Fire Department Assessment

Strategies for optimum system performance and efficiency

Key Largo, Florida
Spring, 2007

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Fire and Emergency Services Evaluation

- Methodology
  - Analysis of statistics
  - Review of documents
  - Interviews with key staff
  - Interviews with government officials
  - Direct observation
  - Seven-objective matrix
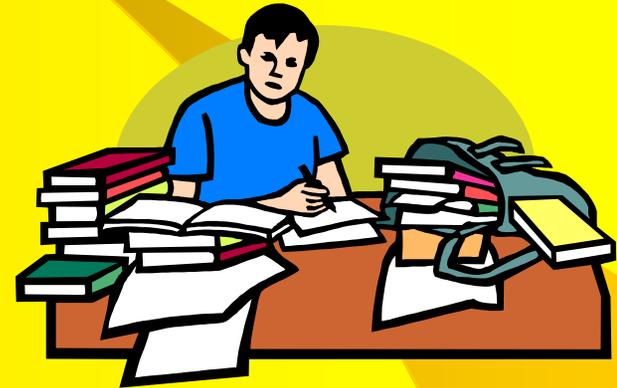
Fire Department Agency Analysis
Seven Objective Matrix

- Organizational Overview

- Management Component

- Personnel Management

- Staffing

- Capital Assets & Facilities

- Service Delivery System

- Training Program

Comprehensive Instruments

✓ Commission on Accreditation International

✓ N.F.P.A. Standards

- Health and Safety
- Staffing and Deployment
- Apparatus and Equipment

✓ O.S.H.A. and E.P.A.

✓ I.S.O. Criteria

✓ Industry Standards and Best Practices

✓ Results of over 300 fire department evaluations

Fire and Emergency Services Evaluation

- Scope of recommendations

1) **Issues Presenting Safety, Legal or Financial Exposure**

2) **Issues That Correct A Current Deficiency**

3) **Issues That Enhance Delivery Of External Or Internal Services**

4) **Issues That Represent Best Practices**

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Community Baseline and Organizational Overview

- Responsibilities and Lines of Authority
- Foundational Policy
- Organizational Structure
- Maintenance of History
- Finance
- Population and Growth Projections
- Service Demand Projections
- Community Risk Analysis

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Comparison of Resources per 1,000 Population

	Stations	Pumpers	Aerials
National Median	0.125	0.186	0.033
Key Largo	0.168	0.168	0.084

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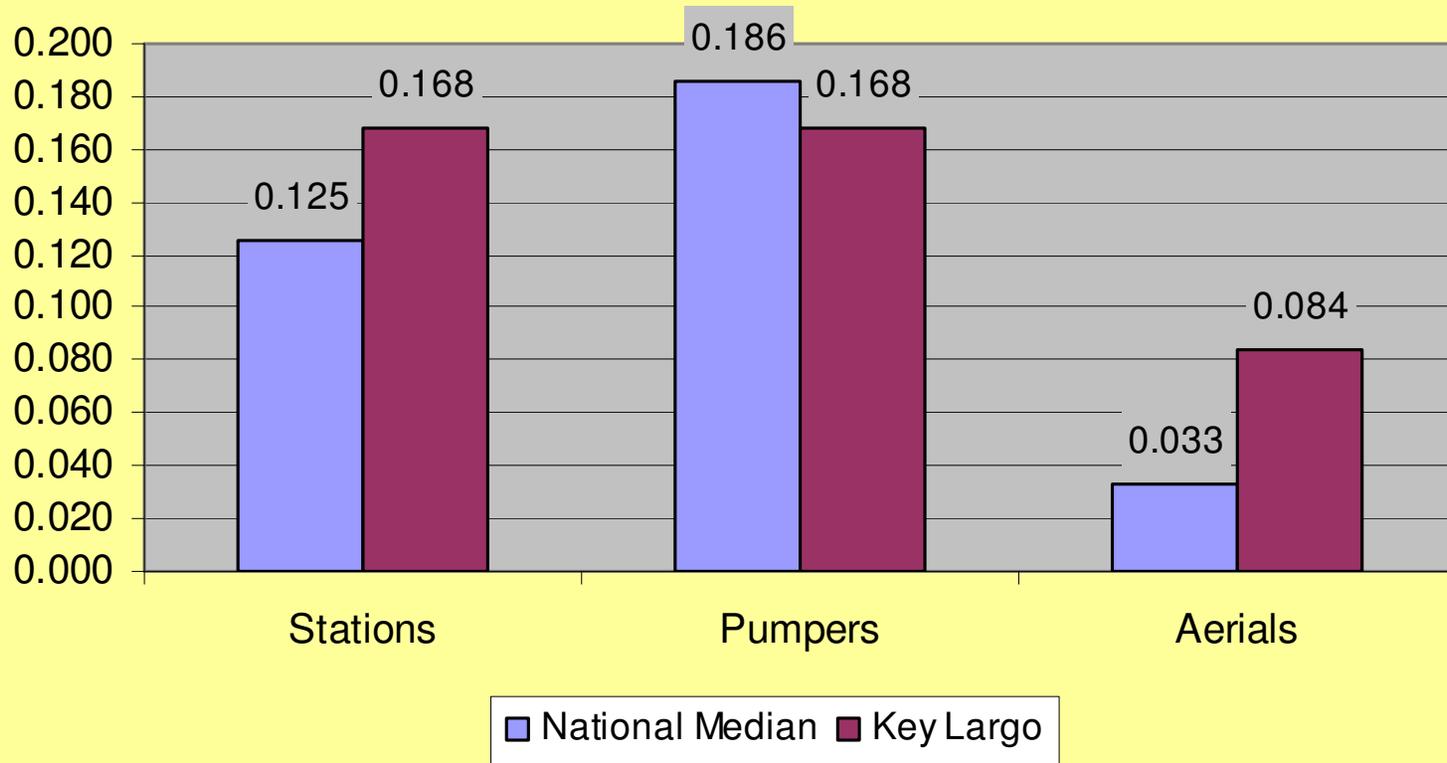
Comparison of Tax Cost per Capita

Population Density

Population Density
- < 500
- 500 - 1,000
- >1,000
- Stations
- Parks/ Marshland
- Florida

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Workload Forecast

Workload Forecast

	2010	2012	2014	2016	2018	2020	2022	2024	2026	2028	2030
■ Fire	136	137	138	140	141	142	143	144	146	147	148

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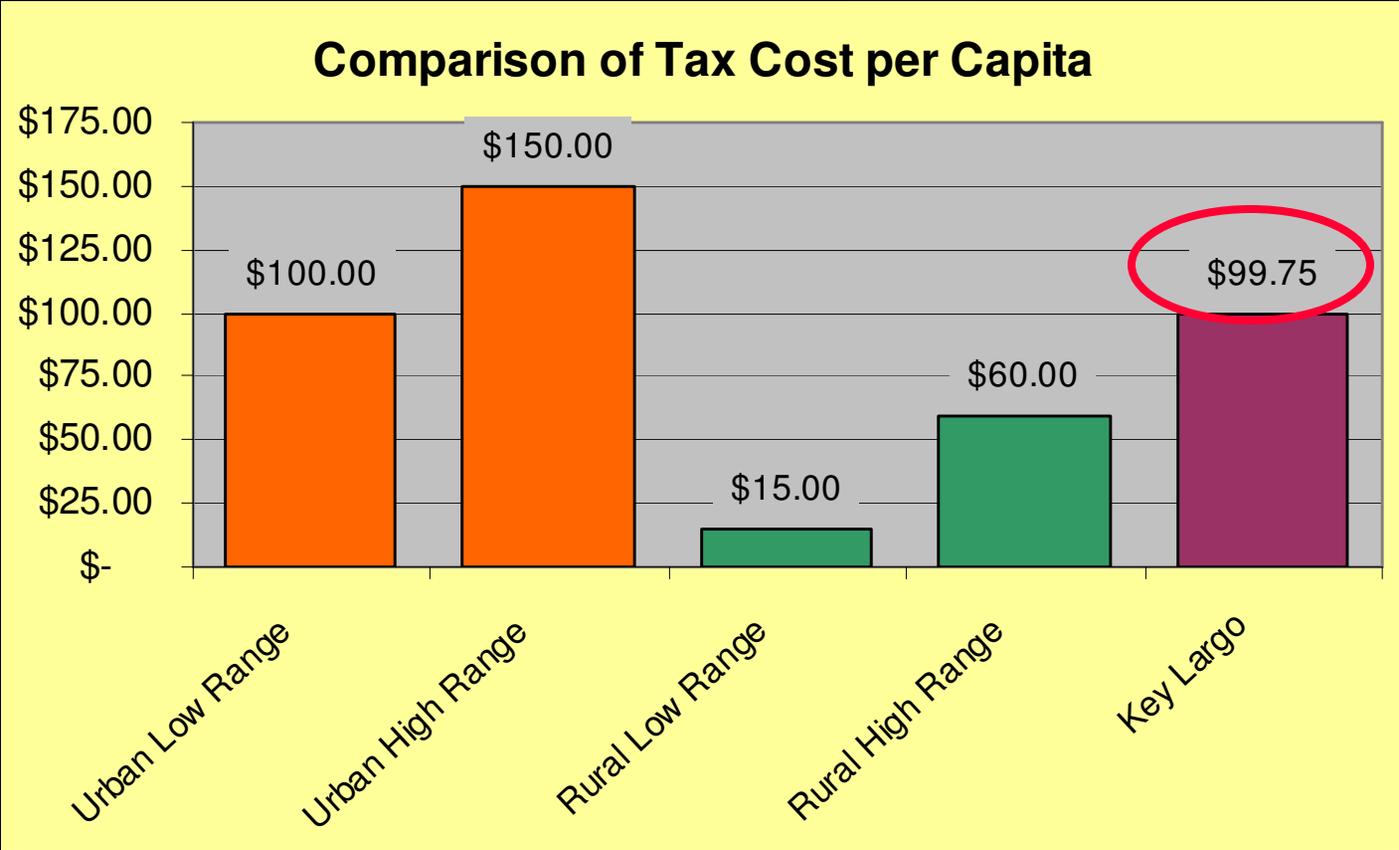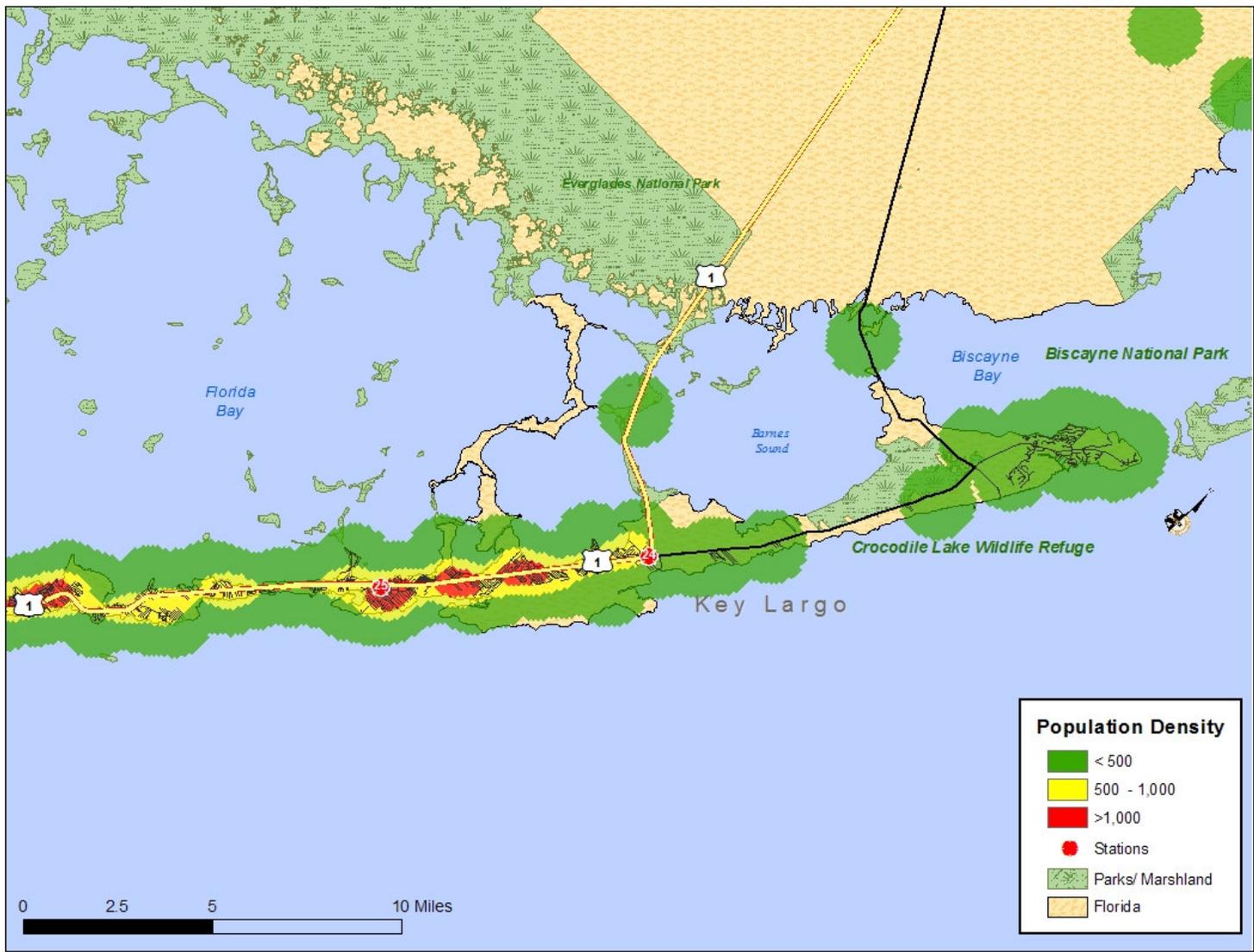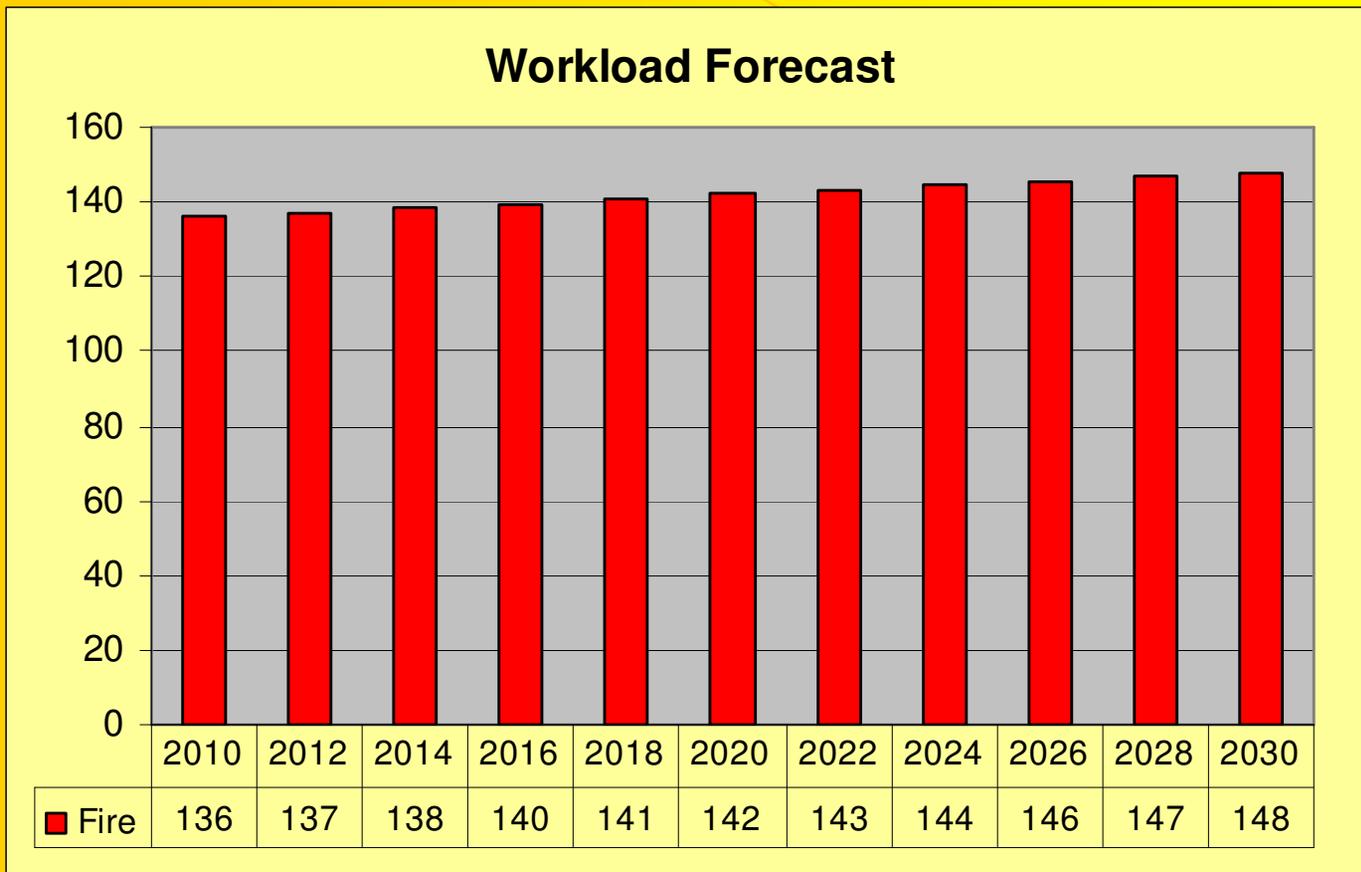
Community Risk Assessment

Community Risk
- Stations
- Mile Marker

Future Land Use
- Unspecified Land Use
- Low Risk
- Moderate Risk
- High Risk
- Florida

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Key Recommendations

Section: Community Baseline and Organizational Overview

- The District should clarify its authority and role in setting the vision, determining the objectives for levels of service, and providing overall goals for the manner in which fire services are to be provided.

- The contract requires that KLVFRD provide a Length of Service Awards Program for volunteer/POC personnel. No such program has been established.

- The KLVFRD has only two corporate officers, the President and the Chief. The KLVFRD should revisit its corporation roles, distribution of authority and executive or administrative oversight. The return to the use of a Treasurer and Vice President may be advisable.

- Develop and adopt a position description for a District Public Safety Director/Fire Chief and supporting Administrative Assistant.

- Develop and adopt position descriptions for all career and volunteer fire/rescue positions.

- Adopt the proposed, conceptual organizational chart/structure.

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Proposed Organizational Chart

Key Largo Fire Rescue EMS Taxing District

Public Safety Director/Fire Chief — Administrative Assistant

Deputy Chief Operations

Deputy Chief Administration Fire Prevention

President BOD — Station Manager

Battalion Chief Training

Battalion Chief Suppression

Battalion Chief Support/Maint — Logistics

Special Teams

Station 24 Captain (3)

Station 25 Captain (3)

Station 24 Lieutenant (3)

Station 25 Lieutenant (3)

Engineers/Firefighters/EMTs/Paramedics Support Members

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- Adopt the proposed, conceptual organizational chart/structure.

- Adopt complete, accurate and legal policies and procedures, standard operating guidelines, general orders, personnel regulations or their appropriate combination, based on firm enabling documents.

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Possible Recommended SOG Topics

Alarms and Response Procedures	Medical Emergencies	Station Operations
Alarms and Response Procedures	**Medical Emergencies**	**Station Operations**
Alarm Response Procedures	Operational Guidelines for Medical Aid Responses	Purchasing Procedures
Automatic Aid	Operations with Ambulance Personnel	Emergency Power Systems
Mutual Aid	Use Of Automatic External Defibrillator (AED)	Personal Locker Assignments
Contractual Agreements	Major Medical Incidents	Station Libraries
Fire Company Operations	Triage	Scheduling Use of Training Media
Standard Company Operations	Materials	**Apparatus Operations**
Returning Companies to Service	Vial of Life and Medic Alert Tags	Apparatus Maintenance
Use of Civilians	Attempted Suicide	Vehicle Out of Service Procedure
Fire Scene Investigations	Suspected Homicide	Testing Apparatus Pumps
Smoke Removal Procedures	DOA (Dead on Arrival)	Driving Emergency Vehicles
Personal Alert Safety Devices	Suspected Child Abuse	Warning Devices
On-Scene Equipment Inventory	Suspected Sexual Assault	Apparatus Operational Limits
Highway Incident Safety	Hospital Disaster Notification	Fueling Procedure
Command Operations	EMS Reports	Driver Operator - Pump Certification
General Strategic Guidelines	BLS Medical Protocols	**Equipment Operations**
Incident Management System	**Electrical Emergencies**	Equipment Repairs
Command Post Procedures	Electrical Emergency Operations	Equipment Out of Service
Welfare	**Rescue Operations**	Radio Repair Procedure
Helicopter Operations	Vehicle Rescue and Extrication	Pressure Vessel Maintenance
Public Health Considerations	Life Line Operations	Hose Maintenance
Incident Critique	Rescue from Machinery	Self-Contained Breathing Apparatus (SCBA)
Area Evacuation	Escalator Emergencies	Preventive Maintenance - SCBA's
Building Evacuation	Elevator Emergencies	Respiratory Breathing Air Systems
Firefighting	Building Collapse	Ladder Maintenance
Metal Fires	Rescue at Structure Fires	Nozzle Maintenance
Structure Fires (General)	**Transportation Emergencies**	Fire Extinguishers
Operations in Sprinklered Buildings	Interstate Operations	Hand Tool Maintenance
On-Site Auxiliary Fire Equipment	Railroad Emergencies	Power Tool Maintenance
High Rise Fires	**Hazardous Materials Incidents**	**Public Education**
Wildland Fires	Flammable Fuel Spill (Liquid or Gas)	Public Relations
Vehicle Fires	LPG Emergencies	Procedures During Station Tours
Fire Stream Management	Fumigation Emergencies	Fire Extinguisher Demonstrations
Industrial Dumpster Fires	Explosives and Bombs	**Fire Prevention**
Fire Watch Detail	PCB's	Fire Company Fire Prevention Inspections Assistance
Fires in US Mailboxes	Pesticide Procedures	Pre-Fire Plans
High Rise Pack	Radioactive Materials	
Bowstring Truss Roof - Operations Procedures	Natural Gas Filled Structures - No Fire	
Thermal Image Camera	Natural Gas Fed Fire - Inside Structure	
Law Enforcement Liaison	Broken Natural Gas Main - Fire	
Law Enforcement Liaison - General Operations	Broken Natural Gas Main - No Fire	
Public Assistance Operations		
Public Assistance Alarms		

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Management Components

- Mission, Vision, Strategic Planning, Goals and Objectives
- Availability of SOG's, Rules, Regulations, and Policies
- Internal and External Communications
- Document Control and Security
- Reporting and Records

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Key Recommendations
Section: Management Components

- The District Commission should establish performance objectives for such basic deliverables as firefighter turnout time, overall emergency response time, incident staffing in relation to incident risk, and other critical components of emergency response outcome.

- A strategic planning process involving stakeholders from both the Fire Department and District Commission could provide the Department with a clear sense of direction and greater focus on specific goals.

Determinations for a weak organizational culture

- They have no clear values or beliefs about how to succeed in their business.
- They have many beliefs as to how to succeed, but cannot agree on which are most important.
- Different parts of the organization have fundamentally different beliefs about how to succeed.
- Those that personify the culture are destructive or disruptive and don't build on any common understanding about what is important.
- The rituals of day-to-day organizational life are disorganized and/or working at cross purposes.

Rue & Byers, Management Skills and Applications, Irwin Publishing, Chicago, IL 1995.

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Key Recommendations
Section: Management Components

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- A strategic planning process involving stakeholders from both the Fire Department and District Commission could provide the Department with a clear sense of direction and greater focus on specific goals.

- In order to fully encourage the consistent use and application of policy, all policy documents should be made available for reference by every member of the organization.

- Recordkeeping related to incident records, training, maintenance, and other activities must be improved drastically. Initiation of the new records management software package should include adequate training and improved accountability along with firm policies regarding its use.

Personnel Management

- Personnel Policies and Rules
- Reimbursement and Benefits
- Personnel Records
- Disciplinary Process
- Counseling Services
- Application and Recruitment Process
- Promotion Processes
- Ongoing Competency Evaluation

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Key Recommendations
Section: Personnel Management

- Immediately promulgate a clearly identifiable, formal, progressive disciplinary process with an appropriate appeal procedure.

- Resolve the membership classification conflicts between the KLVFRD by-laws and Policy 3.01.

- Review the wisdom of reducing the probation period for new members from six to three months.

- Discontinue the practice of having the membership vote to accept or reject new members. The selections should be made based on merit and qualification.

- Confirm whether or not term limits are in place for elected officers and directors

- Confirm the enabling documents providing for the appointment of operational officers.

- Conduct annual medical evaluation and bi-annual physical examinations of members and employees.

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Staffing

- Administration and Support Staff
- Certified Emergency Response Personnel
- Incident Staffing Performance
- Critical Staffing Issues

Comparison of Firefighters per 1,000 Population
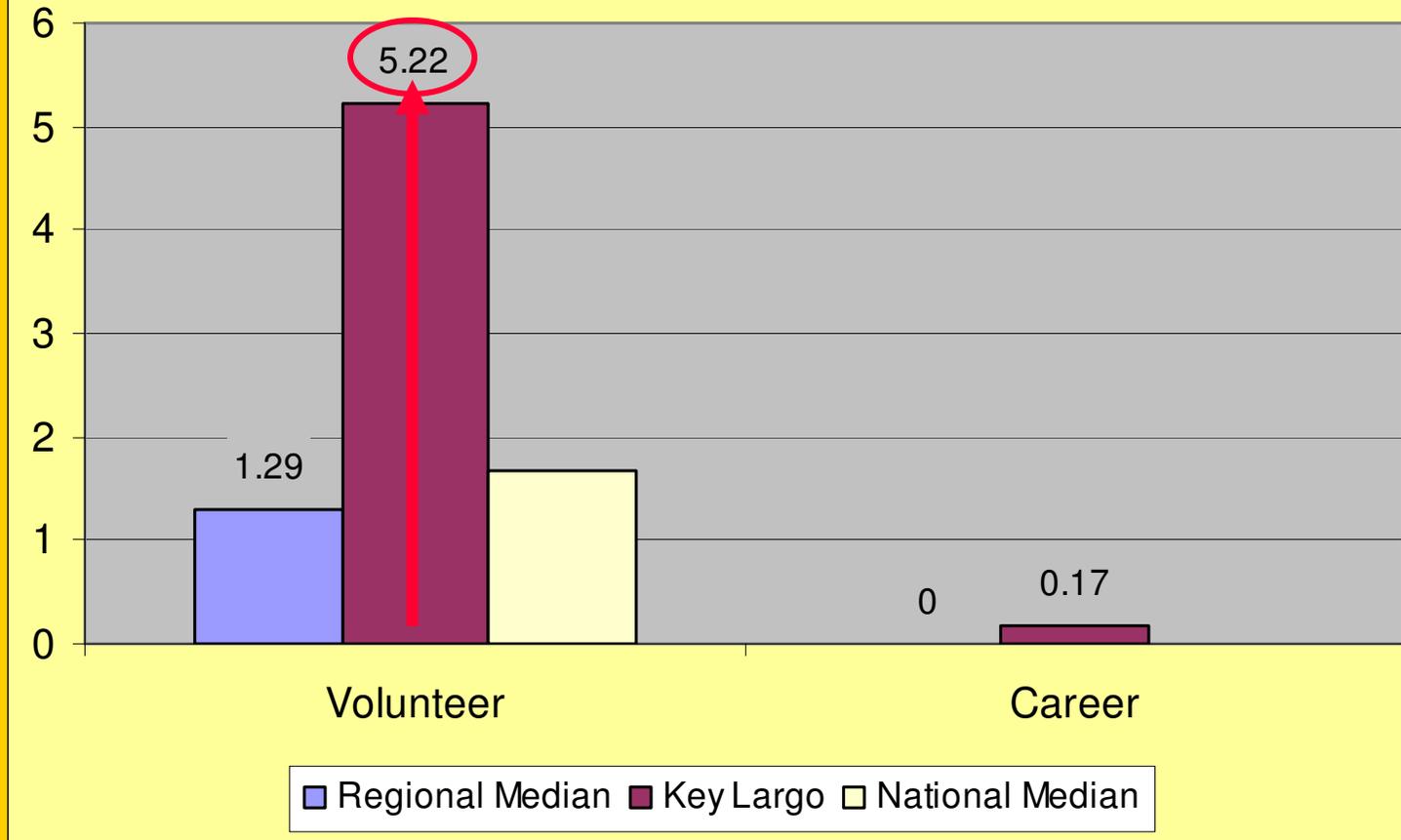
NFPA 1720 Standards

Demand Zone	Demographics	Staffing/Response Time	Percentage
Special risks	AHJ	AHJ	90
Urban	>1000 people/mi.2	15/9	90
Suburban	500–1000 people/mi.2	10/10	80
Rural	< 500 people/mi.2	6/14	80
Remote*	Travel dist >8 mi.	4	90

*Upon assembling the necessary resources at the emergency scene, the fire department should have the capability to safely commence an initial attack within two minutes 90 percent of the time.

Average Personnel On Incident- Fire Calls
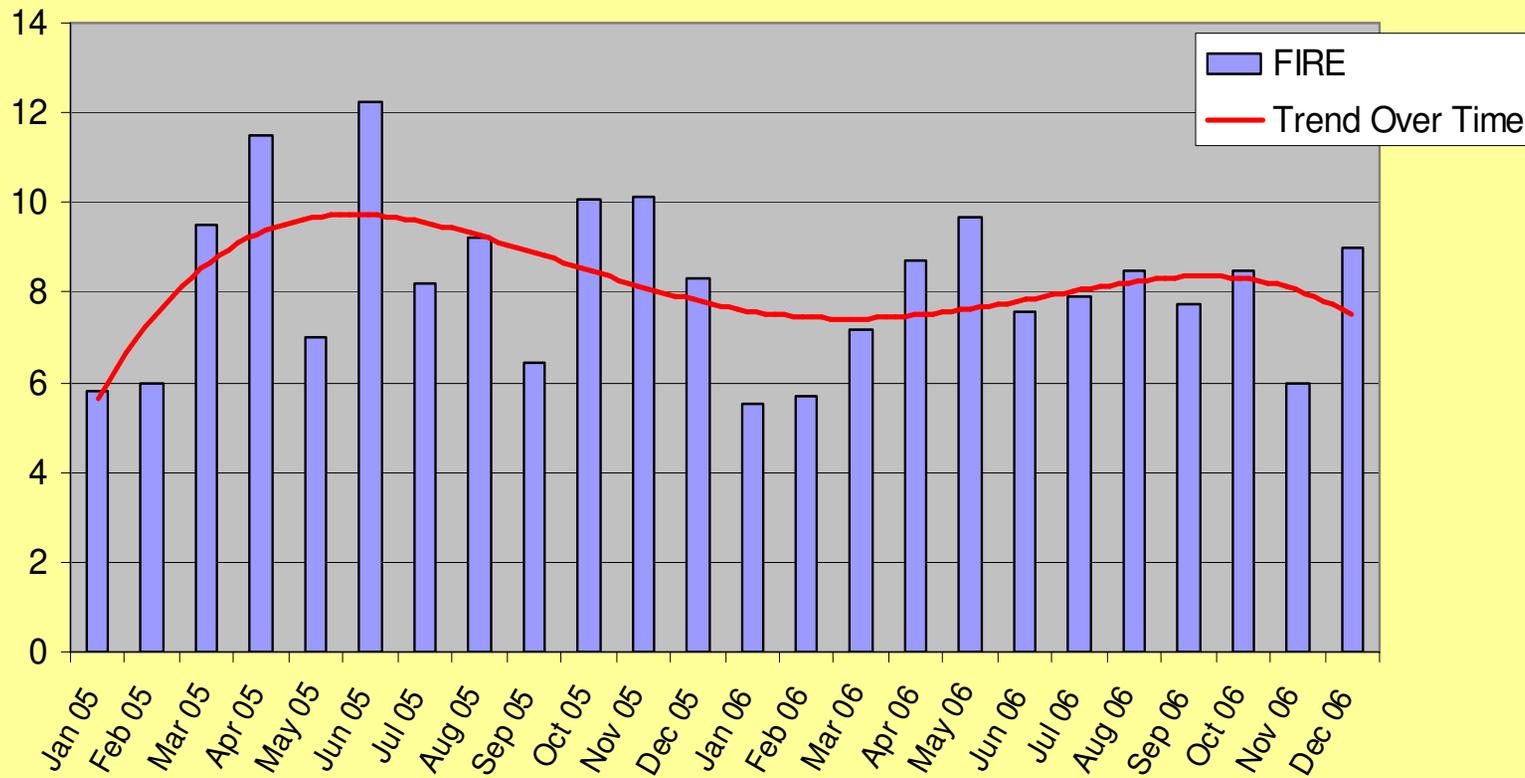
Standards of Response

General Incident Type	Risk	CPSE Critical Tasking Staff Req	KLVFRD Average Staff Response	Mutual-Aid Average Staff Response	Total Average Staff Response
Commercial	High	17	8	2	10
Dwelling	Moderate	13	8	2	10
Commercial	Moderate	13	8	2	10
HazMat	Moderate	13	8	2	10
Brush/Grass	Low	6	8	-	8
Vehicle Fire	Low	6	7	-	7
MVA	Low	6	8	-	8
EMS	Low	6	7	2	9

Key Recommendations
Section: Staffing

- Hire a full-time Public Safety Director/Fire Chief to be employed by and report to the District.

- Hire full-time driver/operator/EMT firefighters, employed by the District, to provide for one career firefighter on duty at each station 24/365.

- Initiate a critical tasking analysis for common community risk types and ensure that the number of personnel dispatched to calls equals the identified critical tasks.

- Conduct an ongoing analysis of on-scene staffing strength to confirm the Department's standard of coverage.

- Develop and implement an aggressive driver/operator training and check out program for all department vehicles.

- Design and implement a weekly in-station volunteer personnel standby program for both stations.

- Confirm the Logistics Officer's employment status is in compliance with the Department of Labor's regulations. .

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Capital Assets and Resources

- Fire Stations and Other Facilities
- Apparatus
- Support and Small Equipment

# Key Recommendations
Section: Capital Assets and Resources

- Conditions at Station 24 involving building maintenance and storage should be corrected immediately. Improved accountability should be put in place to ensure the conditions do not recur.

- Maintain the established plan to adequately fund apparatus replacement or prepare for capital purchases based on apparatus replacement schedule.

- Develop and fund a small equipment replacement program that anticipates replacement schedules and builds necessary funding in order to spread cost over multiple years.

Emergency Services Delivery

- Notification System
- Distribution Analysis
- Demand Analysis
- Reliability Analysis
- Response Time Performance Objectives
- Recorded Response Time Performance and Outcomes
- Incident Management
- Mutual Aid Systems
- Technical Rescue Response
- Homeland Security Integration

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Distribution Analysis
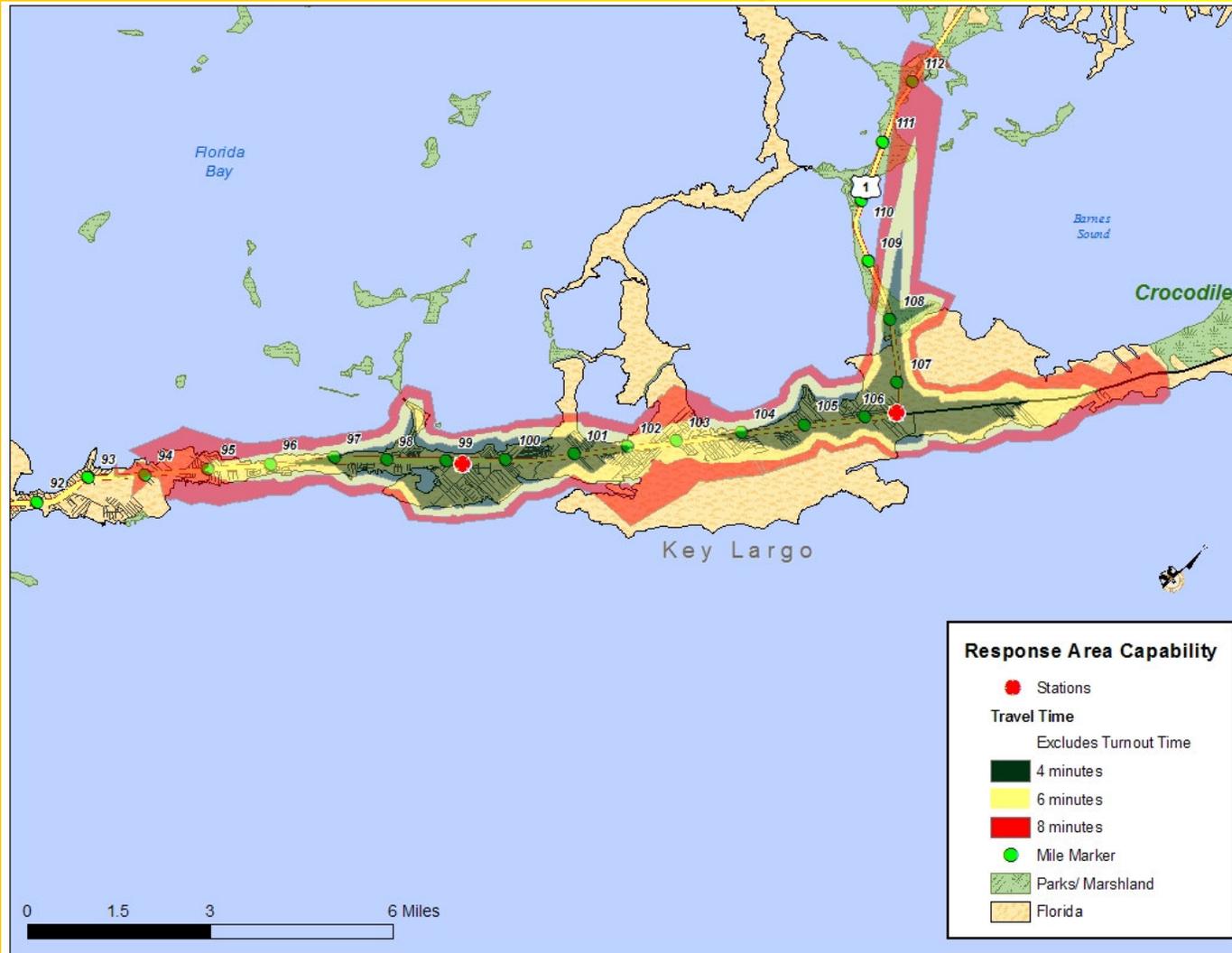
Current Response Time Capability of KLVFRD Stations

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Demand Analysis

Key Largo FD: Yearly Workload
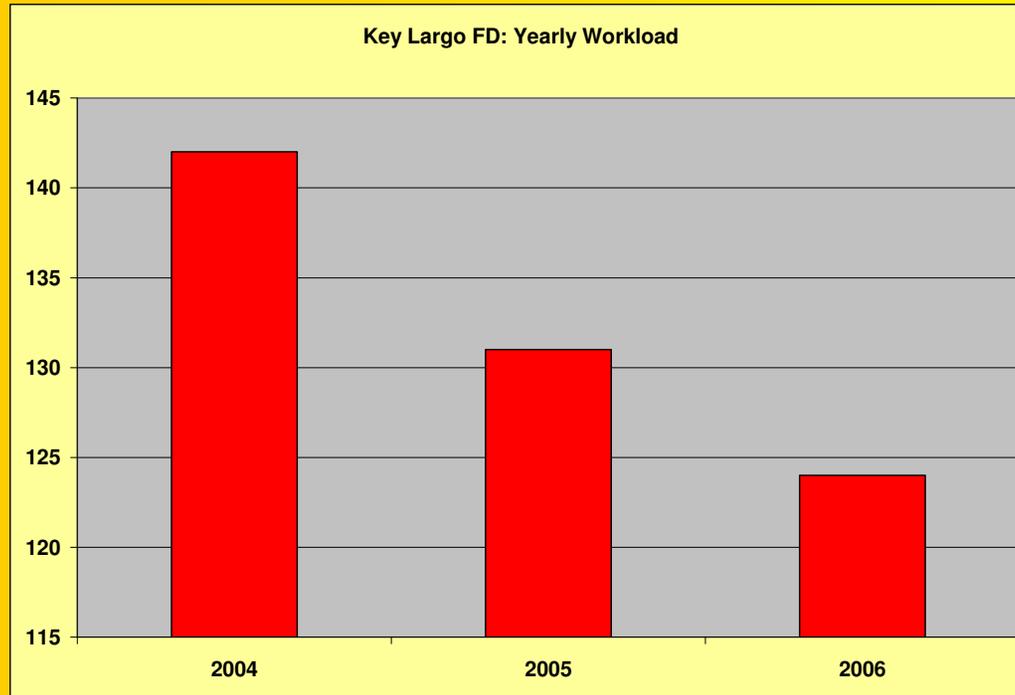
Workload History

Demand Analysis

Temporal Analysis

**Key Largo FD: Monthly Workload, 2004-2006**

Key Largo FD: Weekly Workload, 2004-2006

Key Largo FD: Hourly Workload, 2004-2006

Hour of Day

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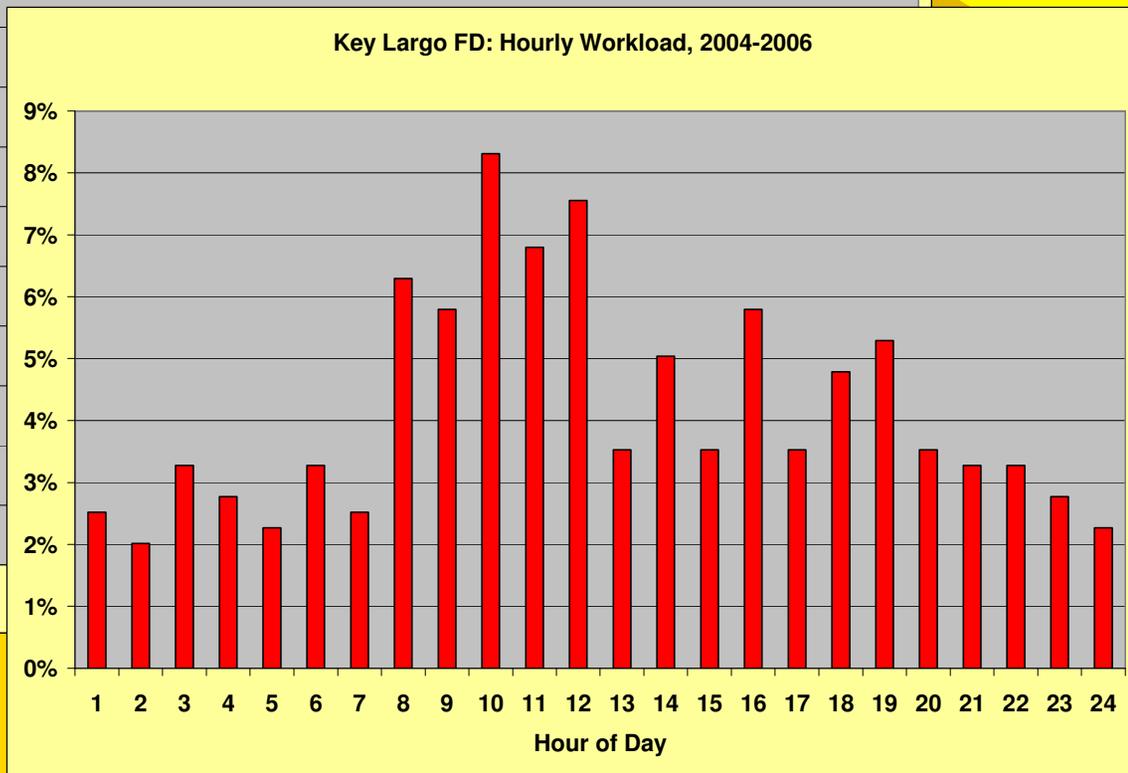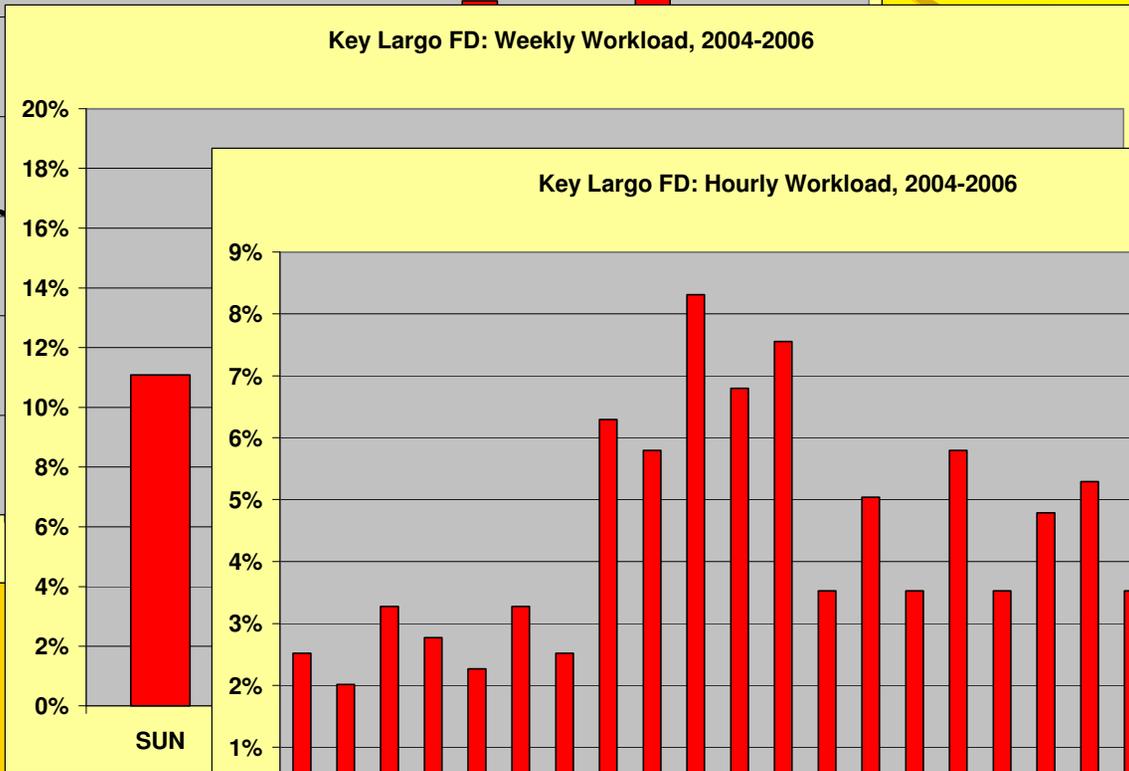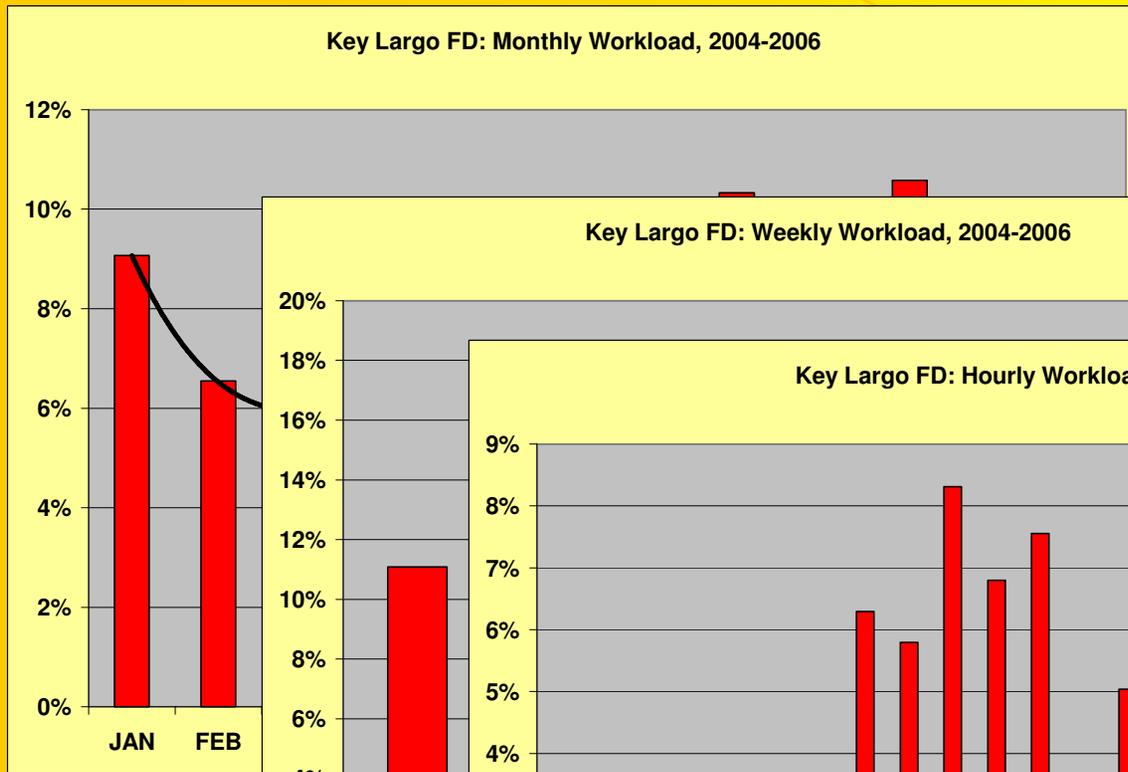
Demand Analysis

Geographic Distribution

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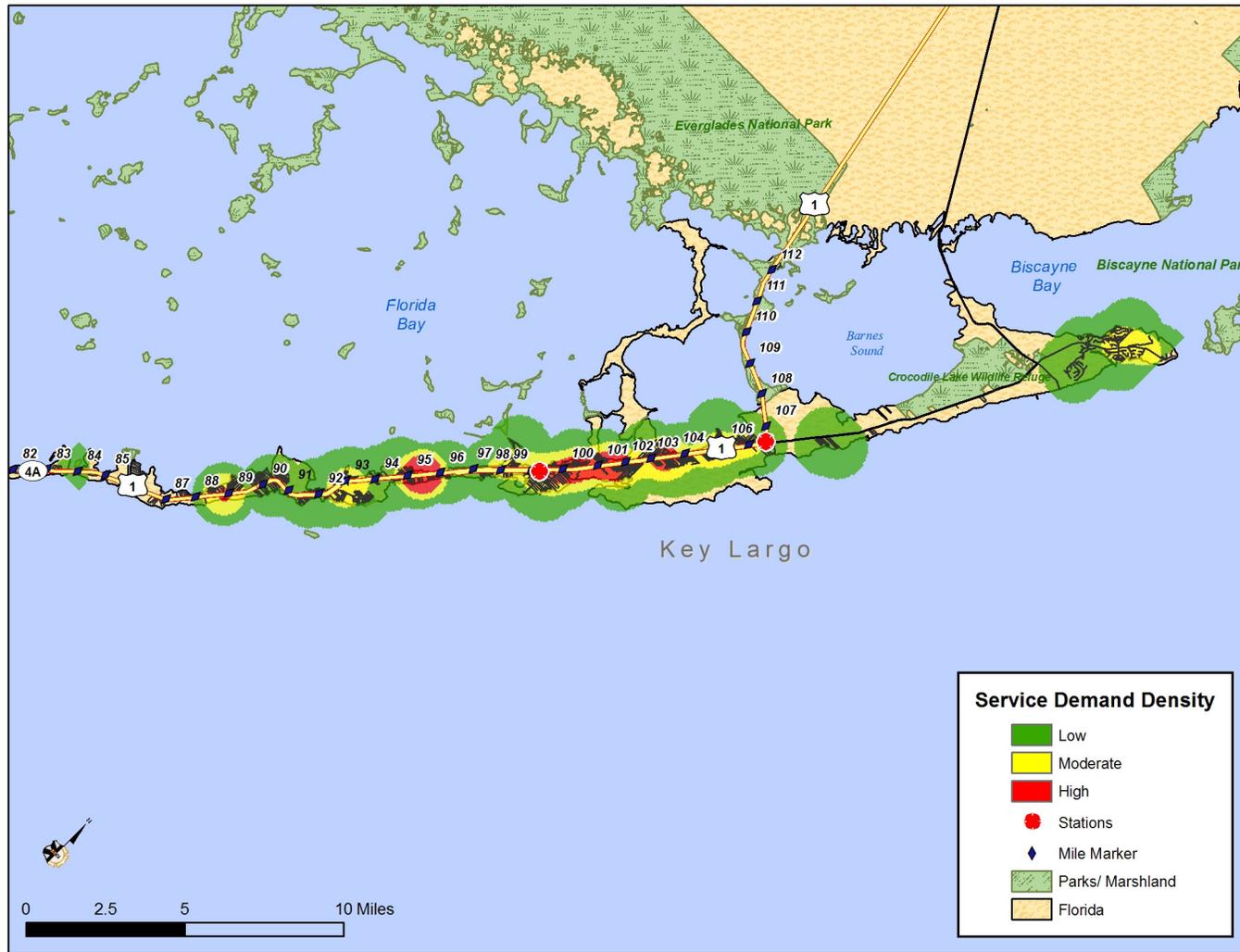
Reliability Analysis

Unit Hour Utilization

Year	Total Time	UHU
2004	30:19:51	0.0035
2005	26:50:01	0.0031
2006	41:56:18	0.0048

Performance Analysis

Key Largo VFD: Response Time Performance

Legend: Frequency, Cumulative %

Average: 4:16

90th Percentile 9:41

minutes:seconds

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Performance Analysis

Key Largo FD: Hourly Response Time Performance at the 90th Percentile, 2004-2006
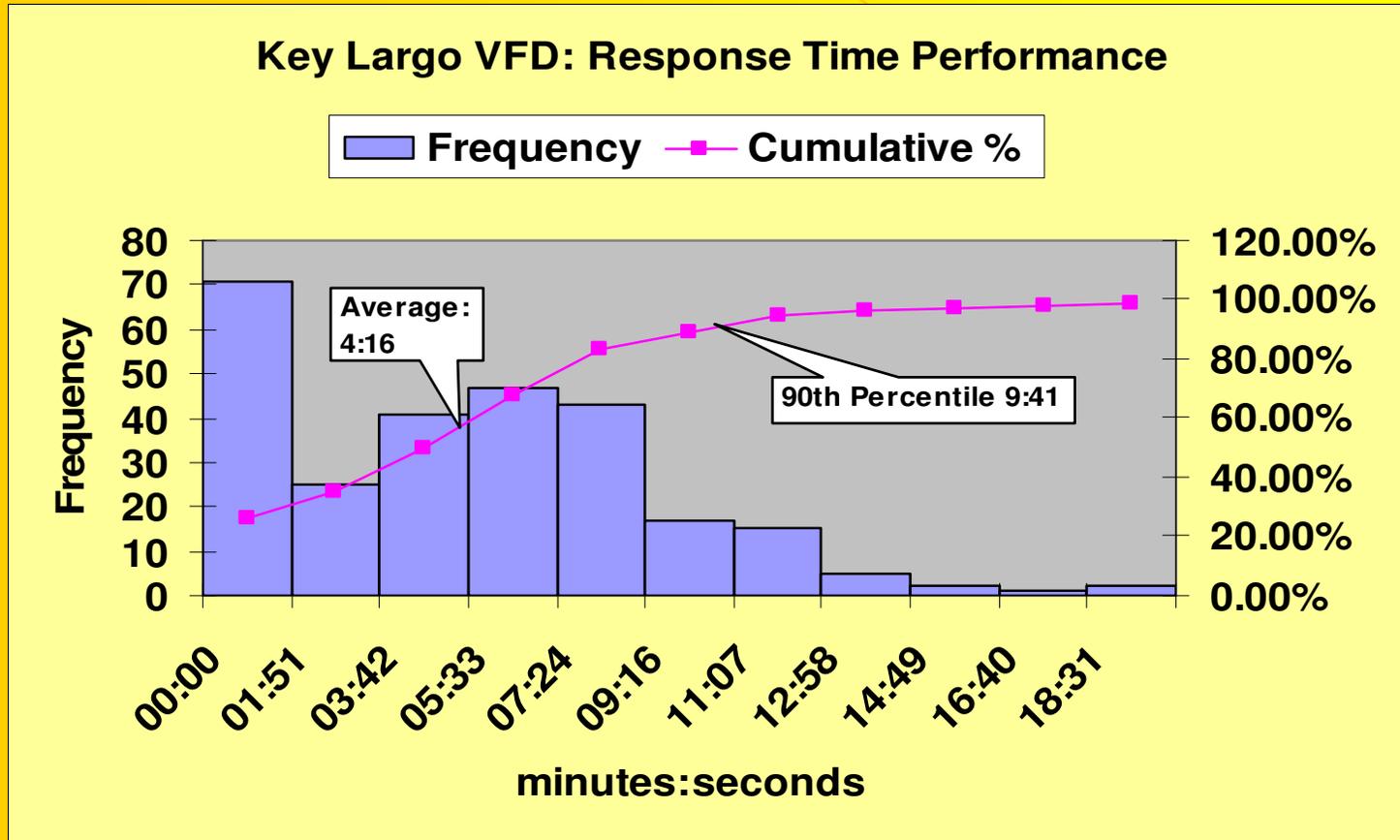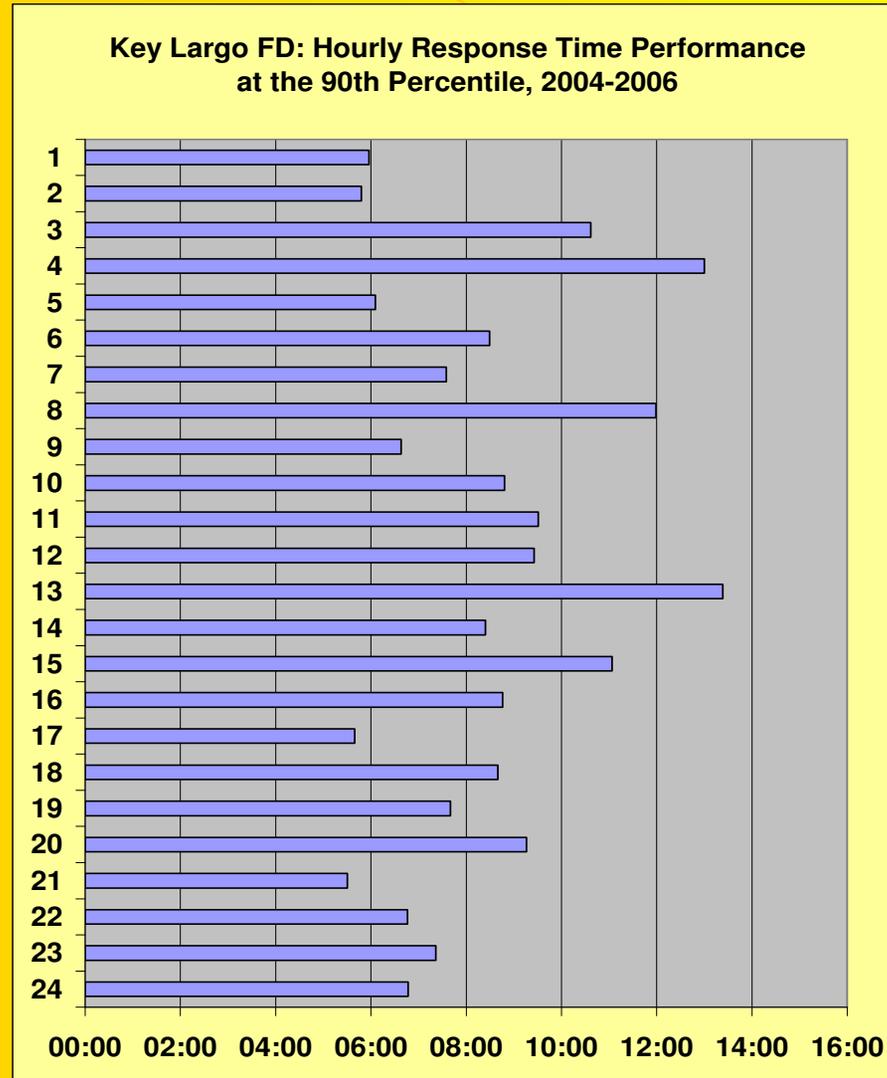
Response Time by Hour of Day

Performance Analysis

Key Largo VFD: 90th Percentile
Hourly Turnout Time Performance
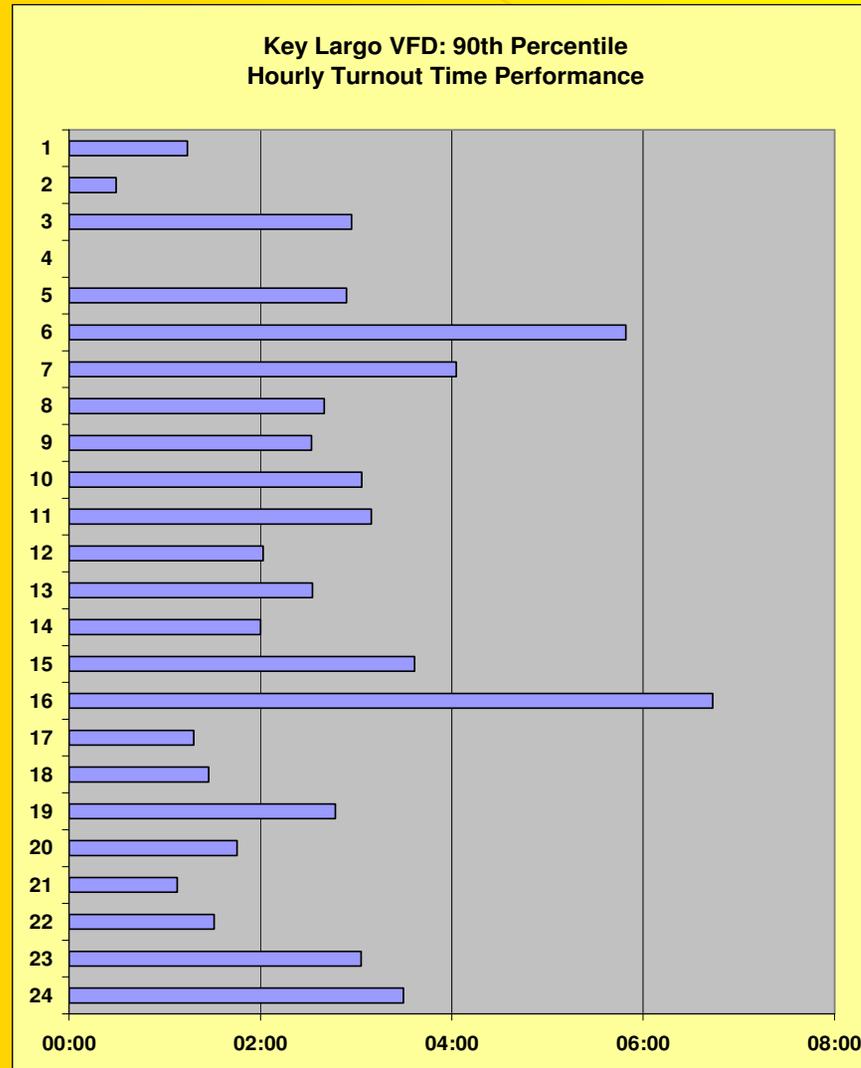
Turnout Time
by Hour of Day

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Key Recommendations
Section: Emergency Services Delivery

- Call answering and call processing time standards should be formally established and performance monitoring should be conducted.

- KLVFRD should comply with the four-person company staffing standard. To do so, it will need to send more than one apparatus or have written policies for assembling a four-person company once units arrive on scene.

- KLVFRD should establish a duty officer system, even using volunteer officers, to ensure that an individual designated for incident command will be available 24 hours a day.

- KLVFRD should continue multi-company and multi-agency drills and trainings at least quarterly to enhance mutual aid operations and improve relationships and planning efforts.

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Training Programs

- General Training Competencies
- Training Facilities
- Training Staff
- Entry Level Training
- Ongoing Skills Maintenance Training
- Career Development Training
- Training Program Planning
- Competency Based Training
- Training Records and Reports

Key Recommendations
Section: Training Programs

- Appoint a Department training officer and functioning training committee.

- Develop and implement a comprehensive departmental training plan including minimum training and certification requirements for members and employees.

- Require lesson plans for all training sessions.

- Provide regular training for officers.

- Immediately implement the requirement for an assigned safety officer in attendance at all manipulative training sessions.

- Design and implement a pre-promotion training program.

- Develop and implement a centralized, consistent, training data collection and reporting data base under direct oversight of the training officer.

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Organizational Culture and Morale

- Primary Areas Of Employee Concern
  - Training
  - Health, Safety and Well-being
  - Compensation and Benefits
  - Retaliation
  - Working Environment
  - Management Style

Fire Department Assessment