

# Fire and Rescue Plan

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## INTENT

Residents and businesses expect a high level of fire and rescue service from their community. This service increases their sense of safety and protects their investment. The intent of this Plan is to establish Fire and Rescue level of service (LOS) standards for Prince William County, and to encourage new development to achieve those standards.

The intent of the Fire and Rescue Plan is to design a system with Fire and Rescue response units distributed throughout the County that can respond to the first call for each unit in a timely fashion and that meet established LOS standards. It is also intended to provide additional units when the workload increases to the extent that multiple incidents consistently create delays. Where these response units are judged, through application of the LOS standards, to be too far from any proposed development, these standards provide for additional fire and rescue mitigation measures.

The LOS standards for fire and rescue facilities are contained in this Plan, in its policies and in Appendix A. The LOS standards are based upon recognized and accepted professional and County standards. They also reflect resident demand for such service, as reflected in fire and rescue service calls. These LOS standards ultimately quantify per capita monetary costs for providing Countywide fire and rescue service to new residential and nonresidential development in the County. These LOS standards are the basis for the maintenance and expansion of fire and rescue services.

The LOS standards for fire and rescue services address the location of new development relative to a travel time standard (or Response Area) emanating from an existing station. LOS mitigation measures have been established for proposed new development that falls within or outside of each Response Area.

The LOS standards also address work load capacities, expressed as calls for fire and rescue service. These standards incorporate facility and equipment costs generated by new development.

New development beyond the travel time standard for an existing station may require greater mitigation measures than new development located within the travel time standard for an existing station.

The components of the Fire and Rescue Plan are:

- Intent, Goal, Policies, and Action Strategies
- Existing Facilities (Figure 1)
- Projected Fire and Rescue Needs Map (Figure 2)
- Level of Service Standards for Fire and Rescue Stations Travel Times (in minutes) (Table 1)
- Level of Service Standards for Fire and Rescue Facilities (Table 2)
- Level of Service Standards for Fire and Rescue Facilities (Appendix A)

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**GOAL:** *To achieve and ensure an adequate and timely response to emergencies, including fire, medical, hazardous materials, and natural disaster emergencies, in accordance with established LOS standards.*

**FIRE-POLICY 1:** ESTABLISH AN INFORMATION MANAGEMENT SYSTEM TO EVALUATE THE ACHIEVEMENT OF THE LOS STANDARDS AND TO MONITOR SERVICE CAPABILITIES AND NEEDS, AND INCLUDE THIS INFORMATION AS PART OF THE FIRE AND RESCUE SERVICE STATUS REPORTS.

**FIRE-POLICY 2:** ENSURE THE ACQUISITION OF AN APPROPRIATE NUMBER OF FIRE AND EMS FACILITIES AND RESPONSE UNITS TO MEET THE LOS STANDARDS PROVIDED HEREIN FOR EXISTING DEVELOPED AREAS OF THE COUNTY.

**FIRE-POLICY 3:** ENSURE THAT NEW DEVELOPMENT, TO BE LOCATED WITHIN AN AREA WHERE THE LOS STANDARDS ARE MET IN TERMS OF TRAVEL TIME FROM EXISTING STATIONS, DOES NOT RESULT IN THE EROSION OF LOS STANDARDS IN TERMS OF WORK LOAD CAPACITY AND FACILITY SIZE, ACREAGE, AND EQUIPMENT.

**FIRE-POLICY 4:** ENCOURAGE FUTURE DEVELOPMENT LOCATING IN AREAS WHERE THE LOS STANDARDS ARE NOT MET IN TERMS OF TRAVEL TIMES FROM EXISTING STATIONS TO PROVIDE MITIGATION MEASURES TO COMPENSATE FOR THE INCREASES IN DEMAND, ACCORDING TO LOS STANDARDS FOR WORK LOAD CAPACITY AND FACILITY SIZE, ACREAGE, AND EQUIPMENT.

**FIRE-POLICY 5:** ENCOURAGE THE INSTALLATION AND MAINTENANCE OF FIRE AND SAFETY FEATURES IN ALL BUILDINGS, BEYOND THE MINIMUM REQUIREMENTS AS SET FORTH IN THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE.

**FIRE-POLICY 6:** ENCOURAGE THE PLANNING AND PROVISION OF REGIONAL FIRE, RESCUE, AND HAZARDOUS MATERIALS RESPONSE SERVICES TO PROVIDE EFFICIENT AND EFFECTIVE SERVICE.

## **ACTION STRATEGIES - INFORMATION MANAGEMENT:**

1. Complete the development of the Automated Incident Reporting System input software.
2. Complete the installation of the computerized reporting and office automation network at each station.

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3. Integrate all of the fire and rescue data collection, storage, and retrieval systems to allow for efficient access to information necessary for the monitoring and evaluation of LOS standards.
4. Develop LOS management evaluation reports that describe service delivery and capabilities to all areas of the County.
5. Provide personnel with the necessary training for operation of the computer equipment and maintenance of the reporting system at all stations.

## **ACTION STRATEGIES - FACILITIES AND EQUIPMENT:**

1. Prioritize the sequence of site acquisition and funding for new station construction in order to fill existing gaps in fire and EMS service delivery.
2. Apply LOS standards when evaluating existing stations and their delivery capabilities, planning future facilities, and determining the needs that will be created by proposed development.
3. Identify needed station sites and seek commitments to build these facilities and to purchase equipment through the development review process.
4. Establish a funding mechanism, such as earmarking funds, that will set aside funds to ensure the construction of currently needed stations, as indicated in the County's Capital Improvements Program.
5. Encourage the collocation of other community uses with fire and rescue facilities. Following are examples of compatible and incompatible uses:

- **Facility Compatible Uses:**

- ◆ County and municipal office
- ◆ Police office
- ◆ Fire training center
- ◆ Telecommunications facility

- **Facility Incompatible Uses:**

- ◆ School
- ◆ Day care center
- ◆ Health clinic
- ◆ Library

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- **Site Compatible Uses:**
  - ◆ Parks (active and passive)
  - ◆ Police office
  - ◆ Governmental office
  - ◆ Community center
  - ◆ Water tower
  - ◆ Library branch
  - ◆ Commuter parking
  - ◆ Fleet repair facility
  - ◆ Day care center
  - ◆ Telecommunications facility
  
- **Site Incompatible Uses:**
  - ◆ Shopping center
  - ◆ School
  - ◆ Health care facility

## **ACTION STRATEGIES - NEW DEVELOPMENT:**

1. Require rezoning and special use permit applicants to provide information regarding fire and rescue LOS impacts with their applications.
2. Encourage development, within the constraints of the designated land use classifications, in areas with above-standard LOS capacity.
3. Discourage rezoning and special use permit approvals in areas designated by the Board of County Supervisors as having significantly substandard LOS, unless significant mitigation measures are a part of the development proposal.
4. Identify and seek service delivery improvements as mitigation measures at existing station locations through the development review process.
5. Identify additional station sites and seek commitments for the construction of facilities and the provision of additional equipment where the projected increase in demand, due to development, warrants the additional capacity.
6. Include transportation solutions as mitigation measures, such as interparcel connectors (public access roads connecting one or more parcels), intersection improvements, and accessibility within a site. Any proposals to connect roads through residential areas for the purpose of providing emergency vehicle access should be reviewed on a case-by-case basis.

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7. Identify sites, construct facilities, and identify equipment needs through the use of the Fire and Rescue Information Management System, where a proposed increase in service demand warrants an increase in capacity to provide service in accordance with the LOS standards (see Table 1).
8. Ensure that road networks, water systems, and related parts of the service delivery system are built in the early phases of project development.
9. Utilize temporary station locations and transportable facilities in the early phase of project development, when such development requires new fire and rescue facilities, and an optimum station location(s) is(are) not immediately available.

## **ACTION STRATEGIES - LEGISLATION AND PROGRAMS:**

1. Pursue state enabling legislation to allow the County to require the installation of medical alert systems in all new commercial, industrial, and residential buildings.
2. Pursue state enabling legislation to allow the County to require the installation of supervised fire suppression systems in all new commercial, industrial, and residential buildings.
3. Pursue state enabling legislation to require installation of smoke detectors in existing buildings.
4. Develop, and present to consumers and developers, information on the value of fire and safety features.
5. Encourage infection control training, hazardous material identification, and CPR training and certification of all County and school system employees.
6. Encourage CPR training and certification among the general population of the County.
7. Evaluate and recommend programs and standards to increase the number of CPR-trained staff available and on duty at commercial and industrial locations during business hours.
8. Evaluate and recommend programs and standards to increase the number of occupants with training in fire survival skills and the use of fire extinguishers in large structures (over 50,000 SF in area, or over 40 feet in height).
9. Evaluate and recommend programs and standards to increase the installation of fire suppression systems in large structures (over 50,000 SF in area, or over 40 feet in height).

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10. Develop a method to evaluate services provided by those jurisdictions which may be involved in regional services and cooperative efforts.
11. Pursue and/or maintain mutual response agreements with the cities, military bases, and surrounding counties for regional planning and the cooperative provision of fire, rescue, and hazardous materials response services.

## ACTION STRATEGIES - LEVEL OF SERVICE (LOS) STANDARDS:

LOS standards have been developed for fire and rescue facilities. These standards (Tables 1 and 2) are to be used to evaluate new proposals and to evaluate Fire and Rescue Service system capabilities. These are not to be considered as actual requirements to be met by all proposals, or by the County, on all occasions. There are many factors, characteristic of each coverage area, and for each individual incident, which affect actual system performance. These standards represent desired level of service and should not be interpreted as being one hundred percent attainable with every particular incident.

**TABLE 1**

**LEVEL OF SERVICE STANDARDS FOR FIRE AND RESCUE FACILITIES  
TRAVEL TIMES (in minutes)**

Area	First Unit (Fire and Rescue) Travel Time
<b>Development (Urban-Suburban) Area:</b> All land use classifications except: Semi-Rural Residential (SRR), Suburban Residential-Low (SRL), Office (O), Neighborhood Commercial (NC).	<b>4.0</b>
<b>Development (Urban-Suburban) Area:</b> SRR, SRL, O and NC. <b>Rural Area</b>	<b>4.5</b>
<b>ALS Emergency Standards (Countywide)</b>	<b>4.5</b>

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Work load capacity standards are established by the Fire and Rescue Department and can be obtained from that department. Work load capacity is measured by the number of fire and rescue incidents a facility is able to serve, as well as by the national standards for suburban areas shown in Table 2, below:

**TABLE 2**  
**LEVEL OF SERVICE STANDARDS FOR FIRE AND RESCUE FACILITIES**

**RESIDENTIAL**

Factor	Standard
Building Area	0.77 SF/capita
Acres	0.0002/capita
Equipment Cost	\$ <sup>1</sup> /capita

**NONRESIDENTIAL**

Capital Cost/ Incident	Incident Generation Factor	Cost/Square Foot
\$ <sup>2</sup>	0.00041	Capital cost per incident x Incident Generation Factor

Source: Prince William County Department of Fire and Rescue.

**ACTION STRATEGIES - SITE LOCATION AND SUITABILITY STANDARDS:**

The following standards are to be considered in evaluating the appropriateness of a proposed station site. Each site proposal is unique, which will involve the application of these standards to each individual proposal.

**Location:**

1. Stations shall be strategically located to obtain and maintain the response travel time standards for the relevant Geographic Area. (See Table 1.)
2. Stations should be located near, but not at, intersections of arterial and/or collector highways where alternative response routes are available to all parts of the stations' first, second, and third due response areas.
3. Stations should not be located at the base of long or steep roadway grades.

<sup>1</sup> Equipment Cost Per Capita will be updated periodically by determining the average cost of equipment necessary to outfit an average fire station.

<sup>2</sup> Capital Cost per nonresidential incident is determined by total capital cost per facility (cost for acreage, building and equipment) divided by the maximum desirable incidents served per station (3,000 incidents).

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4. Station driveways should not discharge directly onto roadways classified as major collector or greater. The driveway should discharge onto the intersecting street, wherever possible.
5. There should be 350 feet of sight distance for approaching traffic at the point of discharge.

## Site Suitability:

1. Minimum lot size of three buildable acres.
2. Soil suitable for construction of building and high weight (30 ton) vehicle roadway and parking area without special preparation work.
3. Landscaping and buffering between station activity areas located outside and surrounding properties.
4. Direct public street access from both the front and from an alternative side or rear location.

## Site and Building Design:

1. Fire and Rescue facilities and sites should be designed and constructed according to the relevant guidelines of the Community Design Plan.

## Timing of Construction:

1. The needed stations or improvements should be constructed and become operational as needed to meet LOS standards and concurrent with the first phases of major development projects.
2. The use of temporary sites and transportable structures is acceptable, provided that these facilities will only be used until suitable sites for building permanent stations become available.

## ACTION STRATEGIES - PROJECTED NEEDS:

Figure 2 presents general locations to meet the future needs of the County based upon the Long-Range Land Use Plan Map, other portions of the Comprehensive Plan, and Fire and Rescue LOS standards. Changes to the Long-Range Land Use Plan and Map, and other Plan chapters (such as the Transportation Plan), as well as LOS changes at existing stations, will affect the information presented on Figure 2.

1. Apply the LOS standards developed under the action strategies in this Plan and contained in Appendix A require mitigation for the effect of proposed new



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development on the LOS of fire, rescue, and related emergency services (EMS). This mitigation shall be a monetary contribution for fire and rescue services, provided with each rezoning and/or special use permit application.

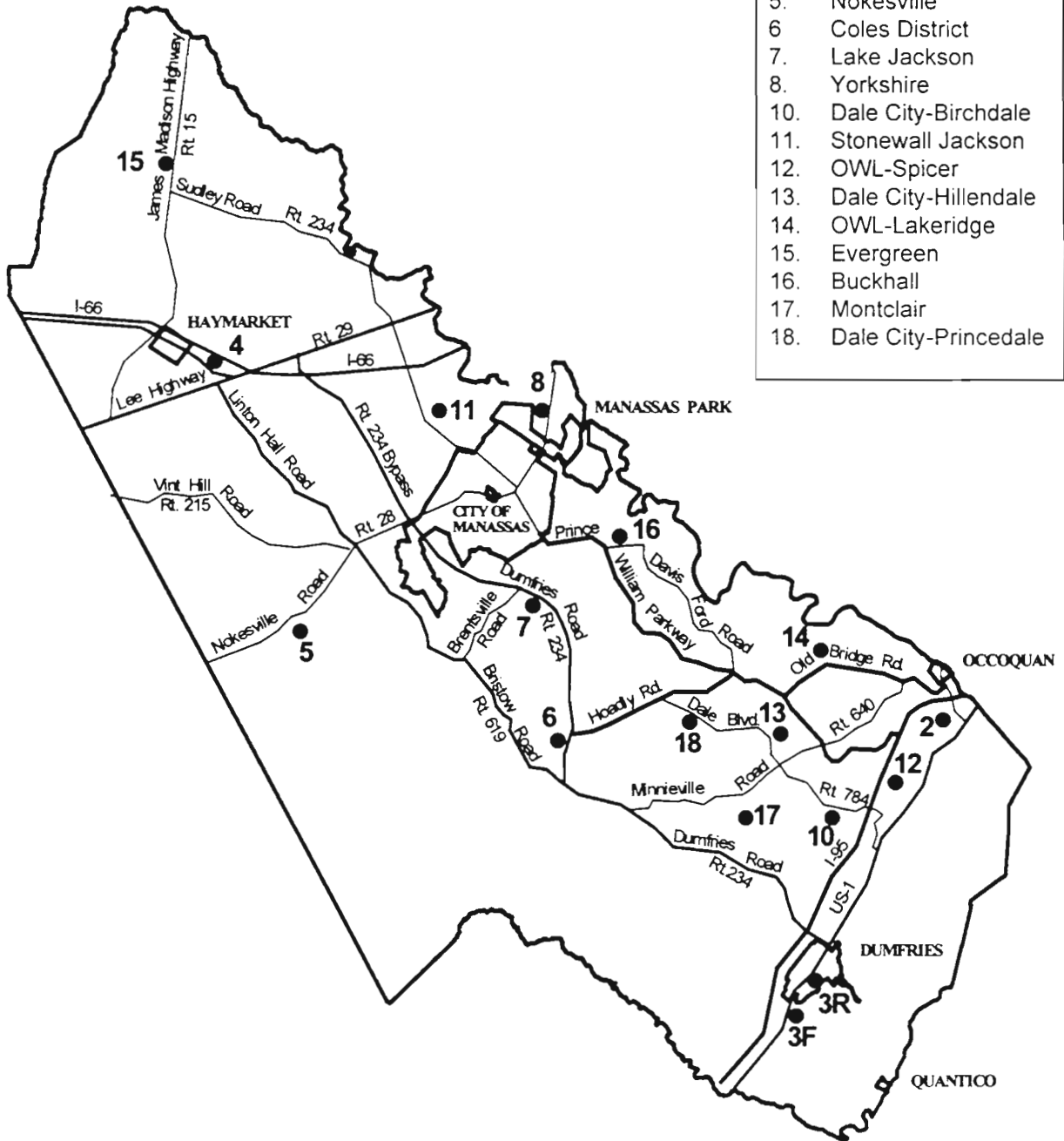
2. Encourage the provision of such additional new development mitigation measures as transportation improvements to reduce travel time for fire and rescue stations (such as interparcel connectors and/or intersection improvements), fire suppression systems (sprinklers), and emergency medical training for on-site staff, where appropriate and/or not yet provided. Such measures, where provided, shall be described in each rezoning or special use permit application.

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Figure 1

## Existing Facilities

Legend:	
2.	OWL-Botts
3F.	Dumfries-Fire
3R.	Dumfries-Rescue
4.	Gainesville
5.	Nokesville
6.	Coles District
7.	Lake Jackson
8.	Yorkshire
10.	Dale City-Birchdale
11.	Stonewall Jackson
12.	OWL-Spicer
13.	Dale City-Hillendale
14.	OWL-Lakeridge
15.	Evergreen
16.	Buckhall
17.	Montclair
18.	Dale City-Princedale

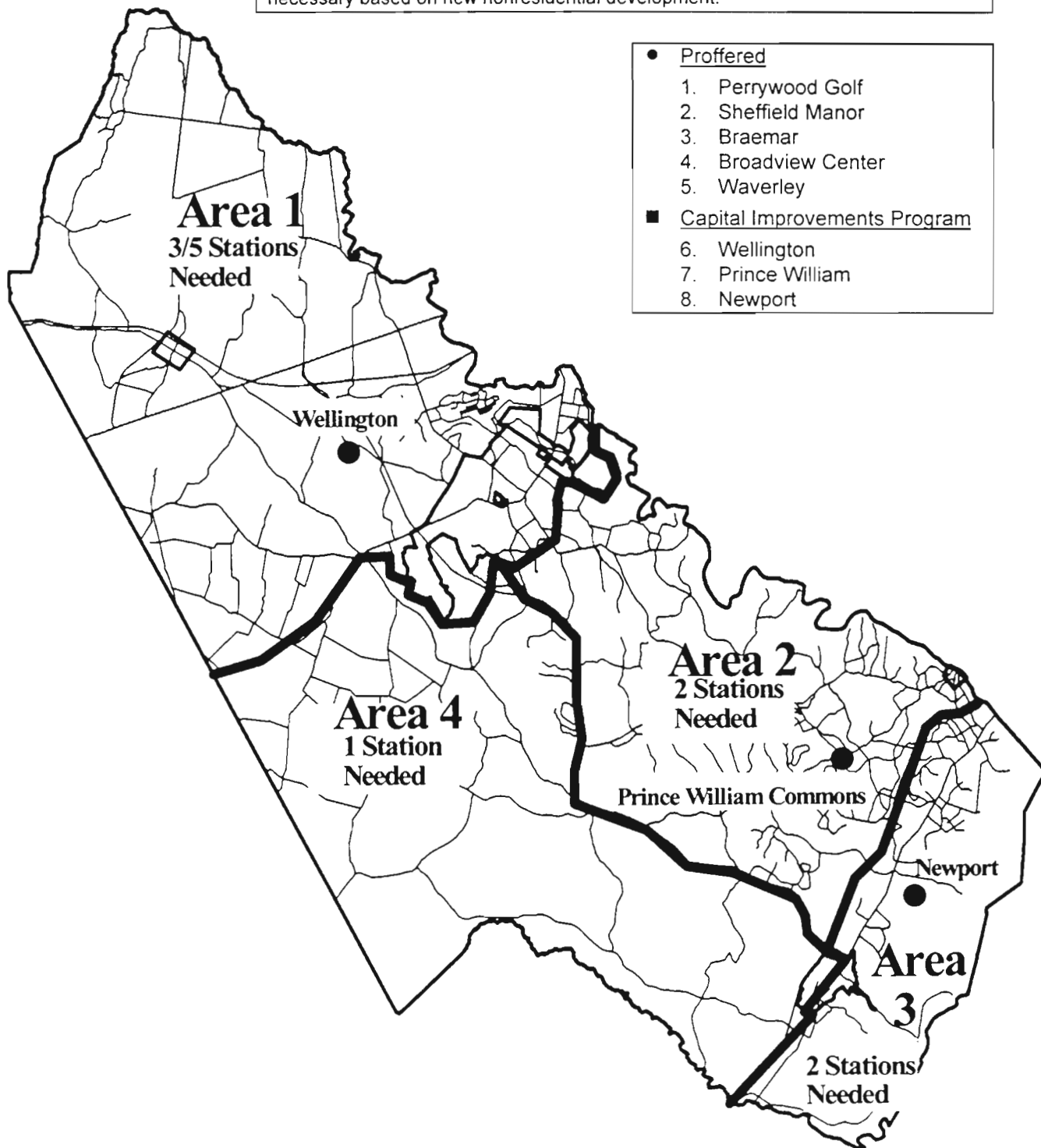


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Figure 2

Projected Fire and Rescue Facilities

Projections of need within the text of the Fire and Rescue Plan are based upon the information contained in Population Projections for Prince William County by Land Use Planning Areas February 1998, and the Prince William County Capital Improvements Program Fiscal Years 1998-2003. Additional stations may be necessary based on new nonresidential development.



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## APPENDIX A

### LEVEL OF SERVICE STANDARDS FOR FIRE AND RESCUE FACILITIES

New development presents demands for Countywide fire and rescue service that affect the ability of facilities to meet established LOS standards. It is important, therefore, that Prince William County provide fire and rescue services Countywide that address that demand. The demand for Countywide fire and rescue service and facilities must be measured, and means must be identified for maintaining the established Countywide LOS standards for fire and rescue facilities after new development occurs.

Any application for a rezoning or special use permit shall contain the following information:

- Number of dwelling units proposed.
- Name(s) and location(s) of fire and rescue station(s) serving the project area.

Rezoning or special use permits for new development shall meet the established LOS standards for fire and rescue facilities. Applications that fail to meet the LOS standards shall be considered inconsistent with the Fire and Rescue Plan.

The following represent the LOS measurements for fire and rescue services:

- Travel time boundaries.
- Work load capacity.

Travel time boundaries are determined by average travel time between a given fire and rescue station and a particular site, and expressed as standards for each land use classification, according to Table 1.

It shall be determined that LOS standards have been met if one of the following conditions is met:

1. The proposed new development is within the travel time standard for an existing fire and rescue station and a monetary contribution in an equitable amount to mitigate erosion of work load capacity, at the LOS standards contained in the Fire and Rescue Plan, has been made.
2. The proposed new development is outside the travel time standard for an existing fire and rescue station and a monetary contribution in an equitable amount to mitigate erosion of work load capacity, at the LOS standards contained in the Fire

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and Rescue Plan, has been made, and the applicant has committed to at least one of the following:

- a fully automatic fire suppression system (sprinklers) in each proposed residential unit; or
- provision of a fire and rescue station site, acceptable to the Prince William County Fire and Rescue Association; or
- transportation improvements acceptable to the Prince William County Fire and Rescue Association, such as an interparcel connector and/or intersection improvements, subject to AS-6, New Development, to decrease the travel time.

The methodology for determining equitable monetary contributions for new development is outlined in the *Policy Guide for Monetary Contributions, Prince William County Planning Office*.