appearance with surface corrosion, cosmetic defects or dents, and visible rust-through of non-structural metals (body panels). Significant rust or corrosion is present in structural or support members. Use of compartmentation is impeded with significant corrosion and rust-through. Interior, cab is in rough condition with defects impeding safe and proper use. Non-repairable tank or plumbing leakage. Problematic age-related maintenance, major defects or unreasonable downtime are evident. Service parts difficult or impossible to obtain. Age is greater than 100 percent of life expectancy. Vehicle exceeds its GVWR.

Each piece of apparatus was given a basic review for condition and safety. The following matrices describe any notations made during this review.

Fire Suppression Apparatus Matrix

Station Assigned: 51	Apparatus Number: E-51
	***Year: 2001*** ***Make: Freightliner*** ***Chassis: Pierce*** ***Primary Function/Assignment: Class A Pumper*** ***Seating Capacity: 5*** ***Pump Rating: 1500 GPM*** ***Tank Capacity: 750 Gallons*** ***Level of Equipment: Good*** ***Special Features: Husky foam system w 70 gallon tank*** ***Condition: Excellent***
Additional Comments or Observations: **Appears well maintained.**	
Station Assigned: 52	**Apparatus Number: E-52**
	***Year: 1997*** ***Make: Freightliner*** ***Chassis: Pierce*** ***Primary Function/Assignment: Class A Pumper*** ***Seating Capacity: 5*** ***Pump Rating: 1250 GPM*** ***Tank Capacity: 750 Gallons*** ***Level of Equipment: Good*** ***Special Features: Foam-Pro educator w/30 gallon tank*** ***Condition: Good***
Additional Comments or Observations: **Appears well maintained.**	
Station Assigned: 53	**Apparatus Number: E-53**
	***Year: 1980*** ***Make: American LaFrance*** ***Chassis: American LaFrance*** ***Primary Function/Assignment: Reserve*** ***Seating Capacity: 4*** ***Pump Rating: 2000 GPM*** ***Tank Capacity: 750 Gallons*** ***Level of Equipment: Adequate*** ***Special Features: Setup to be used for M.F.S.A. mutual aid engine*** ***Condition: Serviceable***
Additional Comments or Observations: **New poly-tank installed in 1999.**	

Station Assigned: 53	Apparatus Number: BR-53
	***Year: 2004*** ***Make: Ford /DNR*** ***Chassis: Ford F-450*** ***Primary Function/Assignment: Wildland Type 6*** ***Seating Capacity: 2*** ***Pump Rating: Mark 3 300-PPMM 300-GPM*** ***Tank Capacity: 300 Gallons*** ***Level of Equipment :Good*** ***Special Features: 20 gallon foam cell, 12,000-pound Ramsey front mount winch*** ***Condition: Excellent***
Additional Comments or Observations: **Appears well maintained.**	
Station Assigned: 52	**Apparatus Number: BR-52**
	***Year: 2004*** ***Make: Ford /DNR*** ***Chassis: Ford F-450*** ***Primary Function/Assignment: Wildland Type 6*** ***Seating Capacity: 2*** ***Pump Rating: Mark 3 300-PPMM 300-GPM*** ***Tank Capacity: 300 Gallons*** ***Level of Equipment :Good*** ***Special Features: 20 gallon foam cell, 12,000-pound Ramsey front mount winch*** ***Condition: Excellent***
Additional Comments or Observations: **Appears well maintained.**	
Station Assigned: 51	**Apparatus Number: TE-51**
	***Year: 1981*** ***Make: Omco*** ***Chassis: Ford*** ***Primary Function/Assignment: Tender*** ***Seating Capacity: 2*** ***Pump Rating: 750 GPM*** ***Tank Capacity: 3,000 Gallons*** ***Level of Equipment: Adequate*** ***Special Features: None noted*** ***Condition: Good***
Additional Comments or Observations: **Reconditioned in 1987, this unit had an engine in frame in 1997 and had the water tank relined in 2000.**	

Station Assigned: 52	Apparatus Number: TE-52
	***Year: 1982*** ***Make: Omco*** ***Chassis: Ford*** ***Primary Function/Assignment: Tender*** ***Seating Capacity: 2*** ***Pump Rating: 750 GPM*** ***Tank Capacity: 3,000 Gallons*** ***Level of Equipment: Adequate*** ***Special Features: Air control values in cab to operate discharges*** ***Condition: Good***
Additional Comments or Observations: **Reconditioned in 1990, tank relined in 2001.**	
Station Assigned: 51	**Apparatus Number: FB-51**
	***Year: 1978*** ***Make: Bayliner*** ***Chassis: 26'*** ***Primary Function/Assignment: Fire Boat*** ***Seating Capacity: 8*** ***Pump Rating: 3,000 GPM*** ***Tank Capacity: None*** ***Level of Equipment: Adequate*** ***Special Features: None noted*** ***Condition: Serviceable***
Additional Comments or Observations: **Shows a lot of usage, boat moored at public boat docks.**	

EMS Apparatus Matrix

Station Assigned: 51	Apparatus Number: M-51
	***Year: 2003*** ***Make: Lifeline Type-3*** ***Chassis: Ford F-350*** ***Primary Function/Assignment: Medic Unit*** ***Seating Capacity: 2*** ***Transport Capable: 2*** ***ALS Equipped: Yes*** ***Level of Equipment: Good*** ***Special Features: None noted*** ***Condition:*** **Excellent**
Additional Comments or Observations: **Appears well maintained.**	

Station Assigned: 51	Apparatus Number: M-52
	***Year: 1998*** ***Make: Horton Type-3*** ***Chassis: Ford*** ***Primary Function/Assignment: Medic Unit*** ***Seating Capacity: 2*** ***Transport Capable: 2*** ***ALS Equipped: Yes*** ***Level of Equipment: Good*** ***Special Features: None noted*** ***Condition*: Good**
Additional Comments or Observations: **Appears well maintained.**	

Rescue/Special Operations Apparatus Matrix

Station Assigned: 51	Apparatus Number: R-51
	***Year: 1998*** ***Make: BME*** ***Chassis: Chevrolet*** ***Primary Function/Assignment: Light Rescue*** ***Seating Capacity: 2*** ***Level of Equipment: Good*** ***Special Features: None noted*** ***Condition*: Excellent**
Additional Comments or Observations: **Seating capacity could be larger, load capacity appears small, and vehicle is overloaded.**	
Station Assigned: 52	**Apparatus Number:**
	***Year: 2006*** ***Make: Cargo Mate*** ***Chassis: 7'X14'*** ***Primary Function/Assignment: Technical Rescue*** ***Seating Capacity: N/A*** ***Level of Equipment: Good*** ***Special Features: None noted*** ***Condition*: Excellent**
Additional Comments or Observations: None.	

Command Apparatus Matrix

Station Assigned: 51	Apparatus Number:U- 52
	***Year: 2004*** ***Make: Ford*** ***Chassis: Expedition*** ***Primary Function/Assignment: Fire Chief's vehicle*** ***Seating Capacity: 6*** ***Mobile Command Post: Yes*** ***Level of Equipment: Adequate*** ***Special Features: 4x4*** ***Condition: Excellent***
Additional Comments or Observations: **Appears well maintained.**	
Station Assigned: 51	**Apparatus Number: U- 51**
	***Year: 2007*** ***Make: Ford*** ***Chassis: Expedition*** ***Primary Function/Assignment: Duty Officer Vehicle*** ***Seating Capacity: 6*** ***Mobile Command Post: Yes*** ***Level of Equipment: Adequate*** ***Special Features: 4x4*** ***Condition: Excellent***
Additional Comments or Observations: New vehicle	

Auxiliary/Support Apparatus Matrix

Station Assigned: 52	Apparatus Number: U- 53
	***Year: 2001*** ***Make: Ford*** ***Chassis: F-350*** ***Primary Function/Assignment: Tow Vehicle*** ***Seating Capacity: 4*** ***Special Features: 4x4, tow package*** ***Condition: Excellent***
Additional Comments or Observations: **Appears well maintained.**	

Apparatus Replacement

Just as a fire district needs a current strategic plan to guide its daily, short-term and long-term decision making, the organization must also include as a part of that process long term

considerations for its expensive response fleet. In today's world, asking the public to pay for the replacement of fire apparatus via bond issues is a significant challenge and modern fire districts must consider establishing replacement schedules and dutifully making annual contributions to those schedules via an apparatus replacement fund.

CCFD5 has recently updated its apparatus replacement configurations. The fire chief has established provisions for both replacement of end-of-life apparatus and also provisions to extend the life of some apparatus by refurbishing them. These replacement charts are included in the appendix.

Figure 33: Apparatus Table

Survey Component	Cowlitz Co. Fire District No. 5
Apparatus Plan.	
Apparatus amortization table maintained.	Yes.
ARP updated.	2007.
Period of plan (from-to).	2007-2017.
Funding mechanism.	Reserves .
Strategic or master plan driven.	No.
FD apparatus committee involved.	Yes.
Purchase-refurbishment planned for:	
2006	No.
2007	Ambulance/tender.
2008	Tender/command.
2009	Rescue.

It should be noted that the charts in the appendix represent funding levels needed for a capital replacement fund that is both adequate and up to date, assuring cash is available for purchase at the expected time of replacement. This is not meant to exclude other funding methods from consideration. For instance, during time periods when the market provides low rates, municipal lease-purchase programs can be financially efficient. It does, however, require firm commitment on the part of the elected officials toward a scheduled apparatus replacement program.

It is far too common, when faced with a large capital purchase that is competing with other community needs, for districts to delay such purchases to the point where efficiency or safety are compromised. CCFD5 can avoid such conditions by remaining firmly committed to a reasonable and effective capital replacement program for fire apparatus.

Fleet Maintenance

CCFD5 facilitates the majority of its vehicle fleet management and maintenance program except for major repairs. The CCFD5 career staff is responsible for most preventive maintenance and repairs for fire district vehicles as well as small equipment repairs. Currently, there is one firefighter/mechanic who oversees the maintenance services while others assist. In total, the career members are responsible for 12 frontline vehicles, two command vehicles and one support vehicle as well as a large inventory of small equipment for the fire service.

The emergency service has always ensured that response and rescue personnel are trained and certified to appropriate levels based on *accepted standards*, such as the NFPA standards for firefighters and fire officers. Similar emphasis should be placed on establishing a maintenance training program using nationally recognized standards. Currently, CCFD5 does not use standards set by the Emergency Vehicle Technician Certification Commission, Inc. (EVT).

The EVT is a nonprofit corporation dedicated to improving the quality of emergency vehicle service and repairs throughout the United States and Canada. CCFD5 does use Automotive Service of Excellence (ASE) - a nationally recognized institution that primarily certifies mechanics in automotive and commercial repairs. ASE's mission is to improve the quality of vehicle repair and service through the testing and certification of repair and service professionals. CCFD5 should pursue advancing its firefighter/mechanic through the certification courses of the EVT program, since these programs are specifically tailored to the emergency service industry and its unique apparatus. Another alternative to consider would be contracting with a private or public entity for full-time maintenance services.

Support and Small Equipment

CCFD5 uses career firefighters who are certified and trained to inspect, repair and certify self-contained breathing apparatus (SCBA) for the fire district. CCFD5 does annual and routine checks on its SCBAs.

Small equipment can take a significant bite out of an annual budget. Small equipment can be quite expensive and has the additional challenge of having its life limited by technology improvements. A small equipment replacement plan should also be established. At this time CCFD5 does not have such a plan. CCFD5 does include replacement funding in its annual

budget for equipment that is known to be in need of replacement, but this is not done by a scheduled replacement plan.

The plan, like facilities and apparatus, should include a schedule of equipment covered, estimated life expectancy, replacement cost and annual contributions required to replace equipment as needed. It is recommended that all equipment with a value of more than $5,000, as well as groups of equipment with an aggregate value of more than $5,000, be included in the plan. Examples include:

- Automatic external defibrillators
- Portable and mobile radios
- Computer equipment and systems
- Shop diagnostic and maintenance equipment
- Breathing apparatus
- Computer software (major systems)

Recommendations

- Evaluate current fire stations and develop a Facility Master Plan.
- Develop and fund a small equipment replacement program that anticipates replacement schedules and builds necessary funding in order to spread cost over multiple years.

Pump Testing and Hose Testing

Two necessary procedures that are required annually and must be documented are pump testing and hose testing. The life expectancy of a section of fire hose is determined by the care it receives. Hose is susceptible to mechanical injury, heat and fire damage, mold and mildew, and damage due to chemical contact and excessive pressures. Because of this, an inventory of all fire hose should be recorded along with a history of each section of hose. Our review indicates that CCFD5 has consistently conducted hose testing and recording keeping.

Fire pumps are one of the most critical and expensive parts of any fire apparatus. The care and routine check of a fire pump is a daily necessity and is performed at CCFD5 by the assigned driver/operator position.

Part of the preventive maintenance program requires that all fire pumps be serviced every six months. This test includes draining and refilling the fluids in the transfer case, greasing of the bearings, lubricating all ball valves, linkage, drain valves and pressure relief valves. In addition to the above checks, the booster tank water level gauge is also inspected along with all other gauges, and pump panel lights. This test is performed every six months and an annual pump test is performed every 12 months. Our review indicates that CCFD5 has done a consistent job in pump testing and recording keeping. There was not evidence of regular pump maintenance.

Turnout Gear Maintenance Program

The latest revisions to National Fire Protection Association Standards 1500, 1581, and 1971 have addressed the health and safety risks associated with contaminated turnout gear by requiring that protective clothing be cleaned at least once every six months. Based on these new requirements put into place by the standards and similar changes being made by OSHA, fire agencies across the country are trying to find inexpensive ways to effectively comply.

The wear life of turnout gear will depend largely on the type of department, number and types of fires fought, and the aggressiveness of the standard procedures. However, proper care will enable organizations to lengthen their replacement cycle for new gear and reduce annual capital expenditures.

CCFD5 utilizes an approved extraction cleaner for turnout cleaning. However, the district does not have separate turnout drying and storage areas. Separate drying and storage areas should have adequate and separate ventilation that keeps contaminants from off-gassing into living and work areas.

Many fire districts have realized significant savings by having gear which previously would be discarded due to heavy contamination or excessive wear and tear evaluated by certified companies that professionally clean and repair the gear. The cost of cleaning and repairing turnout gear will often result in reduced replacement cost. CCFD5 annually inspects and sends turnout gear out for cleaning and repairs but does not have a semi-annual program for turnout gear inspection, cleaning, and maintenance.

Recommendations

- Initiate a semi-annual program for all turnout gear inspection, cleaning and maintenance.

- When renovations or new construction of stations takes place, CCFD5 should consider enclosed turnout gear rooms with a separate ventilation system installed to ensure gear dries efficiently and any contaminants are kept separated from living areas until gear is adequately cleaned.

Objective Eight: Emergency Services Delivery

The delivery of fire suppression and rescue services is no more effective than the sum of its parts. It requires efficient notification of an emergency, rapid response from well-located facilities, appropriate apparatus, and follows a well-practiced plan of action with sufficient staffing. This section evaluates these various components and provides observations of the elements that make up the delivery of the most critical core services provided by the Cowlitz County Fire District No. 5.

Notification System

CCFD5 is provided communications and dispatch services through the Cowlitz County 911 Emergency Communications Center (CCC). CCC is operated through an inter-local agreement with Cowlitz County to the cities and fire districts in the county. The communications center is operated and funded under the terms in the inter-local agreement..

The center functions as the dispatch point for all police, fire, and EMS calls within the county, providing service to a total of 15 agencies. CCC is governed by an executive board of city managers and elected officials represented by agencies signatory to the inter-local agreement. CCC is managed by a communications director, Laurie Massee, who answers to the executive board, the E-911 Board, and the Cowlitz County Commissioners.

CCC maintains a minimum of four to six on-duty dispatchers, and shift oversight is provided by one of three lead dispatchers. In addition, consoles are available for a supervisory position. Cowlitz Fire & Rescue No. 2 provides back-up communications for fire agencies for CCC.

The communications center handled 133,269 incoming telephone calls in 2006. Of those, 68,495 were emergency calls for service 41,736 through landlines, and 26,759 via cellular phones.

CCC is equipped with seven incoming 9-1-1 lines, nine seven-digit transfer lines, and one incoming line for voice-over-internet calls (VOIP). The dispatch center is the primary Public Safety Answering Point (PSAP) for the county.

Computer-aided dispatch software is available to the fire dispatchers. Call processing and dispatch is handled with automated processes that identify the correct unit or fire stations to dispatch.[25] The system relies on geographic information maintained by the county. Information is updated at least every two weeks. The CAD is programmed with a minimum of three layers of back-up alarm recommendations.

Formal call processing time standards have been established and there is a system for quality control. The center's performance objectives include a call processing time of 90 seconds or less on 100 percent of all critical or high-risk calls. Performance standards and regular monitoring of dispatcher performance are as important to agency response time. The call receipt and notification process makes up the first critical component of response time to an incident.

A report provided by the center for March 2006 listed an average call processing time for various incident categories. Most call processing times in the report were well within normal ranges, with medical emergencies being processed in only 26 seconds.

Notification of the fire district takes place by specific unit dispatch, with programmed assignment of specific apparatus type and quantity. Apparatus availability for the district is tracked automatically by the CAD system and back-up assignments are determined with assistance from the CAD software. Computer tracking of dispatch, arrival and control times are available and tracked by CAD.

Notification takes place by direct line VIC in-station printers and radio. This provides two redundant methods for transmitting alarms. Field personnel are notified by tone-encoded radio receivers.

Dispatchers are certified in the Emergency Medical Dispatch system, allowing them to provide pre-arrival instructions to bystanders at medical incidents. Medical priority dispatching is also used, ensuring that the correct resources respond to various types of medical emergencies, based on described conditions and symptoms.

[25] The CAD system is manufactured by Northrup™ (formally PRC); OSSI, and is a geo-based system running on a Windows™-based SQL server.

Cowlitz County's radio system operates through seven un-trunked repeaters on digital VHF[26] frequencies from seven primary tower sites.

The dispatch center has adequate contingency plans for system failure. Back-up power is in place with spare consoles available. A back-up transmitter and a functionally redundant dispatch site are available. Radios are pre-programmed with one or more alternate radio systems whose controllers are set up for redundant operation in an emergency. Evacuation and transfer drills should be conducted at least annually to train dispatchers in emergency relocation and other system failure procedures.

Figure 34: Notification and Response Table

Survey Component	Cowlitz Co. Fire District No. 5
Emergency dispatch agency.	Cowlitz County Communications Center.
9-1-1.	Yes.
Enhanced 9-1-1.	Yes.
Computer assisted dispatch (CAD).	Yes.
Hardware used.	Yes – CAD .
Software used.	Northrup PRC .
Method used to dispatch equipment.	Plectron paging through CAD.
Method used to notify personnel.	Z Tron – Plectron voice paging through CAD.
Emergency medical dispatch (EMD).	Yes – NAEMD Priority Dispatch.
Geo data base.	Yes.
9-1-1 time standards .	
Call answering/taking standards adopted.	Yes.
Dispatching standards adopted.	Yes.
Evaluation of response times.	
By time/day/month.	Fire and Medical Q/A.
By alarm type.	No.
Hard data available.	Yes.
Hard data analyzed.	Yes as part of Q/A.
Emergency communications system.	
Communications platform.	VHF.
Number of channels licensed.	14.

[26] VHF – Very high frequency (VHF**)** is the radio frequency range from 30 MHz to 300 MHz.

Incident Management

CCFD5 uses standardized response assignments based on the type of call dispatched. These assignments are intended to provide the quantity and type of apparatus needed for the incident, as well as adequate personnel to accomplish the critical tasks to mitigate the emergency. The fire district used an informal critical task analysis to develop its standard of cover. However, it appears that response protocols provide a reasonable level of apparatus and manpower for each incident type when staffing is at target level.

Maps are available in all district apparatus. Pressurized hydrants and water main sizes are identified on some maps available to the Incident Commander. No static water points have been mapped, nor have any pre-designated water shuttle plans been prepared in the event of water system failure.

The department maintains a duty officer system using the fire chief and volunteer officers, ensuring that one individual designated for incident command will be available 24 hours a day. The district also reports that the Incident Management System is used on all calls.

The district is working to adapt its incident command system to the new National Incident Management System (NIMS). This system integrates effective practices in emergency preparedness and response into a comprehensive national framework for incident management. The NIMS will enable responders at all levels to work together more effectively and efficiently to manage domestic incidents no matter what the cause, size, or complexity, including catastrophic acts of terrorism and disasters. The NIMS system will eventually involve:

- Standardized organizational structures, processes and procedures;
- Standards for planning, training and exercising, and personnel qualification standards;
- Equipment acquisition and certification standards;
- Interoperable communications processes, procedures and systems;
- Information management systems; and
- Supporting technologies – voice and data communications systems, information systems, data display systems, and specialized technologies.

NIMS has become a standard that must be met to secure certain federal funds and grants. CCFD5 has adopted NIMS (September 2004) and has been working toward total compliance.

A fireground accountability system is in place for the fire district. However, stakeholder interviews provided conflicting information as to the extent of compliance that is achieved on various incidents. Most stakeholders indicated the system is primarily implemented in alarms involving significant incidents.

Response Performance Analysis

A recent study jointly conducted by NFPA and the Federal Emergency Management Agency (FEMA) examined the emergency response workload, capital resources, and the number of firefighters (career and volunteer) in communities across the U.S. A previous NFPA study provides other information about U.S. fire department staffing and resources. As a tool for analytical and comparative evaluation, ESCi uses data from the two related studies to develop a series of comparative benchmarks for fire protection organizations. ESCi emphasizes that the benchmarks used in this report do not represent standards of service. Rather, the measurements are intended only as references to assist policymakers in comparing their organizations with others in a similar demographic or region. Some benchmarks use a regional point of reference (i.e. Western United States), while others compare the department with a national sample.

The value of evaluating incident data is to discover the workload and performance of a community's emergency services as well as to begin to develop planning tools and resource allocations to better meet demands for service. Evaluation and analysis helps identify the direct relationship between community characteristics and demographics and the effects that they have on public safety services.

Response Analysis

In 2006, CCFD5 responded to nearly 800[27] requests for emergency assistance. The alarm profile and distribution of incidents is fairly typical of fire departments of similar size and character. The distribution of those alarms among the various response categories are detailed in the following figure.

[27] Includes automatic and mutual aid responses.

Figure 35: Workload by Call Type

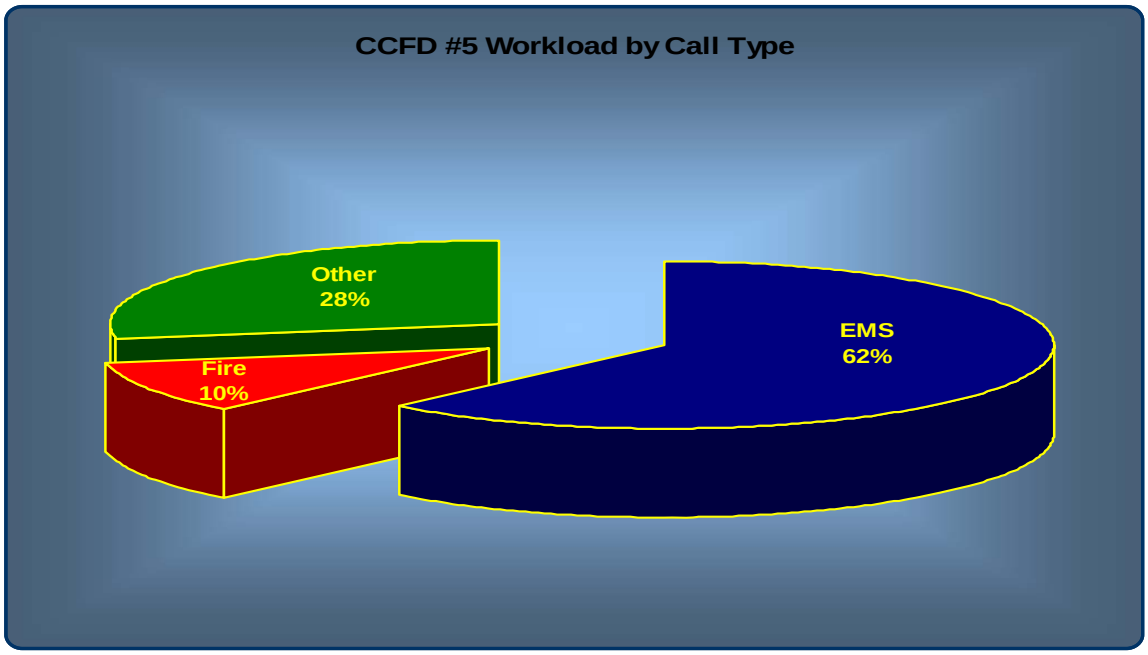


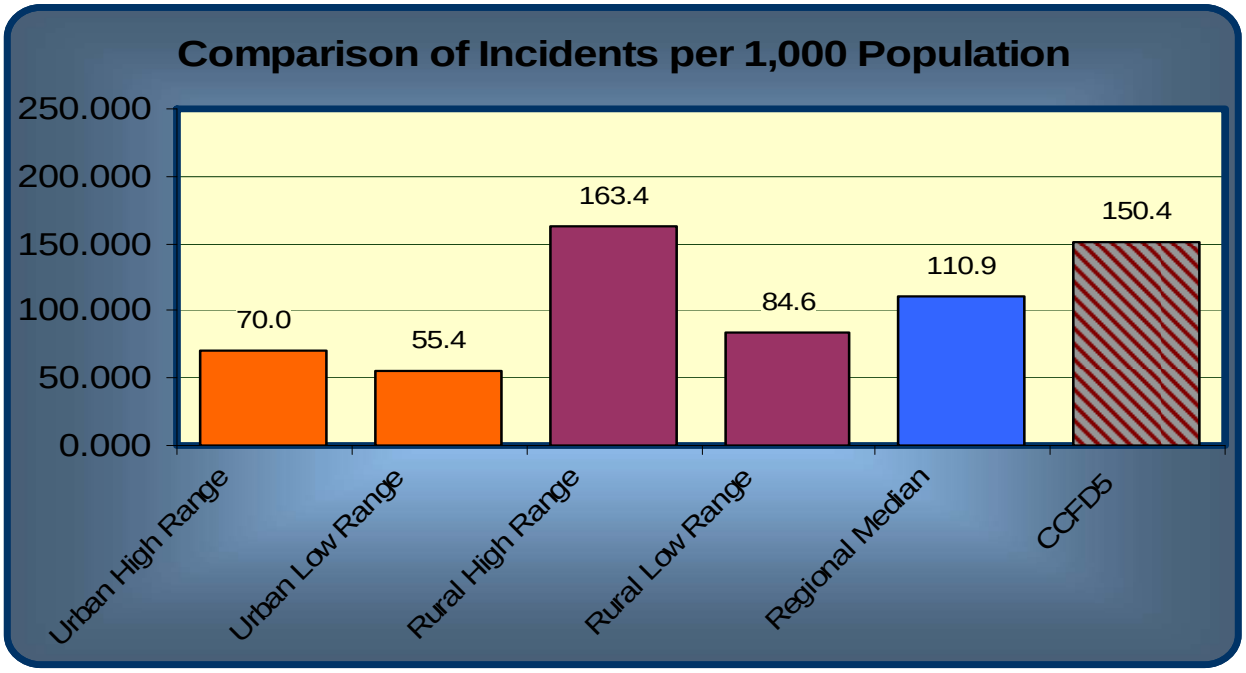
Figure 35 shows the breakdown of emergency and non-emergency service demand. A measurable amount of public requests for assistance comes in the form of non-emergency requests (10 percent) or incidents that do not require a full emergency response of the fire district.

Generally, EMS-type incidents will be responsible for a greater number of requests for service than other incident types. Approximately 62 percent of the CCFD5 responses were requests for medical response – both emergency and non-emergency. This is a somewhat lower percentage than typically seen in suburban or rural fire departments.

As illustrated in the following figure, the emergency workload of CCFD5 is higher than the range of other similar-sized urban/rural communities of similar size. At 150.4 incidents per 1,000 residents, the CCFD5 workload is greater than the regional median of other Western United States fire departments of comparable size and demographics.

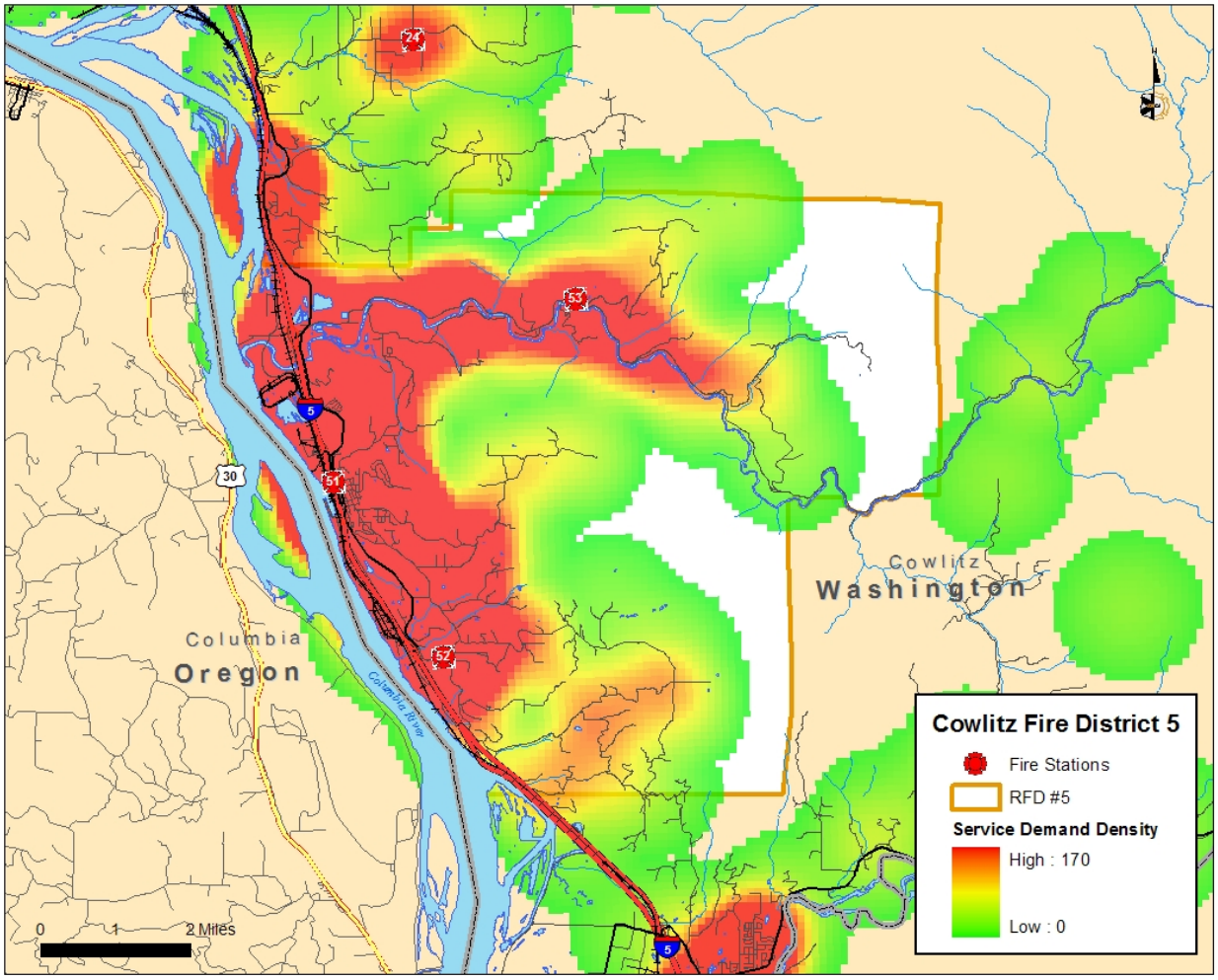
Comparing CCFD5's incidents to the four high and low range medians, only the Rural High range fire agencies experience approximately the same workload as the district does.

Figure 36: Incidents per 1,000 Population, National and Regional Comparables



Age and characteristics of a community reflect greatest on the demand for public safety services. Figure 37 demonstrates the workload density of the fire district as compared to the population. CCFD5's workload is centered in the core area of the city of Kalama, with pockets of high activity in other residential areas. Emergencies occur most frequently in the more populated portions of the service area. This is expected, since it is human activity not population numbers that will dictate emergency response. Over 70 percent of all fires as reported by the NFPA occur because of human behavior, either the inappropriate use of heat or the failure to maintain equipment, along with other factors. The following map shows the geographic service demand density of responses during the study year.

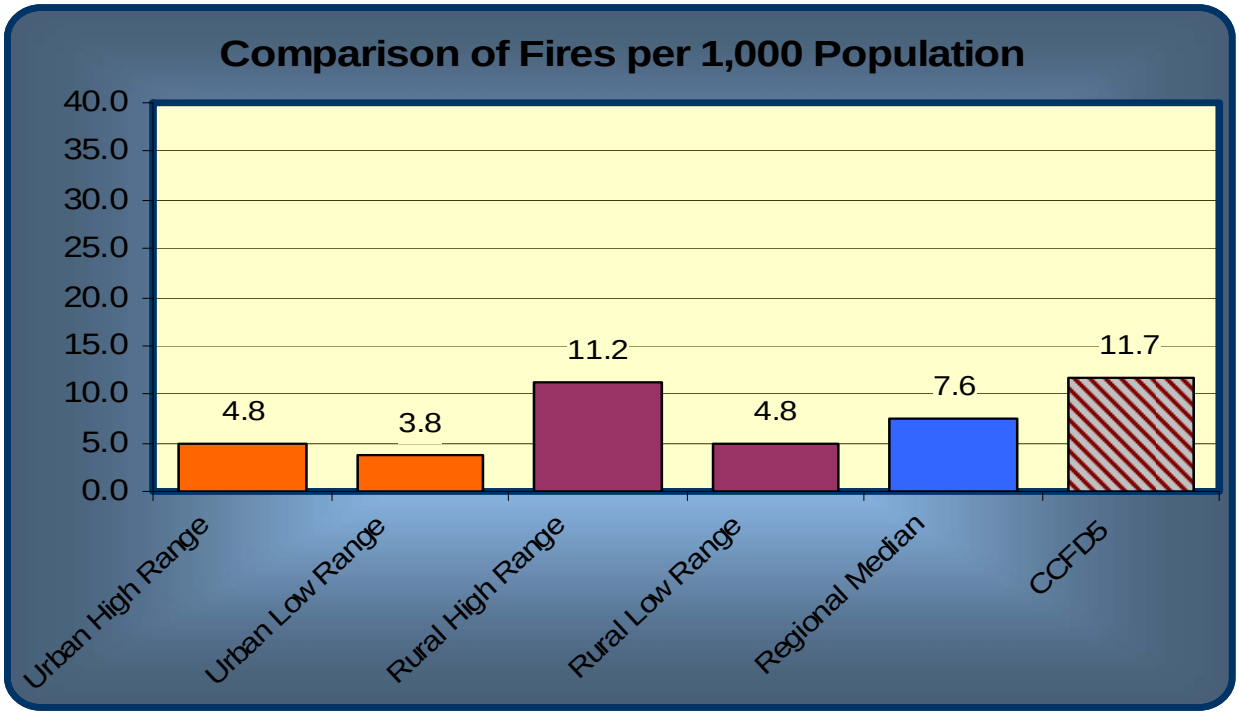
Figure 37: Service Demand Density Map



Current fire station locations reflect the most optimum placement relative to the demand for service.

The NFPA chart in Figure 38 provides a national comparison for the number of fire type responses per 1,000 residents. CCFD5 averages approximately 37 fire responses per 1,000 population, which is nearly three times greater than the median of other regional fire agencies serving similar populations.

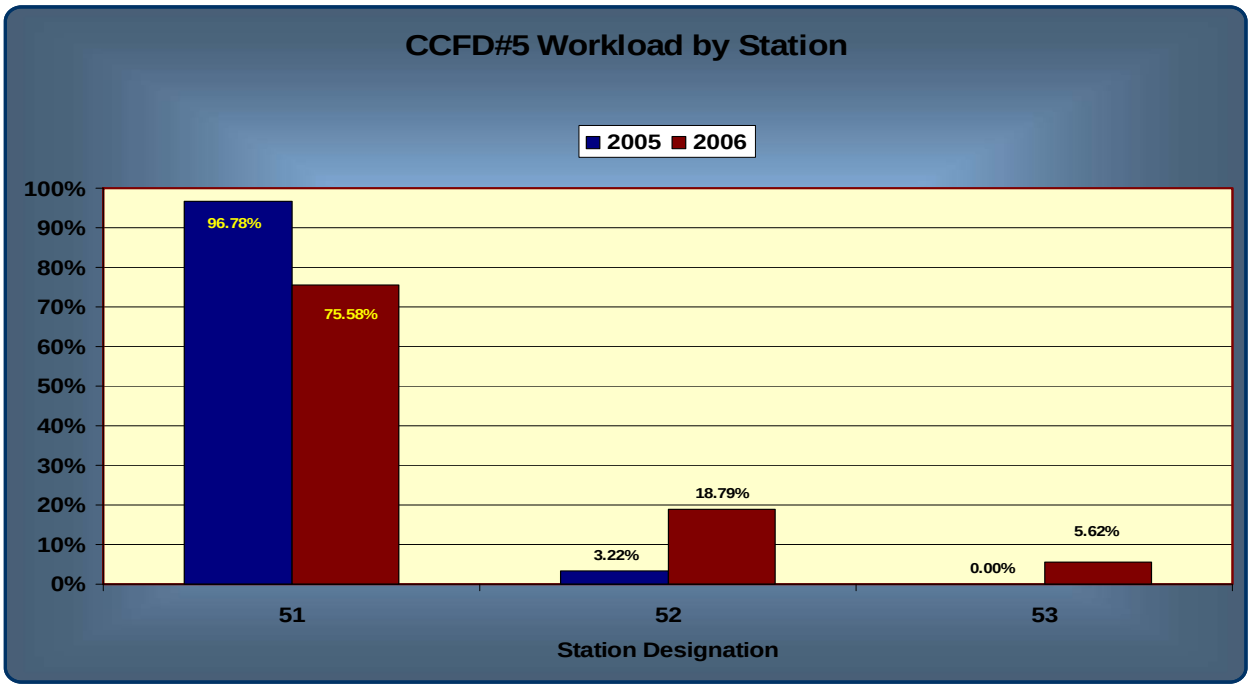
Figure 38: Fires per 1,000 Population, National and Regional Comparables



CCFD5 fire response per 1,000 residents is significantly higher than the midpoint of the national range of urban fire departments (3.8 to 4.8 per 1,000), and more than 50 percent greater than the regional median of similar jurisdictions. In the following figures, a brief explanation occurs which provides background to this profile.

Figure 39 illustrates the distribution of incidents by station as they occurred in 2005 and 2006. Note that the figure represents the location of the incidents in the fire district relative to the fire station location. In some agencies, the jurisdiction is divided into fire zones in order to better manage incident data. For CCFD5, the incident data only indicates the station area in which the incident occurred.

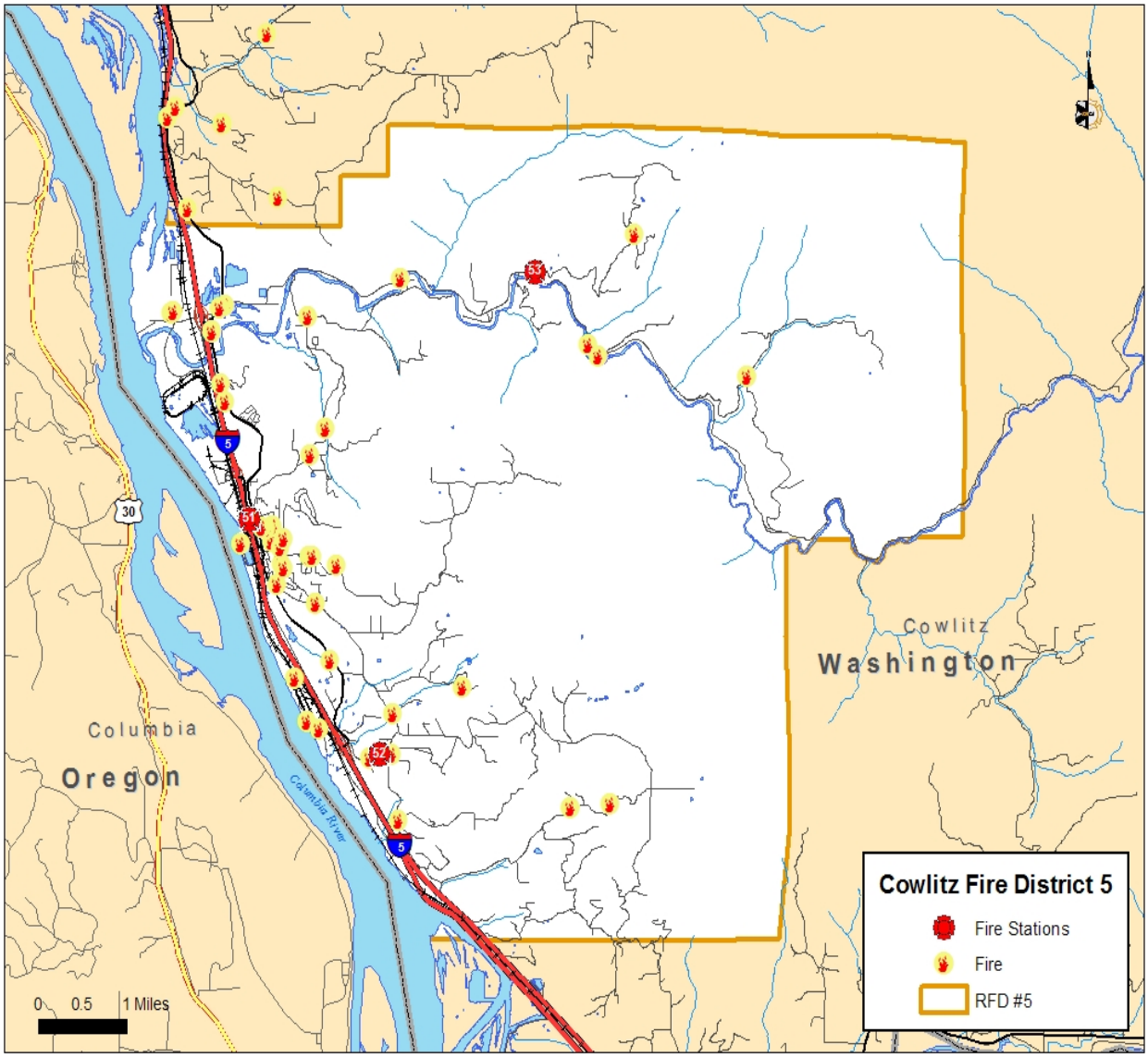
Figure 39: Workload by Station, 2005 and 2006



The map on the following page reflects a visual overview of the actual fire type workload from a geo-coded, GIS mapping perspective, and illustrates the concentration of fire activity as it relates to the population and the density of the district. An examination of the three-year fire loss average for the fire district shows a higher level when compared to similar communities in the region.

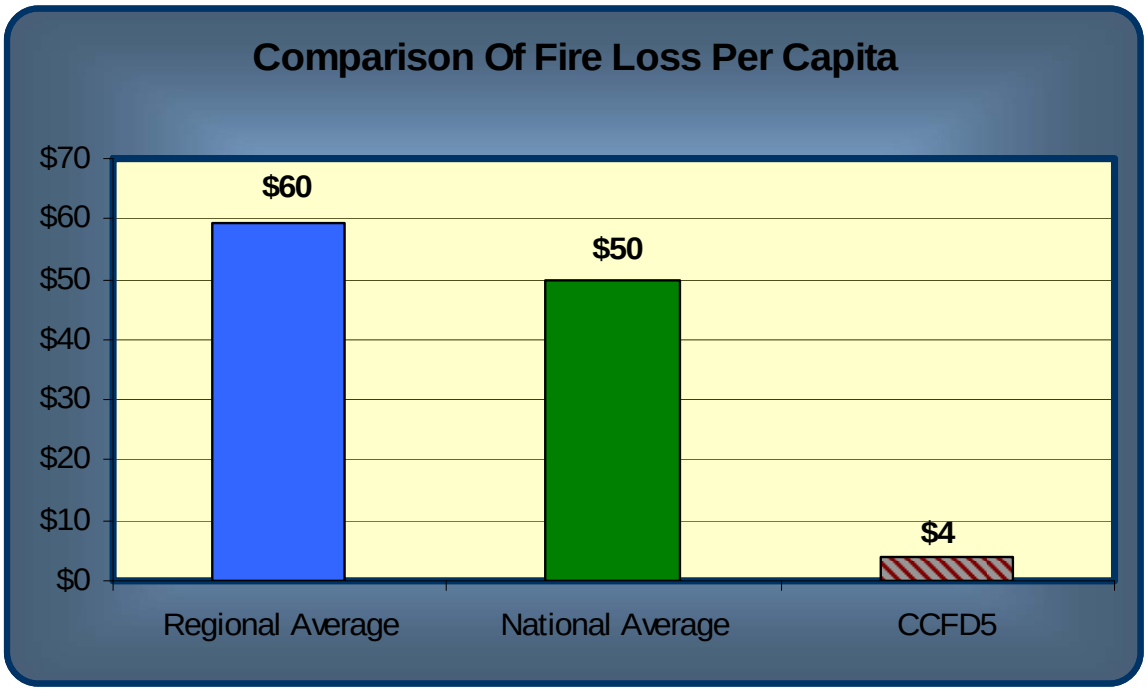
In analyzing this figure, it is clear that the interstate highway (I-5) and the port/industrial areas of the fire district pose the largest threat and account for a large share of the CCFD5 workload. The Port of Kalama is a source of revenue for the district in the form of a leasehold tax from port- owned facilities and a fire levy from other private and commercial interests.

Figure 40: Fire Workload



As illustrated in Figure 41 on the following page, the fire loss per capita for CCFD5 is significantly lower than the regional average and national average. This data is inconsistent with previously displayed fire incident data and leads the analyst to believe that there is clearly a data reporting error with regard to the number of actual fires in the district. Incident reporting for 2005-2006 did not capture the estimated fire loss of CCFD5. Consequently, the fire loss profile is a fraction of the regional and national comparison.

Figure 41: Fire Loss per Capita, National and Regional Comparables



Workload Analysis

As an analytical part of this study, ESCi evaluated the frequency that alarms occurred for Cowlitz County Fire District No. 5. The workload of an agency has a direct affect on the ability to meet established response performance measures. By understanding, analyzing, and plotting the ongoing workload, more accurate and efficient methods of addressing that workload can be accomplished to maximize service and minimize cost.

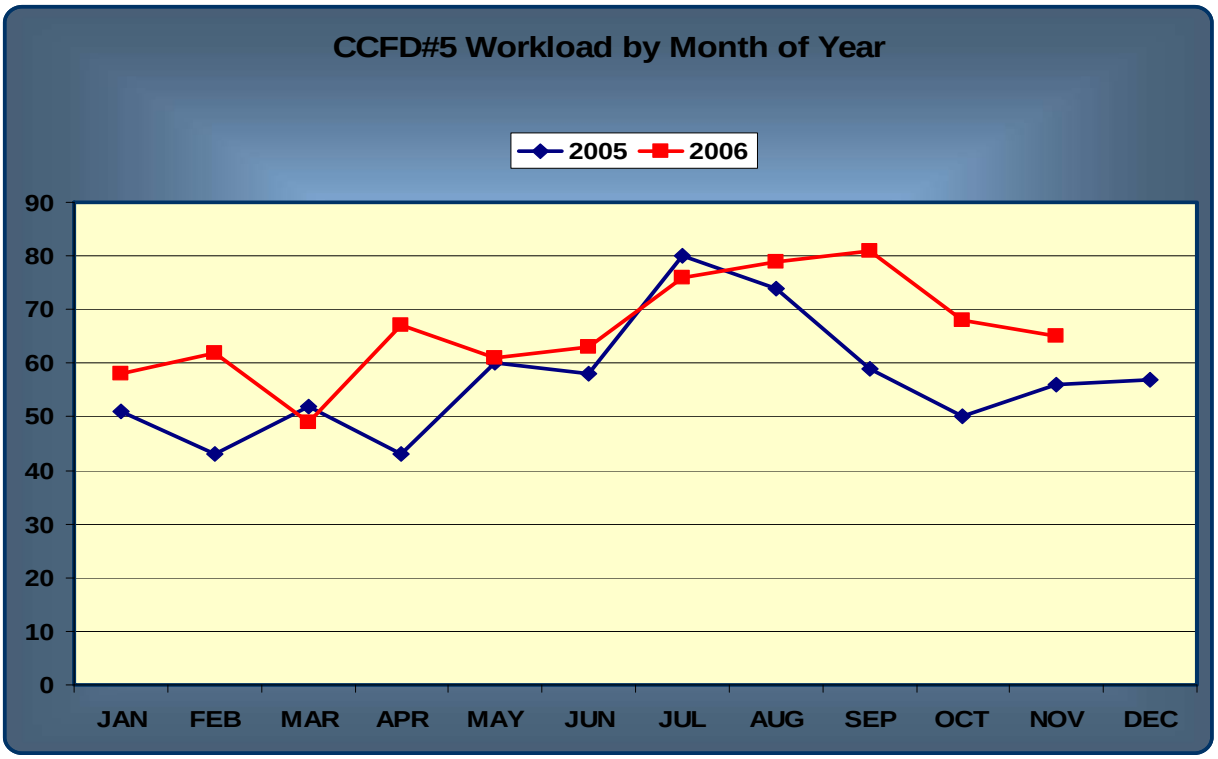
Identifying the variations in a fire district's workload can also be useful when evaluating and planning the assignment of response resources, developing standards of coverage doctrines, and adopting response performance standards. It also emphasizes the efficiency of cooperative service opportunities between mutual aid agencies on a short, middle, and long term basis to address those workloads.

CCFD5 Workload Analysis

The workload experience of the fire district is illustrated in Figure 42. It is predictable that a fire district would experience a marginal increase in its workload during the summer months. With

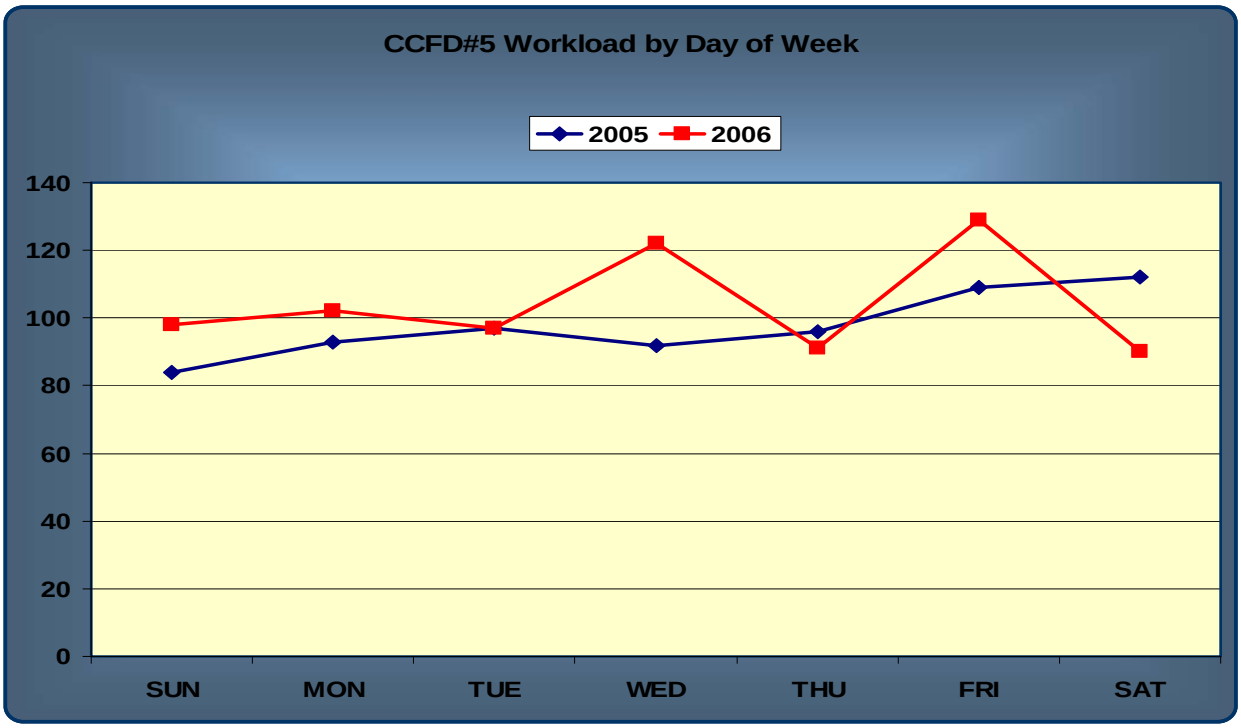
the exception of February and November, incident activity gradually builds towards the summer months and then dips back into a fairly average pattern in winter. This is not unusual, as the change in weather and school vacations frequently impact a fire department's workload.

Figure 42: Workload by Month of Year, 2005 and 2006



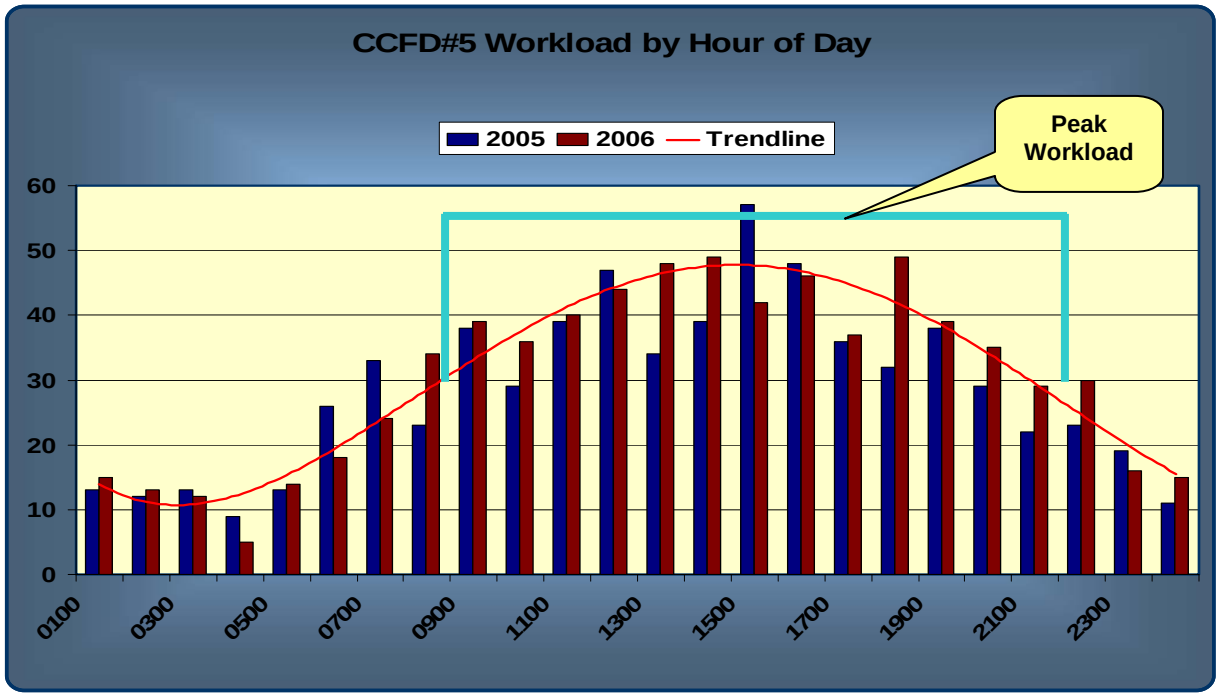
The demand for service in 2005 showed no remarkable variation between the days of the week (Figure 43). In 2006, Wednesdays and Fridays were peak workload days at CCFD5. Monthly and weekly workload patterns will typically change from year to year based upon a number of factors, particularly the weather pattern for that given year. While there is no remarkable impact on an agency with regards to the opportunity of incident activity, keeping good records and evaluating long-term patterns of the incident workload from a yearly, monthly, weekly, and hourly basis help in developing staffing models that match the anticipated service demands. Scheduling educational activities, time-off, and other functions that affect staffing levels should be matched against this long-term profile. These efforts can assist in developing consistent services and meeting the agency's adopted standards of cover.

Figure 43: Workload by Day of Week, 2005 and 2006



The fire district workload experience, when evaluated by time of day, is typical of what ESCi experiences with most jurisdictions. There is a relative correlation between the characteristics and demographics of a community and its workload demand. In most of the moderate to larger sized 'bedroom' jurisdictions, the breakdown of hourly workload most often is displayed by an increase in workload activity around 9:00 a.m. with activity peaking in the late afternoon and leveling off around 8:00 p.m.

Figure 44: Workload by Hour of Day, 2005 and 2006



The figure above shows a moderately higher workload on either side of the peak workload hours. This data is consistent with the overall picture of CCFD5. What is important to note is the ratio of available volunteer personnel in comparison to the demand for service. While the incident workload begins to build mid-morning and peaks in the afternoon hours, a comparison of available CCFD5 staffing (Figure 45) for the same periods inverts and indicates the lowest volunteer staffing levels available to back up the minimal career crew.

Figure 45: Available Staffing by Hour of Day

Error! Objects cannot be created from editing field codes. Further analysis of staffing availability is provided in the Response Performance section of this report.

Incidents Per FTE

Another measure of the workload is the amount of incidents the operational staff responds to in a given year. This profile provides an opportunity to compare the workloads with comparable agencies of similar size. CCFD5 experiences an incident rate of 114.285 per FTE. In other studies of fire agencies around the Puget Sound area, ESCi has established an overall average rate of approximately 86 incidents per FTE, indicating a heavier than average workload for CCFD5.

Mutual Aid Systems

There are numerous mutual aid agreements in place among fire, police, and emergency medical agencies in Cowlitz County and surrounding areas. Mutual aid is typically employed only on an “as needed” basis where units are called for and specified one by one through an Incident Commander. Like the mutual aid box alarm systems (MABAS) found in many other states, the system in CCFD5 provides for pre-designated mutual aid responses to a variety of call types based on incident severity and is programmed and coordinated through the regional communications center. Figure 46 provides a visual look at mutual given by and received from CCFD5 in 2006.

Figure 46: Mutual Aid, 2006

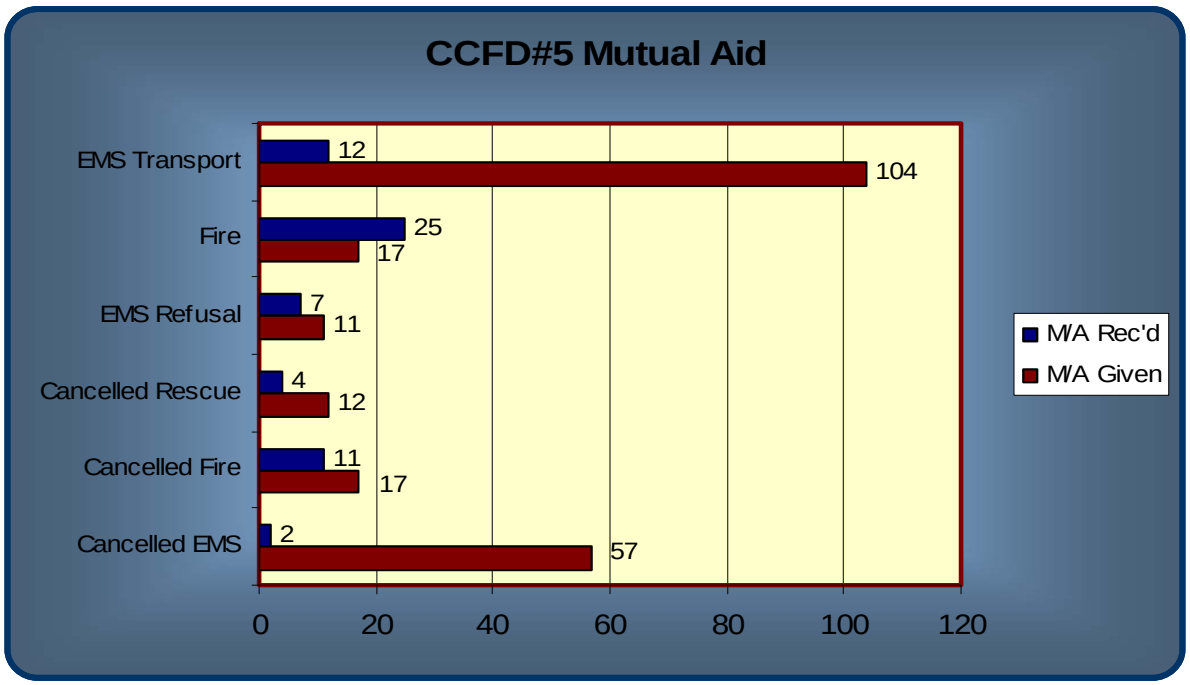


Figure 47 and Figure 48 provide a breakdown of the specific types of mutual aid the fire district requested or provided in 2006.

Figure 47: Mutual Aid Provided by CCFD5, 2006

Type of Aid	Agency					
	CCFD1	CCFD2	CCFD3	CCFD6	Longview	Woodland
Cancelled EMS	8	16	0	2	16	15
Cancelled Fire	1	9	0	0	2	5
Cancelled Rescue	0	5	2	4	1	0
EMS Refusal	2	1	0	0	0	8
Fire	0	7	0	1	3	6
EMS Transport	13	15	0	0	5	71
Total	**24**	**53**	**2**	**7**	**27**	**105**

Figure 48: Mutual Aid Received by CCFD5, 2006

Type of Aid	Agency						
	CCFD1	CCFD2	CCFD3	CCFD6	Longview	Woodland	AMR
Cancelled EMS	0	2	0	0	0	0	0
Cancelled Fire	2	2	0	0	0	7	0
Cancelled Rescue	0	4	0	0	0	0	0
EMS Refusal	2	0	0	0	0	5	0
Fire	2	7	0	0	0	16	0
EMS Transport	0	8	0	0	0	0	4
Total	**6**	**23**	**0**	**0**	**0**	**28**	**4**

Recommendations

- Work as a regional leader to develop a pre-designated mutual and automatic aid system that establishes programmed responses for large-scale incidents.
- Conduct more multi-agency drills and trainings (at least quarterly) to enhance mutual aid operations and improve relationships and planning efforts.

Resource Analysis

Fire district deployment is about the speed and weight of the response. Speed calls for the first arriving unit, (apparatus) to be strategically located across the jurisdiction. These units are tasked with responding and controlling emergencies before an incident escalates in size, which requires more personnel and equipment.

Weight is about multiple units responding to emergencies. In these situations, enough firefighters must be assembled in a reasonable time to safely control the emergency to prevent the incident from escalating. Small fires and most medical emergencies require only a single unit response.

CCFD5 Distribution Analysis

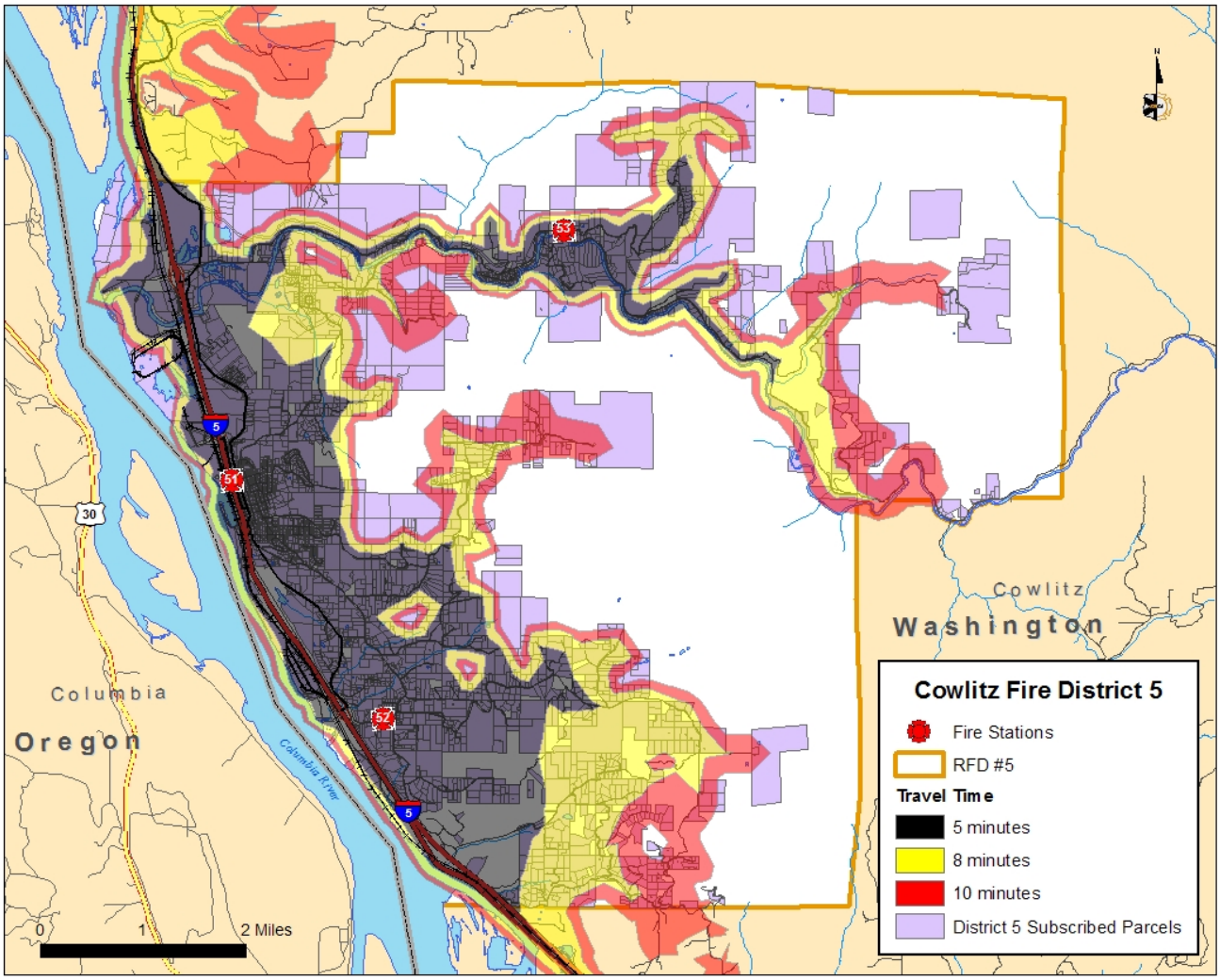
CCFD5 maintains three fire stations located throughout the district as well as a support facility at Station 52. The fire district's fleet of emergency apparatus includes a variety of modern fire engines, water tenders, wildland apparatus, EMS units, command units, and other specialized equipment. The fire district does not have an aerial device.

Careful community planning begins with establishing levels of service and response performance standards that meet nationally recognized and tested standards. The process begins with careful location of fire department resources: fire stations, apparatus, and personnel.

The figure below illustrates the current locations and theoretical travel time coverage based on CCFD5's fire station locations. ESCi's graphic information software (GIS) models calculate total time necessary to travel each mapped street segment based on an average travel speed assigned to the segment. Travel speeds are allocated based on road type and condition. The software permits 42 different road type classifications, from footpaths to limited-access freeways.

Street segments shown with colored overlays represent actual travel time from designated fire stations. When comparing this map with Figure 37, CCFD5's Service Demand Density, the travel time profiles indicate that the majority of the incident locations and workload demand is well within acceptable response times from existing fire stations.

Figure 49: Current Travel Time Coverage



Deployment

Further study of the fire district deployment model deficits in terms of meeting depth, concentration, and response performance. Resource deployment requires spreading forces across a community for quick response in order to keep emergencies small with positive outcomes without spreading the stations so far apart that they can't mass together quickly enough to be effective in major emergencies.

Fire station response overlap coverage is a crucial factor when incidents of significant nature (structure fires, serious incidents with multiple patients, CPR in progress, etc.) where resources – people and equipment – are critical to a successful outcome. In terms of outcomes for major emergency events, a common phrase used by incident commanders and planners is, "The first

five minutes makes the difference in the next five hours."[28] The provision of adequate resources within the first few minutes of an event is one of the most important factors in that equation. In terms of a deployment standard, this issue is called concentration of resources. The placement of fire stations and adequate staffing provides the distribution and concentration of resources necessary for positive outcomes.

When viewing the fire district from a single dimensional view of the distribution of fire stations, there is no significant duplication of facilities and overlap in travel times. The concentration of resources necessary for major emergencies require multiple apparatus responses (such as structure fires, MVAs, and CPR in progress) there is a need for some resource overlap.

The impact that unit reliability has on an agency's standards of coverage or adopted incident response goals is the response time to a second or third incident (while CCFD5's only staffed unit is unavailable) may extend incident response times considerably as the next responding unit(s) must come from a greater distance. The extended response time, leaves the station area for that responding unit empty, creating further gaps in coverage. Data was not available to provide an analysis of fire station reliability.

Fire agencies should constantly analyze their incident response performance and adjust their resource deployment and staffing to maximize coverage and meet response goals.

Recommendations

- Conduct more detailed collection and dissection of incident data to better determine reliability of station responses
- Consider the addition of an aerial apparatus to Station 51.

Response Performance

The ultimate goal of any emergency service delivery system is to provide sufficient resources (personnel, apparatus, and equipment) to the scene of an emergency in time to take effective

[28] Author unknown.

action to minimize the impacts of the emergency. This need applies to fires, medical emergencies, and any other emergency situation to which the fire department responds.

People, Tools, and Time

As stated before, time matters a great deal in the achievement of an effective outcome to an emergency event. Time, however, isn't the only factor. Delivering sufficient numbers of properly trained, appropriately equipped personnel within the critical time period completes the equation.

Dynamics of Fire in Buildings

Most fires within buildings develop in a predictable fashion, unless influenced by highly flammable material. Ignition, or the beginning of a fire, starts the sequence of events. It may take some minutes or even hours from the time of ignition until flame is visible. This smoldering stage is very dangerous, especially during times when people are sleeping, since large amounts of highly toxic smoke may be generated during early phases.

Once flames do appear, the sequence continues rapidly. Combustible material adjacent to the flame heats and ignites, which in turn heats and ignites other adjacent materials if sufficient oxygen is present. As the objects burn, heated gases accumulate at the ceiling of the room. Some of the gases are flammable and highly toxic.

The spread of the fire continues quickly. Soon the flammable gases at the ceiling reach ignition temperature. At that point, an event termed *flashover* takes place; the gases ignite, which in turn ignites everything in the room. Once flashover occurs, damage caused by the fire is significant and the environment within the room can no longer support human life.

Flashover usually happens about five to eight minutes from the appearance of flame in typically furnished and ventilated buildings. Since flashover has such a dramatic influence on the outcome of a fire event, the goal of any fire agency is to apply water to a fire before flashover takes place.

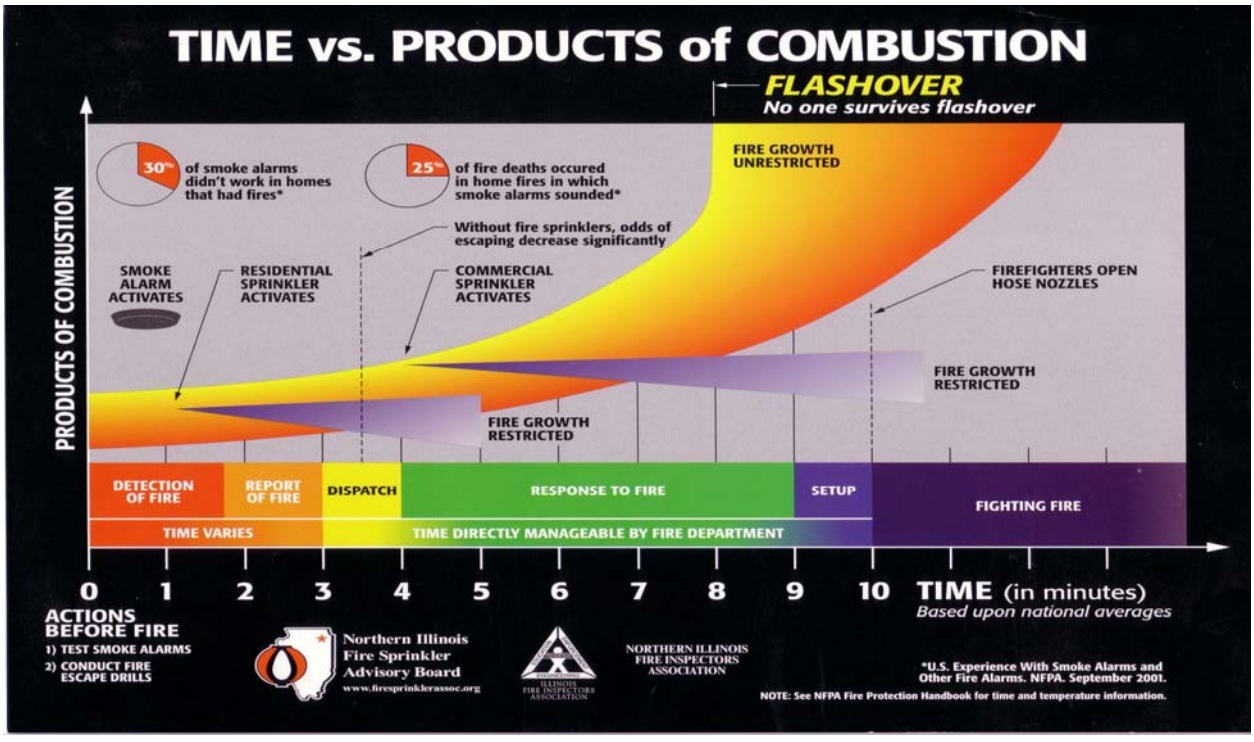
Perhaps as important as preventing flashover is the need to control a fire before it does damage to the structural framing of a building. Materials used to construct buildings today are often less fire resistive than the heavy structural skeletons of older frame buildings. Roof trusses and floor joists are commonly made with lighter materials more easily weakened by the effects of fire.

Light weight roof trusses fail after five to seven minutes of direct flame impingement. Plywood I-beam joists can fail after as little as three minutes of flame contact. This creates a very dangerous environment for firefighters.

In addition, the contents of buildings today have a much greater potential for heat production than in the past. The widespread use of plastics in furnishings, and other building contents, rapidly accelerate fire spread and increase the amount of water needed to effectively control a fire. All of these factors make the need for early application of water essential to a successful fire outcome.

A number of things must happen quickly to make it possible to achieve fire suppression prior to flashover. The figure below illustrates the sequence of events

Figure 50: Flashover Timeline



The reflex time continuum consists of six steps, beginning with ignition and concluding with the application of (usually) water. The time required for each of the six components varies. The policies and practices of a fire department directly influence four of the steps, but two are only indirectly manageable. The six parts of the continuum are:

1. **Detection**: The detection of a fire may occur immediately if someone happens to be present or if an automatic system is functioning. Otherwise, detection may be delayed, sometimes for a considerable period.

2. **Report**: Today most fires are reported by telephone to the 9-1-1 center. Call takers must quickly elicit accurate information about the nature and location of the fire from persons who are apt to be excited. A citizen well trained in how to report emergencies can reduce the time required for this phase.

3. **Dispatch**: The dispatcher must identify the correct fire units, subsequently dispatch them to the emergency, and continue to update information about the emergency while the units respond. This step offers a number of technological opportunities to speed the process including computer aided dispatch and global positioning systems.

4. **Turnout**: Firefighters must don firefighting equipment, assemble on the response vehicle, and begin travel to the fire. Good training and proper fire station design can minimize the time required for this step.

5. **Response**: This is potentially the longest phase of the continuum. The distance between the fire station and the location of the emergency influences reflex time the most. The quality and connectivity of streets, traffic, driver training, geography, and environmental conditions are also a factor.

6. **Set up**: Last, once firefighters arrive on the scene of a fire emergency, fire apparatus are positioned, hose lines stretched out, additional equipment assembled, and certain preliminary tasks performed (such as rescue) before entry is made to the structure and water is applied to the fire.

The application of water in time to prevent flashover is a serious challenge for any fire department. It is critical, though, as studies of historical fire loss data can demonstrate.

The National Fire Protection Association studied data from residential structure fires occurring between 1994 and 1998 in order to analytically quantify the relationship between the growth of a fire beyond the room of origin and losses in life and property. Fires contained to the room of origin (typically extinguished prior to or immediately following flashover) have significantly lower rates of death, injury, and property loss when compared to fires that had an opportunity to spread beyond the room of origin (typically extinguished post-flashover). Incidents in which a fire spreads beyond the room where it originates are likely to experience six times the amount of property loss and have almost nine times greater chance of resulting in a fatality.

Emergency Medical Event Sequence

Cardiac arrest is the most significant life threatening medical event. A victim of cardiac arrest has mere minutes in which to receive definitive lifesaving care if there is to be any hope for resuscitation. Recently, the American Heart Association (AHA) issued a new set of cardiopulmonary resuscitation guidelines designed to streamline emergency procedures for heart attack victims, and to increase the likelihood of survival. The AHA guidelines include new goals for the application of cardiac defibrillation to cardiac arrest victims. Heart attack survival chances fall by seven to ten percent for every minute between collapse and defibrillation. Consequently, the AHA now recommends cardiac defibrillation within five minutes of cardiac arrest.

The percentage of opportunity for recovery from cardiac arrest drops quickly as time progresses. The stages of medical response are very similar to the components described for a fire response. Recent research stresses the importance of rapid cardiac defibrillation and administration of certain drugs as a means of improving the opportunity for successful resuscitation and survival. An Oregon fire department recently studied the effect of time on cardiac arrest resuscitation, and found that nearly all of their *saves* were within one and one-half miles of a fire station, underscoring the importance of quick response.

Any discussion of response time performance centers on these four key time sequences:

- Call processing and dispatch
- Turnout time of firefighters
- Initial resource arrival
- Effective response force arrival

Although the following standards discussed in this section are not mandatory, they provide some generally accepted targets against which to benchmark response time performance in the absence of formally adopted response time standards.

The National Fire Protection Association has issued a response performance standard[29] for all career or mostly career-staffed fire departments. Likewise, the State of Washington has also

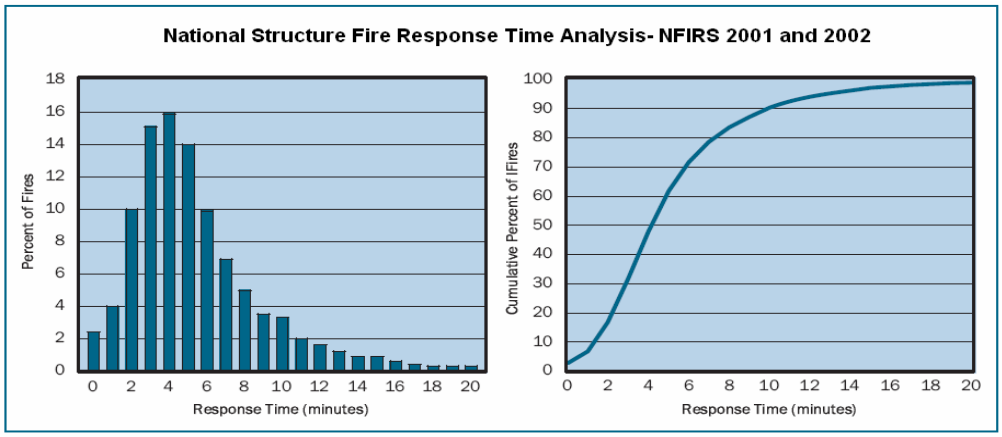
[29] NFPA 1710/NFPA 1720.

adopted legislation[30] requiring 'substantially career" fire departments to develop and adopt response performance criteria. Currently, CCFD5 does not have adopted response standards.

An industry accepted standard or benchmark for measuring response is at the 90th percentile – for substantially career fire agencies and 80 percent for volunteer fire departments meaning that the performance must be met 80 - 90 percent of the time. Often, when fire districts analyze their response performance, they use an average percentile when measuring their performance against an established standard. Because of the incongruent nature of factors in tracking response performance for fire districts, measuring average percentiles falls short of telling the true picture of how well an agency is meeting its performance standards. The use of an *80th* percentile for CCFD5 – or how CCFD5 performs 80 percent of the time – is the most accurate method of determining the true picture of how well the district is meeting any of its established performance standards.

Nationally, the highest percentage (16 percent) of structure fires had a response time in the four-minute range, as illustrated in Figure 51. The percent of structure fires with response times of three and five minutes was not far behind at 15 percent and 14 percent, respectively. Overall, 61 percent of structure fires in 2001 and 2002 had a response time of less than six minutes.[31] .

Figure 51: National Response Time Analysis, Structure Fires



"Structure Fire Response Times"- U.S. Fire Administration/ National Data Center, January 2006

[30] Substitute House Bill 1756 – Deployment Standards.
[31] FEMA/NFPA, "*A Needs Assessment of the U.S. fire Service*", FA-240/December.

The scope of the examination of emergency response statistics for CCFD5 was limited to three objectives:

- Determine if the data (and therefore the data collection methods) appear to be valid.
- Determine if the data is complete.
- Develop useful statistics on critical time elements that can be used to characterize CCFD5 performance and experiences in the subject year.

Response Performance for CCFD5

As discussed earlier, the fire district has not previously established formal response time performance objectives. Given the absence of formal response time performance standards, the NFPA standards will be used as an initial benchmark against which to evaluate system performance for this study.

There are three response time performance centers in the evaluation of a standards of coverage doctrine. Those three centers are:

- Call processing and dispatch
- Turnout time of firefighters
- Travel time

Call Processing and Dispatch

NFPA 1221: Installation, Maintenance, and Use of Emergency Services Communications Systems provides a benchmark for call processing time (call pick-up to completion of unit notification) of *60 seconds or less*. The standard is to meet this performance at least 90 percent of the time.

Turnout Time of Firefighters

For firefighter turnout times, *NFPA 1710* recommends a benchmark for firefighter turnout time (from notification to apparatus response) of *60 seconds or less*. The standard calls for this performance to be met at least 90 percent of the time. As most fire personnel will attest to, this is a difficult standard to meet due to designs and barriers beyond their control.

Travel Time

For initial unit response times, *NFPA 1710* recommends several benchmarks for career fire departments.

- For fire incidents, the standard provides a benchmark for initial engine company arrival (from apparatus response to arrival on scene) of four minutes or less.

- For emergency medical incidents, the standard provides a benchmark for initial arrival of trained medical responders with an automatic external defibrillator (from apparatus response to arrival on scene) of 240 seconds or less.

Of the three response performance factors in this analysis, the last two (turnout times and travel times) are the most manageable by the fire district. The first segment – receiving the 9-1-1- call and transmitting an alarm to CCFD5 -- are not directly under the district's control. Because ESCi was unable to obtain specific data from the dispatch agency, no analysis is included in this report. Interviews with Cowlitz County 9-1-1 Emergency Communications Center officials did indicate a dispatch performance time averaging around 26 seconds from time of receipt of a 9-1-1- call.

The turnout of firefighters element is very manageable from within the fire district and relates to design of fire stations, staffing models (staffed vs. volunteer fire stations), and internal turnout requirements.

When evaluating overall response performance of a fire agency in light of establishing a respectable response performance standard, it is clear that literally *every second counts*. Road or traffic conditions can affect response performance. Sometimes time is lost in the dispatch center or in getting fire department resources *on the road* in a rapid fashion.

ESCi uses incident data from to build incident response graphs based upon NFIRS information provided by the agency. CCFD5 was able to provide accurate data to ESCi for the years 2005 and 2006 to build the response analysis. The following figures illustrate incident response performance for CCFD5.

The first view looks at 80th percentile response times by type of incident. Response times for fire incidents significantly exceed other types of incident. Several factors contribute to the extended fire response time performance. First, most agencies have minimum staffing requirements for fire apparatus before it goes out the door; and, in some cases, that may mean that a volunteer may have to respond to the fire station in order to assemble a full crew. Secondly, the overall response time for fire includes responses from Station 51, which is staffed 24/7, and from the other two fire stations, which are fully volunteer. The combined response

times of the two volunteer fire stations may decrease Station 51's response time average. A third factor is that fire responses generally demonstrate extended turn-out times to account for personnel getting fully dressed in personal protective equipment (PPE) before responding out the door. It is unlawful and unsafe for a responding apparatus to have firefighters still attempting to put on their PPE and equipment without a seatbelt fastened while the apparatus is moving.

The following figure illustrates the districts total response time by call type. The fire response time is expected to be longer than other call types because of the time it take a responder to be properly equipped before mounting the rig for travel.

Figure 52: Response Time by Call Type, 80th Percentile

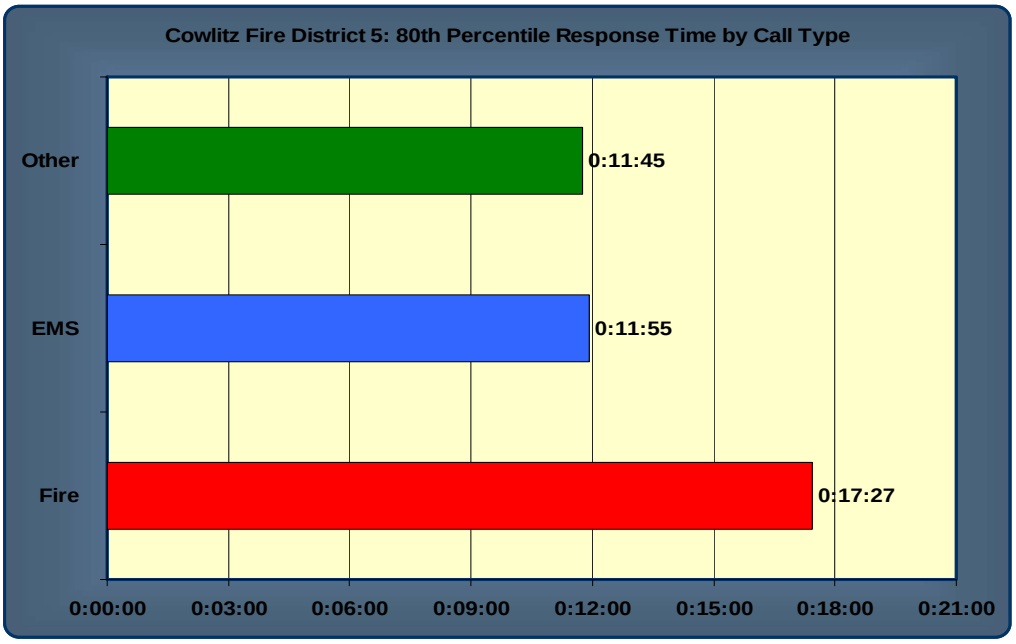


Figure 53 illustrates the districts average response time by day of the week for 2005-2006. Average response times range between 7 minutes 44 seconds on Mondays and 10 minutes 25 seconds on Saturdays.

Figure 53: Average Response Time by Day of Week

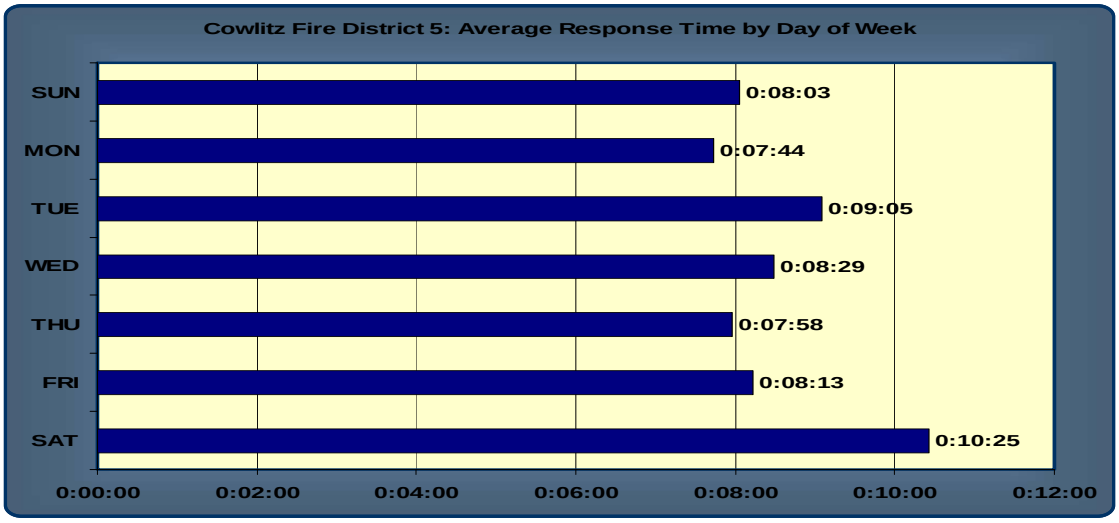


Figure 54 illustrates response time by day of week from an 80th percentile performance perspective. Here you can see that the performance of the fire district responding to incidents is considerably longer. The range is from 11 minutes on Mondays to 13 minutes 36 seconds on Saturdays.

Figure 54: Response Time by Day of Week, 80th Percentile

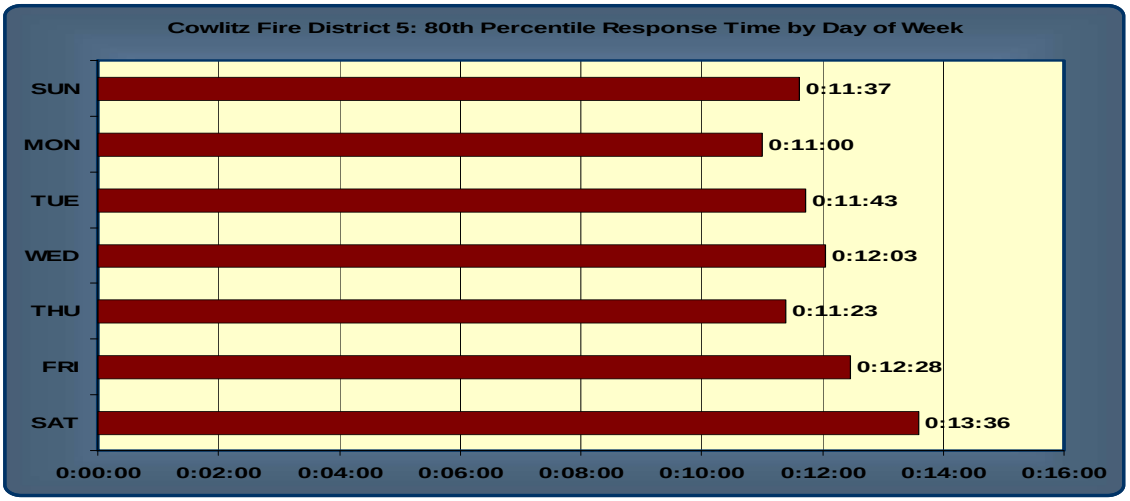
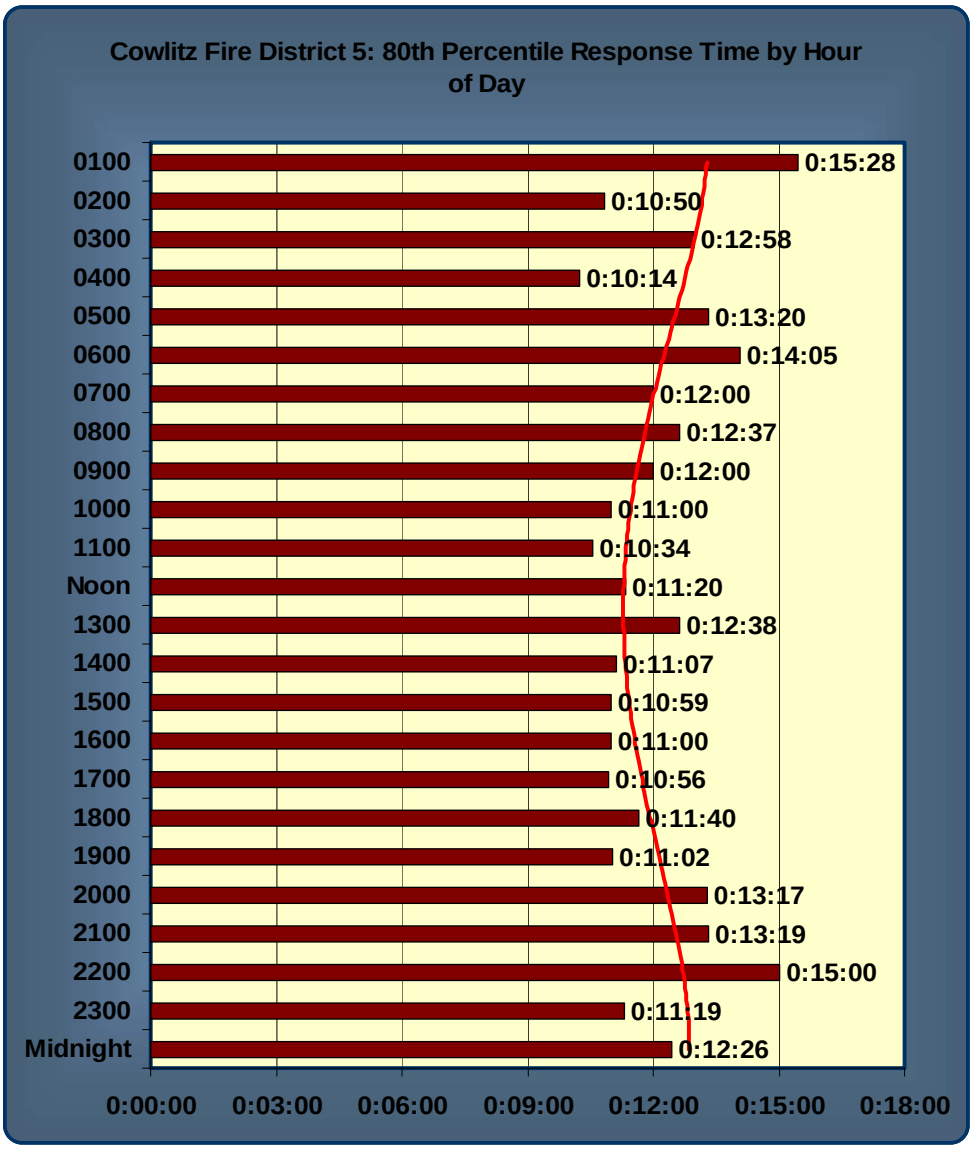


Figure 55 provides a view of the 80th percentile response time by hour of the day. Factors again include staffed versus unstaffed fire stations, location, and availability of responding volunteers, and traffic.

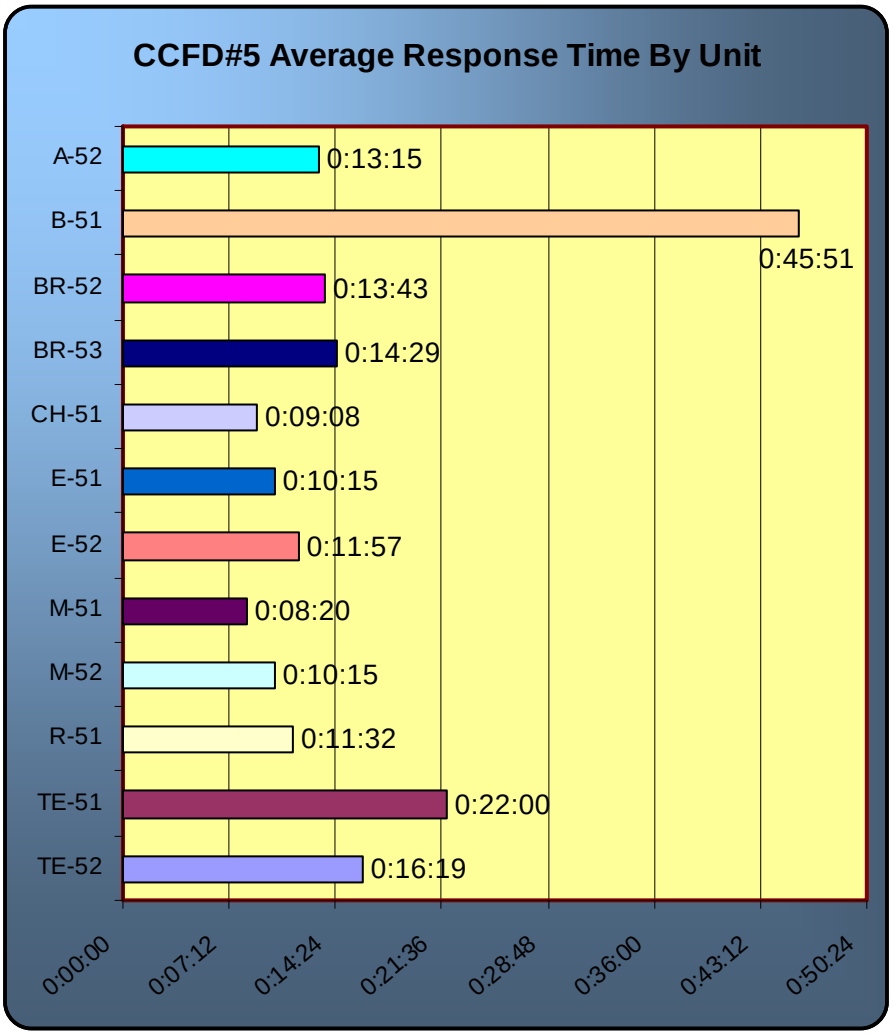
Figure 55: Response Time by Hour of Day, 80th Percentile



ESCi used data provided by the fire district to calculate average response times by vehicle type for the reporting years of 2005 and 2006. The illustration on the next page (Figure 56) supports the previous discussion about size, nature, and speed of the respective apparatus types. Apparatus B-51 is the fire district's fireboat. The extended response times for B-51 are a result

of the amount of time it takes for trained/assigned personnel to respond to the marina, prepare the craft for launching, and the speed with which a fireboat can move through the marina (a 'no wake' zone) prior to reaching open water for response to the incident.

Figure 56: Average Response Time by Apparatus/Unit



The illustration on the next page (Figure 57) is a histogram of the average and 80th percentile response profile of CCFD5. The average response time for CCFD5 is 8 minutes and 34 seconds from time of receipt of the 9-1-1 call until a CCFD5 unit arrives on scene. The 80th percentile response performance is 12 minutes. Earlier discussion provided evidence that the CCFD5 fire stations were adequately located, this extended 80th percentile time figure can be based upon two factors. The first factor would be extended response time by averaging in the unstaffed fire stations. The second factor would be reflected in the unit reliability rate – the

ability of the unit to be staffed and respond. Unit reliability rates would have a direct affect on the response times of fire/EMS apparatus coming from an extended distance when first due apparatus are not available.

Figure 57: Average Response Time Histogram

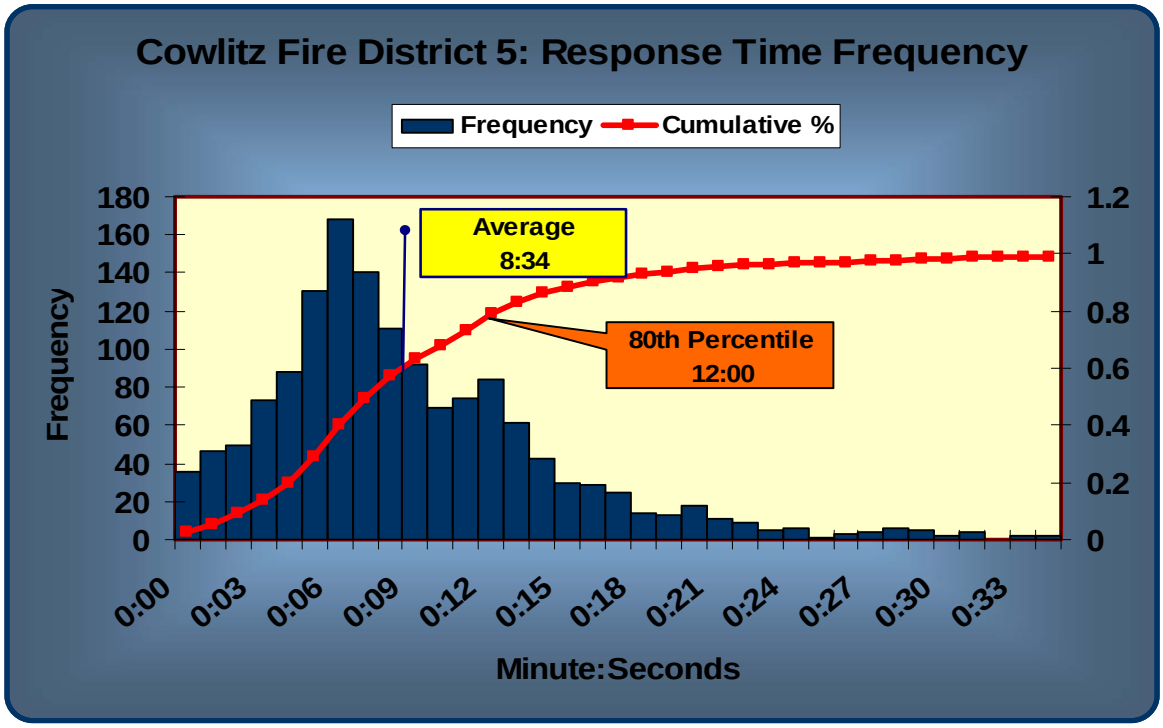


Figure 58: Incident Response Summary Table

Survey Component	Cowlitz Co. Fire District No. 5
Total area protected.	56
Total number of fire stations.	3
Number of stations staffed full-time.	1
Number of stations staffed part-time.	0
Number of unstaffed stations.	2
Stations per square mile.	18
Theoretical response time.	8 minutes
Response time goals adopted.	No
For fire emergencies.	No
For EMS emergencies.	No
Actual response times documented.	Yes
Standard response protocols adopted.	No
By alarm type (apparatus per alarm).	Yes
By apparatus type (persons per app).	Yes
Call back system.	Yes

Recommendations

- Establish response times goals and standards of cover to build and measure response performance.
- Consider alternative and creative staffing models using a varied of trained firefighters and supervisors to staff Station 52 and Station 53 in order to maximize effective response and significantly reduce overall response times.

Hazardous Materials Response

Most CCFD5 personnel are trained and equipped to provide hazardous materials response at the operations level. This training permits defensive operations for purposes of containment but does not permit aggressive forward tactical efforts focused on corrective action, clean-up, or handling of hazardous substances (with a few exceptions).[32] Some limited equipment for purposes of containment and decontamination, as authorized at the Operations level, is carried on fire district apparatus.

Technician-level hazardous materials response is provided by the City of Vancouver Fire Department (VFD) Hazardous Materials Unit. Technician-level response personnel provided by VFD can respond with additional resources. This system provides effective and consistent hazardous materials response and mitigation.

Technical Rescue Response

CCFD5 is an active participant in various technical rescue programs, some of which are formally regionalized. CCFD5 has the equipment and trained fire district personnel to provide this service. The technical rescue team can provide high-angle, confined space, and below-grade technical rescue operations. There are six volunteer and three career members who are certified in Special Rescue Operations.

Homeland Security Integration

Fire departments are considered First Responders in the national systems for homeland defense and security. Recent changes in the structure of the federal government have placed the United States Fire Administration (USFA) under the umbrella of the Department of Homeland Security. Given this status, emergency service agencies should continue to assess

[32] OSHA CFR 1910.120(q)(6)(ii).

their capabilities for response and integration into larger incidents involving acts of terrorism or threats to national defense.

Due to its status as a busy industrial and transportation corridor shipping port, CCFD5's response area could be considered a potential target for an act of terror. From the standpoint of the first responders, the results of an act of domestic or international terrorism will typically fall into one or more categories:

- Large fire and/or explosion accompanied by fire
- Mass Casualty Incident (MCI)
- Hazardous Substance Release
- Secondary threat (timed or triggered event following arrival of first responders)

Emergency agencies are, to some degree, trained to respond and mitigate the first three categories in this list. However, this statement is not intended to oversimplify the challenges. The resulting incident caused by an act of terror can be much larger, more complex, and more demanding than most local incidents that might fall into these same major categories. Still, the agencies must rely on the same training, procedures, command structures, and strategies that are taught for such incidents.

The primary key to success will be familiarity with response plans for such incidents, practice, and integration with other agencies at the regional, state, and federal level.

CCFD5 has some planning and procedures in place for large fires, mass casualty incidents, and hazardous substance releases. Additional training on the recognition and response to incidents with likely secondary threats to first responders will continue to help prepare personnel. The agency should continue to seek out additional, advanced training on the following areas:

- Explosions and threats
- Conflagration fire incidents
- Mass casualty incidents
- Radiation response strategies
- Large-scale quarantine, containment and decontamination
- Hazardous substance response, evacuation, containment, and decontamination
- Regional and federal incident command strategies

The cost of establishing and maintaining capability for full response to incidents involving weapons of mass destruction (WMD) is extremely high and best handled through the development of regional, state, or federal programs. This regionalized approach is also encouraged by those federal and state agencies responsible for distribution of grant funding for homeland security programs. The fire district should encourage and support any additional efforts at regionalization of first responder training and preparation in homeland security issues. In addition, the department should aggressively seek out and respond to grant opportunities afforded to local communities for first responder equipment and supplies.

Data Collection and Analysis

The primary purpose of maintaining a record of emergency responses is to evaluate the effectiveness of fire/rescue programs and performance. This effort includes deployment strategies, training requirements, and the effectiveness of fire prevention, code enforcement, fire investigation, and life safety education programs.

CCFD5 maintains a good automated data system that provides a valuable interface of information from all disciplines of the organization (suppression, fire prevention, training, maintenance, etc) as it relates to the community.

Incident records may be used to determine what types of incidents are occurring most frequently, the types of properties most often involved in fire, causes of ignition, and other facts to assist with targeting fire and accident prevention efforts as well as future resource needs.

The results of fire investigations suggest public education needs and results, the need for code modifications and changes, fire department training, resources and deployment, and identification of the community's "fire problem."

Objective Nine: Training Program

Providing quality and safe fire and emergency medical services requires well-trained personnel and officers. Training and education must be a critical part of any fire service organization, and this should be a critical function of any fire district. Without quality, comprehensive training programs, emergency outcomes are compromised and district personnel are at risk. Further, without an educational path for members to follow, there is not continuity or consistency in leadership or leadership development.

Anthony Granito, author of *Fire Service Instructor's Guide*, makes the following statement:

> *"A good training program is undoubtedly the single most important factor producing and maintaining a high proficiency in any fire department. It not only produces high efficiency initially but also affects future efficiency when we consider that the rawest recruit now being trained may be chief of the department or at least a senior officer in 20 or 30 years."*

While learning by experience may be a reinforcement of hands-on skills, it is a slow process that can never lead to broad subject knowledge. While individual experiences may give an individual competency and the ability to perform the more routine tasks, it can never yield insight into the wide range of possibilities likely to be encountered during emergency incidents.

Effective, well trained fire districts -- whether career, volunteer or combination in nature -- consistently evaluate every position in the organization (from the elected officials down through the recruit volunteer); determine the necessary basic and periodic training that each position should receive; and developed and adopted minimum, annual, and periodic training requirements that each person/position must meet. This is essential to insure that every person in every position has been given an adequate educational experience to provide the right tools in their respective skills tool box. This is important in order for each person to consistently make the right decisions and execute the correct measures in a skillful manner.

These minimum training requirements must be officially adopted as the foundational policies of any organization that desires to deliver consistent services in a safe and professional manner. Additionally, these training requirements must be the foundational basis upon which a training program is built, training goals and objectives are developed, and effectiveness is measured.

The function of a training program is not merely imparting personal knowledge and technical skills to an individual, it is developing the self-confidence to perform correctly under stressful if not hostile conditions. A training program must be systematic and must provide positive feedback to the trainee, firefighter, or officer. It must teach, test, challenge, correct, motivate, and mentor every member of the organization every time.

The goals of training should always focus on performance, never merely on acquiring a certain number of training hours. Most training programs today are now competency-based, meaning that effective training requirements are established, skill competencies are identified, and individual performance of those skills are measured.

A training program should always have short and long term goals established both for the program and for each individual in the organization. In addition to these goals and objectives, a training program must have a means of measuring if those goals are met.

Figure 59: Training Support Table

Survey Component	Cowlitz Co. Fire District No. 5
Budget allocated to training.	$8000 out of $1.1 mil.
Education and training of training officer.	Unknown.
Utilizing certified instructors.	Yes; 7 EVAP's; 13 Instr I; 1 Instructor II; 6 AHA; 1 PHTLS/ACLS; Asbestos; Haz Mat Ops 2; Arson Awareness Instr -1.
Annual training report produced.	No.
Adequate training space/facilities/equipment.	Yes; need other amenities.
Maintenance of training facilities.	Good.

Key elements of an effective training program should include:

- Training administration
- Training personnel
- Minimum training requirements
- Certifications
- Training schedules
- Training facilities
- Training goals and objectives
- Motivation for training
- Methodology for success
- Company operations and performance

- Varied types of reinforcement
- Member targeted training
- Organizational priority to training
- Career development paths
- Periodic competency evaluations
- Peer group commitment to training

While CCFD5 has not developed or adopted minimum training requirements, there is good evidence of an organized training curriculum based upon the IFSAC Firefighter I program.

CCFD5 actively provides training in most levels of fire, emergency medical, rescue, special operations and hazardous materials training throughout its curriculum. There is evidence that ongoing training occurs in incident command, fire operations, EMS protocols, auto extrication and hazmat. In addition, all entry level firefighters (career and volunteer) are required to complete a recruit academy.

Figure 60: Training Competencies Table

Survey Component	Cowlitz Co. Fire District No. 5
Minimum training standards and requirements established for each position.	No
Adopted by resolution.	No.
Enforced consistently.	N/A
Minimum annual training requirements.	
Annual training requirements established.	No.
Annual requirements enforced.	N/A
Periodic training competencies.	
Periodic training requirements established.	No.
Training/education requirements for leadership (officer) positions.	No.
Requirements for leadership positions.	N/A
Adopted by resolution.	N/A
Codified in Union contract.	N/A
Courses funded by fire district.	N/A

Training Program Planning

Like any other activity, training and education of personnel should be conducted under a comprehensive plan. The plan should include a clear definition of the goals and objectives of the training program district-wide, and should include a schedule and process to achieve them. Ideally, a comprehensive district training plan would include:

- Departmental training goals and objectives
- Performance standards for all personnel
- Scheduled training on appropriate topic to prevent skills degradation
- Remedial skills improvement training
- Outside training opportunities
- A process for monitoring learning accomplishments
- Centralized, district-wide training data collection and standard reporting
- Monitoring of individual certification, continuing education, and re-certification requirements

A good training master plan provides a roadmap and a career track for every volunteer and career member of a fire district. Every position, every level of competency, and every requirement must be mapped out to guide members to their desired level of participation in the organization. This is one of the most important tasks of a training officer. Often, the preferred method to achieve a program of this magnitude and detail is to appoint and facilitate a Training Committee.

CCFD5 has not designated a departmental training officer. As stated earlier, the fire chief is responsible for the training program. CCFD5 also does not have a Training Committee to establish training goals, objectives standards or to coordinate fire, specialty team, or EMS first responder training. This objective is currently administered primarily by the fire chief. The goals and objectives of the district's training program are not formally developed or published.

CCFD5 should appoint a Training Committee to assist the fire chief in developing the fire district's training goals and objectives and a plan for achieving them. This committee should be comprised of representatives from all disciplines and ranks across the district to provide for the input needed for an effective, district-wide approach to training.

Training Delivery

The majority of the training organization and teaching is done by the fire chief. The chief has a great deal of background and certifications as an instructor and demonstrates his skill and passion for training and education in the organization. In addition, the fire district also has other certified instructors:

- 1 Instructor II
- 13 Fire instructor I
- 7 EVAP instructors
- 6 American Heart Association instructors
- 1 PHTLS/ACLS (Paramedic) instructor
- 2 HazMat Operations level instructors
- 1 Asbestos Safety instructor
- 2 Arson Awareness instructors

It is clear that CCFD5 takes training very seriously and has a large cadre of instructors to deliver training to its members.

CCFD5 uses both classroom and manipulative teaching methods for training its members. Training is provided by competent instructors using lesson plans and required task performances. CCFD5 reports that safety training and safety concerns are built into most of the training sessions

All three stations drill together and there is evidence of multi-agency and mutual aid training occurring both in CCFD5 and abroad. Because the majority of the training is conducted during drill time for the volunteers, there is adequate opportunity for night training for all members.

A safety officer for manipulative hands-on training sessions is not consistently designated as outlined in NFPA Standard 1500. Having a safety officer monitoring hazards and conditions during all hands-on training is critically important as a measure of risk management, both from a safety standpoint and liability standpoint.

Ongoing Competency Evaluation

All fire and EMS personnel should be evaluated periodically to ensure their continued ability to perform job duties safely and efficiently. Technical and manipulative skills should be evaluated on a regular basis. This provides documentation about a person's ability to perform his or her responsibilities and provides valuable input into the training and education development process.

Regular evaluation and feedback for personnel is critical to behavior modification and improvement. A formal performance evaluation system should be adopted for all members of the district and evaluations should be conducted, at a minimum, on an annual basis.

It is important to maintain such programs whenever possible. It has long been proven that employees and members sincerely wish to perform well and to be a contributing part of any organization. The desire to succeed is best cultivated through feedback that allows members to know what they are doing well or what needs improvement.

CCFD5 personnel appear to be well trained with their initial and ongoing training program, which includes aggressive competency testing.

Training Facilities

Quality "hands-on" training occurs when simulations are available that closely mimics real life emergencies. This provides for near 'real life' training opportunities. It also provides an important level of motivation for the firefighters -- which are an especially important ingredient for a volunteer organization that doesn't respond to a great deal of incidents. Challenging hands on training requires a measure of good training facilities and props to do the job.

Figure 61: Training Resources Table

Survey Component	Cowlitz Co. Fire District No. 5
Training facilities (tower, props, pits).	None.
Classroom facilities.	One.
VCR, projectors, computer simulations.	Yes.
Books, magazines, instructional materials.	Yes.
Manual developed and utilized.	Yes.
IFSTA manuals utilized.	Yes.

Station 52 has a large parcel of property in which much of the training is conducted. It is there that the largest classroom facility is provided as well as training material and audio-visual equipment. While adequate space is available for conducting training operations, there are a few challenges in the use of Station 52.

Station 52 is located approximately four miles from the core area of the fire district (Kalama) which prolongs response times if the district resources are all gathered there for training. Secondly, there are limited training props available such as a training tower, ventilation prop, RITprops, or other valuable amenities to provide realistic training to the firefighters and members.

Career Development Training

Industry best practices suggest that personnel demonstrate the skills and knowledge required of a more responsible position prior to being promoted or being placed in a leadership position within the organization. Officer and leadership training is often provided by progressive organizations to ensure candidates for promotion meet the minimum educational and certification requirements for the position. Then the promotional process is used to select the most qualified individual based on a demonstration of proficiency.

CCFD5 has not formally adopted qualifications for career or volunteer positions. CCFD5 does not formally provide organized pre-promotional leadership training to potential or aspiring officers using a standardized curriculum or evaluation system. The National Fire Protection Association has standards for fire rescue service positions and specialty skills. The fire officer standard is NFPA 1021.

Officer training programs should be developed and completion by personnel should be required prior to application for promotion. This kind of training is best performed in an academy setting, with consistency in instruction and ample opportunity for student/instructor interaction. Officers at the station can provide some of this training, but the majority should be in a more formalized program. As discussed earlier, the promotional process should effectively evaluate applicants to determine who best demonstrates the proficiency in skills and use of the knowledge gained in the classroom that is required of the position.

Figure 62: Leadership Training Table

Survey Component	Cowlitz Co. Fire District No. 5
Training/education requirements for leadership (officer) positions.	
Requirements for leadership positions.	No
Adopted by resolution.	N/A
Codified in Union contract.	N/A
Courses funded by fire district.	N/A

Training Records and Reports

Computer training records are maintained by the fire district. Instructors submit data for personnel completing a training experience, continuing education session, or training course. Quarterly or annual reports are not generated for individuals, stations or shifts.

A centralized, consistent, automated, departmental training database should be maintained with routine accountability and oversight and regular reporting frequencies, all commensurate with current confidentiality requirements.

Figure 63: Training Records Table

Survey Component	Cowlitz Co. Fire District No. 5
Individual training files maintained.	Yes
Records and files computerized.	Yes
Daily training records.	Yes
Company training records.	Individuals
Training equipment inventoried.	No
Lesson plans utilized.	Yes
Pre-fire planning included in training.	Yes
Check-out system on training materials.	No
Annual training report produced.	No
Adequate training space/facilities/equipment.	Yes; need other amenities
Maintenance of training facilities.	Good
Clerical Support for Training Program	
Administrative secretary support.	None
Records computerized - software used.	Yes; ERS
Adequate office space, equipment, and supplies.	No

Recommendations

- Appoint or hire a training officer capable of managing a training program.
- Develop minimum training standards and competencies for every position in the organization.
- Develop a comprehensive training and certification roadmap for all positions at CCFD5.
- Develop standards, requirements, goals and objectives in a programmatic form defining the overall purpose and desired outcomes of the training program. Include methods of measuring effectiveness and success.
- Implement a comprehensive, structured skills maintenance training program for all employees and members.
- Develop a training facilities master plan to begin adding training amenities to the program.
- Consider implementing a formal competency-based approach to the fire district's training program.
- Require lesson plans for all training sessions and include a safety officer where necessary.
- Design and implement an officer training program for all candidates for promotion and acting promotions.

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Objective Ten: Fire Prevention Program

An aggressive risk management program, through active fire prevention, is a fire-rescue agency's best opportunity to minimize the losses and human trauma associated with fire. Robert Klinoff, author of Introduction to Fire Protection, 2003, outlines the perspective as follows:

> *"One of the true measures of a fire department's effectiveness is the amount of loss experienced in the community or jurisdiction. If hazards and unsafe acts can be reduced, there will be a resultant reduction in the area's fire experience… in order to reduce the losses due to fires, effective, focused fire prevention effort must take place."*

A fire-rescue district should actively promote fire resistive construction, built-in warning systems, and fire suppression systems; educate the public to minimize exposure to fire and health challenges; and to respond effectively when faced with an emergency.

CCFD5 places a high priority on public education throughout the district. Fire prevention and code enforcement is the responsibility of Cowlitz County and the district assists as resources are available. The role of the fire district is limited because the district does not have the resources to dedicate to fire prevention efforts.

New Construction Review

One of the most important aspects of fire prevention for a fire district is to be involved at the 'incipient stage' of any new development or construction in its jurisdiction. This is often a *one time opportunity* for the fire department to provide input into a proposed property, a proposed development, or a proposed process to enhance fire detection, fire prevention, or fire protection opportunities. This brief *window*, if the opportunity is seized upon, gives the fire district occasion to provide input or to require provisions, devices, or processes to be put in place for new developments or construction. These amenities, if complied with, will potentially reduce the opportunity for fire, reduce the impact on the fire district in the event of a fire, or provide assistance in the event a fire occurs in the new development.

A fire district should seize the opportunity every chance it can get to be involved at the ground floor with new construction in its jurisdiction. Unfortunately, this takes two elements to be in place for the opportunity to be experienced. First, it requires *resources* on the part of the fire

district to able to develop the expertise and the time to dedicate to said practices. The second item a fire district must have is a *process* in place that provides the venue for such activities.

In Cowlitz County, as with other counties in Washington, the county government has been given the sole fiduciary authority to adopt and enforce fire codes, provide fire inspection services, and require certain performance criteria for new construction in all unincorporated areas of the county. This is done statutorily.[33] Fire districts in the state of Washington, therefore, do not have the authority and simply do not have provisions to do so.

Additionally, while a portion of CCFD5 serves the unincorporated areas of Cowlitz County, a portion of the fire district contains the city of Kalama – a separate municipality with a different version of codes to address.

CCFD5's involvement in the new construction process is minimal and only on an advisory basis for both the city and the county.

Fire Safety Inspections

The primary purpose of code enforcement is to decrease community risk. This means eliminating potential sources of ignition, minimizing fire spread and assuring proper and safe egress for occupants in the event of an emergency. Property inspections, to find and eliminate potential fire hazards, are also an important part of the overall fire protection system. These efforts can only be effective when completed on a scheduled frequency by individuals having the proper combination of training, experience, and motivation.

The recommended frequency of public/commercial fire safety inspections varies by the type of occupancy. Generally, they are classified by the type of hazard. The table on the following page summarizes the various hazard classes and the National Fire Protection Association's optimum recommended frequency for fire safety inspections.

[33] RCW 19.27.050: The state building code required by this chapter shall be enforced by the counties and cities. Any county or city not having a building department shall contract with another county, city, or inspection agency approved by the county or city for enforcement of the state building code within its jurisdictional boundaries.

Figure 64: Recommended Inspection Frequency

Hazard Classification	*Example Facilities*	*Recommended Inspection Frequency*
Low	Apartment common areas, small stores and offices, medical offices, storage of other than flammable or hazardous materials.	Annual
Moderate	Gas stations, large (>12,000 square feet) stores and offices, restaurants, schools, hospitals, manufacturing (moderate hazardous materials use), industrial (moderate hazardous materials use), auto repair shops, storage of large quantities of combustible or flammable material.	Semi-annual
High	Nursing homes, large quantity users of hazardous materials, industrial facilities with high process hazards, bulk flammable liquid storage facilities, an facility classified as an "extremely hazardous substance" facility by federal regulations	Quarterly

Source: NFPA

While the above charted inspection frequency may be a challenge for many fire districts to maintain, it does serve to point out the accepted national practice of classifying occupancies by hazard (risk) and establishing inspection frequencies.

With the fire district not having any authority or resources to conduct or contract for fire prevention inspection activities, CCFD5's involvement in inspections is minimal and by invitation. District personnel must conduct those inspections on a very limited basis.

Application of the previously cited nationally recommended frequency would require that several hundred inspections would have to be conducted by CCFD5. Low hazard property inspections should be completed annually, moderate hazard property hazard inspections should be completed semi-annually, and high hazard property inspections should be completed every three months. This would significantly increase the fire district's inspection activity.

In addition to the obvious life safety risk implications for citizens and firefighters due to not completing a city/district-wide inspection program based on risk, this omission could present a liability should a questionable fire scenario present itself in a property that has not been inspected or that had not been inspected in a long period of time.

The most immediate resolution to this challenge would be to add human resources dedicated to this process and the utilization of on-shift suppression personnel in a fire district fire safety inspection program. The certification and recertification of shift personnel, not already possessing Fire Inspector certification/training would be costly at best.

Shift personnel, however, could more frequently update pre-incident planning and building familiarization activities if involved in an inspection program. Public relations opportunities are immeasurable. This would ensure detection/suppression systems were operational and exit systems were maintained. In-service personnel could accomplish many of the less complicated inspections leaving the more high-risk, more complex inspections to a dedicated inspection person.

Another approach to accomplishing the district's inspection frequency, based on risk, is to consider a *joint fire prevention effort* with other surrounding jurisdictions with the same staffing dilemma. With hundreds of properties in the area requiring inspections, many of them hazardous by classification, and considering the fact that these properties would be divided into a frequency of quarterly, semi-annual, and annual based on their particular risk, a jointly staffed and funded effort by multiple agencies may best address the problem on a systematic, consistent manner.

Figure 65: Codes and Inspection Table

Survey Component	Cowlitz Co. Fire District No. 5
Fire codes adopted.	Adopted by city and county.
Local codes or ordinances adopted.	Adopted by city and county.
Sprinkler ordinance in place.	No.
New Construction Inspections and Involvement	
Consulted in proposed new construction.	On larger developments or facilities.
Perform fire and life safety plan review.	No.
Sign-off on new construction.	No.
Charges for inspections or reviews.	No.
Perform existing occupancy inspections.	Courtesy only.
Special risk inspections.	Yes for pre-plans.
Storage tank inspections.	No.
Key-box entry program in place.	Yes.
Hydrant flow records maintained.	No, city responsibility.
General Inspection Program	
Self-inspection program in place.	No.
Frequency of inspections.	As requested.
Inspection program.	Courtesy.
Citation process in place and formally documented/adopted.	No.
Court cited to.	No.
Inspections computerized.	Yes.
Community feedback system in place.	No.
Number of personnel devoted to program.	Two.
Fees for inspections.	No.

Recommendations

- Survey jurisdiction and establish the number of properties requiring inspections; classify them by hazard.
- Develop and *contract* fire prevention inspection services to the city of Kalama and Cowlitz County.
- Add an additional firefighter trained and certified as a Fire Inspector to oversee fire prevention program and to coordinate activities with other shift personnel to conduct inspections in low and medium risk occupancies.
- Initiate efforts with other jurisdictions to joint fund a lead Fire Prevention person(s) to manage inspection and fire prevention activities in the region.
- Budget to train and certify current firefighters in inspections over a period of time.

Public Safety Education

Providing fire and life safety education to the public is a major responsibility of the fire service. Prevention and education provide the best chance for minimizing the effects of hostile fire and health emergencies. Life and fire safety programs provided or coordinated by a fire district should include:

- Fire station tours
- School education programs
- Public presentations
- Newspaper articles
- Evacuation training
- Fire extinguisher training
- Car Seat Installations and training
- Fire Prevention Week

All segments of the population should receive education appropriate to their age and issues they face.

Providing sufficient resources for delivery of safety education is necessary to ensure an effective program. This is always a challenge when a single fire district attempts to deliver these services independently. For a more effective program, others will need to support the effort

through program delivery. On-duty station personnel and the volunteer association are excellent resources for program delivery. There is also an opportunity to expand program delivery resources through the use of community volunteers.

The life and fire safety program for CCFD5 is centered on the availability of the firefighter assigned to coordinate activities. There appears to be a fair amount of public education activity relative to the resources available the public educator. Much like the inspection deficits in Cowlitz County, perhaps the best approach to public safety education would be from a regional perspective.

Figure 66: Fire Safety/Public Education Table

Survey Component	Cowlitz Co. Fire District No. 5
Public education/information officer in place.	Yes.
Feedback instrument used.	Yes.
Public education in the following areas:	
Calling 9-1-1.	Yes.
EDITH (exit drills in the home).	Yes.
Smoke alarm program.	Yes.
Fire safety (heating equipment, chimney, electrical equipment, kitchen/cooking, etc.)	Yes.
Injury prevention (falls, burns/scalding, bike helmets, drowning, etc.)	Yes.
Fire extinguisher use.	Yes.
Fire brigade training.	Yes.
Elderly care and safety.	Yes.
Curriculum utilized in schools.	Yes.
Baby-sitting classes offered.	No.
CPR courses, blood pressure checks offered.	Yes – limited CPR courses, B/P regularly.
Publications available to public.	Yes.
Bilingual information available.	Yes.
Annual report distributed to community.	No.
Juvenile fire setter program offered.	Limited.
Wildland interface education offered.	Yes through DNR.

Ideally, there should be some way to measure results of fire prevention and public education efforts. This would include, among other factors, expanding information tracked on each emergency incident report to record whether human behavior was a contributing factor to the emergency and whether citizens present took appropriate action when faced with an emergency.

Recommendation

- Consider initiating a regional public education program jointly funded by neighboring fire departments. This would help coordinate regional public education in a more effective and economical manner. A regional approach to this type of service, as with the inspection program, allows for the dedication of resources for a more widespread, consistent program.

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Appendices

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Appendix A: Total Compensation Comparison (TCC) Chart

	Executive Personnel	Operations Personnel						Administrative Personnel	
Position	Chief	Step A FF	Step B FF	Step C FF	Step D FF	Step E FF	Step E FF	Admin Sec.	Admin. Asst(1)
Number of FTE per Position	1	0	0	1	1	2	2	1	0.5
2007 Base Salary	$ 5,491.00	$ 3,432.00	$ 3,648.00	$ 3,864.00	$ 4,977.00	$ 4,292.00	$ 4,292.00	$ 3,445.00	$ 1,777.00
Paramedic premium pay		$ 410.00	$ 410.00	$ 410.00		$ 410.00			
Specialist premium pay									
Longevity premium pay									
Education attainment pay								$ 100.00	
Shift differential pay									
Holiday pay (in lieu of hours)		$ 150.00	$ 159.00	$ 168.00	$ 178.00	$ 187.00	$ 187.00		
Deferred comp (involuntary)									
Subtotal Salary/Premium Pay	$ 5,491.00	$ 3,992.00	$ 4,217.00	$ 4,442.00	$ 5,155.00	$ 4,889.00	$ 4,479.00	$ 3,545.00	$ 1,777.00
Retirement Executive - LEOFF II; Operations - LEOFFII; Admin - PERS	$ 269.06	$ 195.61	$ 206.63	$ 217.66	$ 208.50	$ 239.56	$ 219.47	$ 130.81	
Total Pay Package	$ 5,760.06	$ 4,187.61	$ 4,423.63	$ 4,659.66	$ 5,363.50	$ 5,128.56	$ 4,698.47	$ 3,675.81	$ 1,777.00
Medical/dental insurance	$ 1,277.00	$ 1,277.00	$ 1,277.00	$ 1,277.00	$ 1,277.00	$ 1,277.00	$ 1,277.00	$ 1,277.00	
Life insurance									
Disability insurance									
Clothing or cleaning allowance									
Employee assistance program									
Medical retirement plan									
Employment security									
Deferred comp (voluntary or match)									
FICA - Social security (2007 ratees: Exec = N/A; Ops = N/A; Admin = 6.2%								$ 227.90	$ 110.17
FICA - Mdeicare (1.45%)	$ 83.52	$ 60.72	$ 64.14	$ 67.57	$ 77.77	$ 74.36	$ 68.13	$ 53.30	$ 25.77
Labor & Industries (2007 rates: Exec = .75875; Ops = .75875; Admin = .1361	$ 21.78	$ 121.40	$ 121.40	$ 121.40	$ 121.40	$ 121.40	$ 121.40	$ 21.78	$ 21.78
Total Benefit Package	$ 1,382.30	$ 1,459.12	$ 1,462.54	$ 1,465.97	$ 1,476.17	$ 1,472.76	$ 1,466.53	$ 1,579.98	$ 157.72
Total Compensation	$ 7,142.36	$ 5,646.73	$ 5,886.17	$ 6,125.63	$ 6,839.67	$ 6,601.32	$ 6,165.00	$ 5,255.79	$ 1,934.72
Gross Annual Hours	2080.00	2920.00	2920.00	2920.00	2920.00	2920.00	2920.00	2080.00	1040.00
Kelly Time - total annual hrs									
Sick leave - total annual hrs	96.00	144.00	144.00	144.00	144.00	144.00	144.00	96.00	
Vacation - total annual hrs	160.00		72.00	96.00	96.00	96.00	96.00	160.00	
Holidays - total annual hrs	88.00		24.00	24.00	24.00	24.00	24.00	88.00	
Net Annual Hours	1736.00	2776.00	2680.00	2656.00	2656.00	2656.00	2656.00	1736.00	1040.00
Work Week - Average Hours	33.38	53.38	51.54	51.08	51.08	51.08	51.08	33.38	20.00
TCC Hour	$ 49.37	$ 24.41	$ 26.36	$ 27.68	$ 30.90	$ 29.83	$ 27.85	$ 36.33	$ 11.16
TCC Month	$ 7,142.36	$ 5,646.73	$ 5,886.17	$ 6,125.63	$ 6,839.67	$ 6,601.32	$ 6,165.00	$ 5,255.79	$ 1,934.72
TCC Annual	$ 85,708.33	$ 67,760.76	$ 70,634.07	$ 73,507.50	$ 82,076.05	$ 79,215.89	$ 73,979.97	$ 63,069.47	$ 11,608.32
TCC Agency Total	$ 85,708.33	$ -	$ -	$ 73,507.50	$ 82,076.05	$ 158,431.78	$ 147,959.95	$ 63,069.47	$ 11,608.32

(1) Salary calculated at 1 FTE, TCC Annual and Agency Total reflects .5 FTE

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Appendix B: Volunteer Reimbursement Policy

COWLITZ COUNTY FIRE PROTECTION DISTRICT No. 5
PERSONNEL PROCEDURES
POLICY 1-24 VOLUNTEER REIMBURSEMENT

The purpose of this policy is to set the reimbursement units and rate per unit for District volunteers. Volunteers receive reimbursement equal to four dollars ($4) per reimbursable unit donated to the District.

SCOPE:

All District volunteers.

GUIDELINES:

RATE
The rate per unit approximates the costs incurred by a volunteer, i.e. gasoline, food, vehicle depreciation, uniform cleaning and maintenance, etc.

REIMBURSABLE UNIT
Activities have been assigned reimbursement units per the following table:

Description	Units
8 hr vol. ride FF	1
12 hr vol. ride FF	1.5
24 hr vol. ride FF	2.5
8 hr vol. ride FF/EMT	1.5
12 hr vol. ride FF/EMT	2
24 hr vol. ride FF/EMT	3
12 hr temporary FF/EMT	30
24 hr temporary FF/EMT	60
Drill < 4 hrs	1
Drill ≥ 4 hrs	1.5
Duty Officer 12 hr	3
Duty Officer 24 hr	9
Emergency Response < 6 hrs	1
Emergency Response ≥ 6 hrs	2
Public Education < 4 hrs	1
Public Education ≥ 4 hrs	1.5

Reimbursable units for other donated time (approved) and special events or training will be determined on a case by case basis. Classes held over a period of weeks may have a pre-determined number of reimbursement units. Contact the applicable Chief Officer.

Please note:
To qualify for reimbursement, activities must be performed while **not** on duty. Shift duty always qualifies.

REFERENCE:
Policy PERS #1-24a
S.O.G. #103.0
S.O.G. #103.1

Adopted as policy, November 22, 2005
Revised, December 12, 2006

Appendix C: Apparatus Replacement Data

Apparatus Information and Replacement Plan Proposal

It is important to note that the best-laid plans can go awry. The following is an updated ten-year overview for the response fleet of Cowlitz County Fire District No. 5.

This overview is based off of a wide variety of input, data, and speculation. Mechanical failure is an unknown factor that may cause fluctuation in the process. All vehicles that have a Gross Vehicle Weight of less than 26,000 pounds are evaluated on a ten-year cycle. Most of the vehicles with a Gross Vehicle Weight of less than 26,000 pounds are also the most used vehicles in the fleet. A survey of multiple agencies from throughout the United States also found that the smaller vehicles were rotated on a shorter term than larger units. All pumping apparatus and vehicles with a Gross Vehicle Weight of more than 26,000 pounds are evaluated on a twenty-year cycle.

All information provided on each vehicle is as accurate and current as possible. Salvage values are obtained from the difference between the insured value and seventy five percent repair values. Depreciation price is calculated from the purchase price divided by the ten or twenty year term of the vehicle. Replacement price is calculated from the purchase price amortized by five percent a year for the ten or twenty year term of the vehicle.

Recommendation

1. Establish a vehicle capital replacement line item for Fire and EMS in the 2008 budget.

2. Dedicate the recommended yearly funds to the established capitol replacement line item in the budget. Fire would be $36,000.00 per year and EMS would be $32,000.00 per year.

3. Adopt the 2007 through 2016 replacement schedule.

4. Reduce the Fire fleet by one, removing from service and selling the American LaFrance, estimated revenue $8,000.

5. Update Fire and EMS fleet for 2007 as follows:
    a. Replace Horton with new Type III ambulance, estimated cost $120,000.
    b. Surplus and sell Horton, estimated revenue $20,000.
    c. Tender 51 update response lighting, clean up wiring, engine maintenance, general clean up, estimated cost $7,000.
    d. Tender 52 replace with newer chassis, larger cab, automatic transmission, stainless tank. Utilize components off of current tender chassis, pump system, boxes and valves. Estimated cost $80,000.
    e. Surplus and sell Ford LN-9000 chassis after stripping components, estimated revenue $3,000.
    f. Replace Utility 53, Ford Explorer with new Ford Explorer off State bid and install response components, estimated cost $60,000.
    g. Surplus and sell Ford Explorer, estimated revenue $3,000.

Apparatus	Expense	Revenue
American LaFrance		$8,000
New Type III	$120,000	
Horton		$20,000
Tender 51	$7,000	
Tender 52	$80,000	
Tender 52 Chassis		$3,000
Ford Expedition	$60,000	
Ford Explorer		$3,000
Estimated Total	$267,000	$34,000
Fire/EMS Reserve		$309,000
Balance Forward	$267,000	$343,000
Project Result		$76,000 Net

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Projected Replacement Schedule, 2007 - 2016

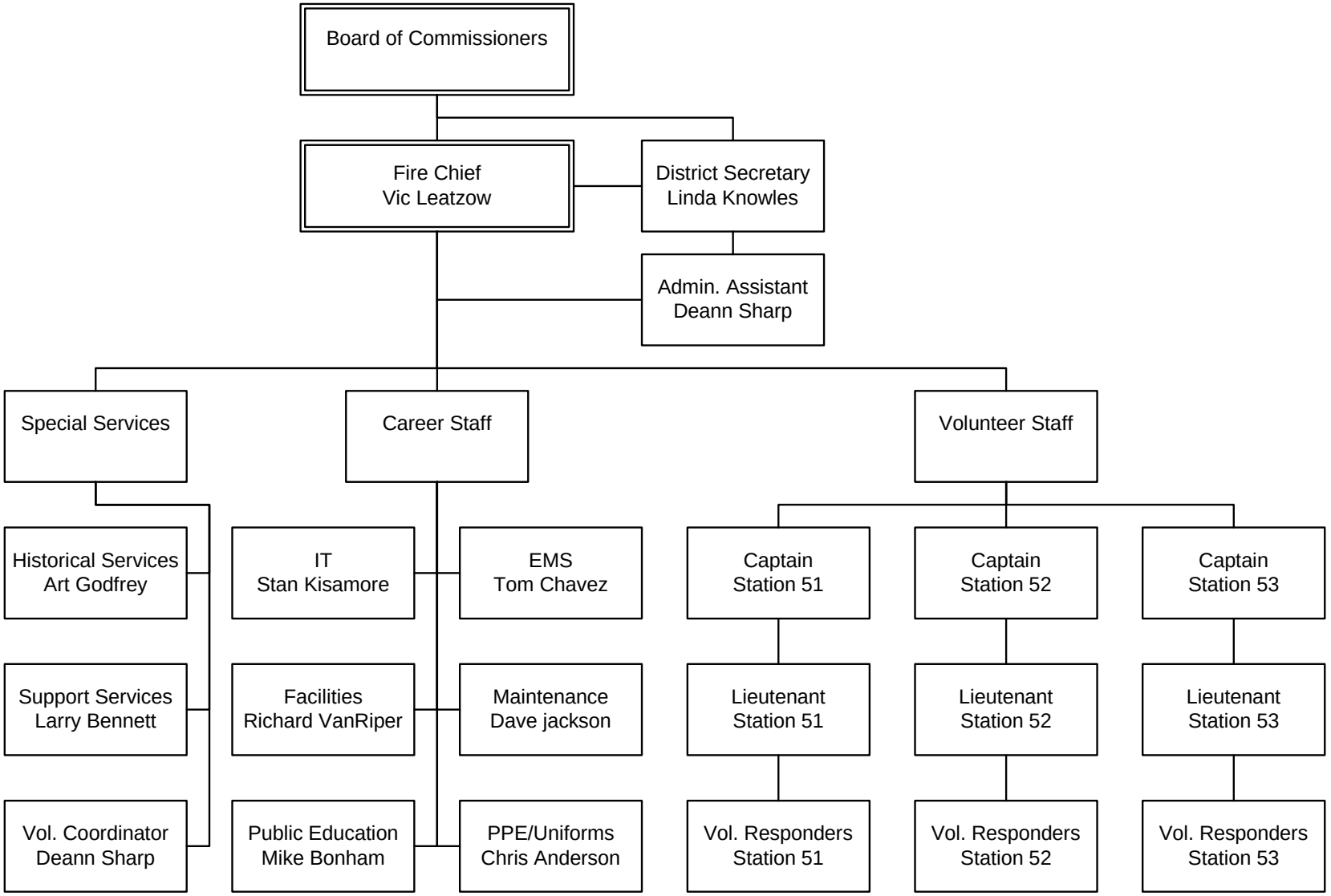
2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
$110,000.00 Ambulance		$150,000.00 Rescue		$128,000.00 Ambulance	$58,000.00 Expedition			$139,000.00 Ambulance	
$150,000.00 Tender 52				$60,000.00 Pick-up					
Tender 51									
Explorer									
Total 10-year replacement estimated cost: **$418,000.00 Fire** **$377,000.00 Medical**									

Fire and Ambulance Reserve Funding (Current and Proposed Adjustments)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Fire Reserve Funding (Proposed Adjustment)										
Beginning Balance	$ 350,000	$ 200,000	$ 236,000	$ 122,000	$ 158,000	$ 134,000	$ 112,000	$ 148,000	$ 184,000	$ 220,000
Yearly Funds		$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000
Accumulative	$ 350,000	$ 236,000	$ 272,000	$ 158,000	$ 194,000	$ 170,000	$ 148,000	$ 184,000	$ 220,000	$ 256,000
Expenditure	$ 150,000		$ 150,000		$ 60,000	$ 58,000				
Ending Balance	$ 200,000	$ 236,000	$ 122,000	$ 158,000	$ 134,000	$ 112,000	$ 148,000	$ 184,000	$ 220,000	$ 256,000

Ambulance Reserve Funding (Proposed Adjustment)										
Beginning Balance	$ 110,000	$ 3,000	$ 35,000	$ 67,000	$ 99,000	$ 3,000	$ 35,000	$ 67,000	$ 99,000	$ (8,000)
Yearly Funds		$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000	$ 32,000
Accumulative	$ 110,000	$ 35,000	$ 67,000	$ 99,000	$ 131,000	$ 35,000	$ 67,000	$ 99,000	$ 131,000	$ 24,000
Expenditure	$ 107,000				$ 128,000				$ 139,000	
Ending Balance	$ 3,000	$ 35,000	$ 67,000	$ 99,000	$ 3,000	$ 35,000	$ 67,000	$ 99,000	$ (8,000)	$ 24,000

Appendix D: District Organizational Chart



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Appendix E: Washington State Taxing History

In 1979, because of the birth and growth of *fire-based* emergency medical services systems in the state, the State Legislature passed additional legislation which allowed cities and fire protection districts to collect an additional $0.25 property tax on *all* properties (improved and unimproved) exclusively for the provision of EMS services. This is a property tax levy which requires a *super majority* voter approval to renew every six years.

Seven years later, with the maturation of advanced life support (paramedic) services, the legislators granted additional taxing authority to cities and fire protection districts for another $ 0.25 if the entity was providing or funding ALS services to its jurisdiction. This made the maximum taxing authority for EMS in cities and fire districts within the state of Washington an even $0.50 if approved by a super majority vote of the taxpayers.

Recently passed legislation altered the renewal options for an EMS levy and now allows the fire/EMS agency to ask for the a six-year EMS levy, a ten-year EMS levy, or a 'forever' EMS levy based upon a super majority vote with 60 percent approval.

Because of the differentiation of taxing for regular fire tax (on *improved* property only) and the EMS tax (on *all* properties) in the state, a fire district may annually receive official notice from its county assessor of *two* different assessed valuations of its jurisdiction.

While the concept of funding fire protection services by imposing an annual tax on the assessed valuation of improved properties is correlative, there is *no identifiable relationship* between taxing *property* and the demand for emergency medical services. As such, EMS – a service that places high demand on most fire departments and fire districts -- is inadequately funded in the state of Washington.

The state of Washington has undergone a series of restricting tax referendums initiated by its constituents. The most recent and the most restrictive initiative was adopted in 2001. While earlier laws limited a public municipality's ability to collect property tax to no more than 6 percent per year, additional attempts have been made to shrink that tax cap even further. The latest, Referendum

747, imposes a *1 percent cap* on the increase in tax revenue each fiscal year for a public taxing entity. This has created a general financial crisis for municipal governments overall in the state.

While the cost of operating government has steadily grown over the past 20 years throughout the country, the most recent property tax referendum in Washington State is so restrictive to local governments that it does not even keep up with the cost of living for the Seattle/Tacoma area.

RCW 84.53.550 authorizes cities, towns, and special purpose districts to "lift the tax levy lid" back to the authorized amount by a simple majority of the voters[34] This has caused more progressive municipalities in the state to develop a financial strategy of going to the voters annually for the purposes of gaining authorization to keep their tax levy rate at the authorized level -- $1.50 for fire and $0.50 for EMS.

As stated earlier in this report, fire districts in the state of Washington are funded primarily by taxes levied against improved property for regular fire tax and both improved/unimproved property for the EMS levy. As such, the receipt of property tax by the county assessor (which subsequently is transferred to the fire district's account in the county treasurer's office) occurs on a predictably cyclic basis. Property tax statements are mailed to property owners twice a year, typically March and September. Subsequently, the flow of property tax revenue is reflected by a 'bow-wave' influx of funds into the fire district's cash fund a month or so after property tax statements are mailed. For that reason, fire districts are compelled to 'carry-over' a sizeable amount of funds in the expense fund each year for the purpose of continuing business until property tax revenue begins to flow for the current budget year. This is not to be confused with the Reserve Fund which most fire districts maintain for various capital projects.

The following figure illustrates a typical property tax revenue flow for a fire district in Washington State. Concurrently, fire districts with good budgeting practices match the control of their expenditures to the flow of property tax revenue. In such cases, the expenditure of fire district funds (other than for personnel, necessary operational supplies and utilities) would mirror the same table. This is not a Reserve Fund.

[34] Legislation considered in early in 2006 to allow 'lid lifts' to last six years was approved by Legislative Committee but did not make it to the floor for a vote. It is anticipated that this extremely helpful law will be enacted in early 2007, bringing great relief to communities and fire districts.

Figure 67: Typical Property Tax Revenue Flow for Fire Districts