FAIRFAX COUNTY
BOARD OF SUPERVISORS
March 10, 2020

AGENDA

9:30	**Done**	Presentations
10:00	**Done**	Update on Coronavirus
10:10	**Adopted Final Report**	Report on General Assembly Activities
10:15	**Done**	Items Presented by the County Executive
	ADMINISTRATIVE ITEMS	
1	**Approved**	Streets into the Secondary System (Sully District)
2	**Approved**	Designation of Plans Examiner Status Under the Expedited Land Development Review Program
3	**Approved**	Authorization to Advertise a Public Hearing for the Creation and Enlargement of Small and Local Sanitary Districts for Refuse/Recycling and/or Vacuum Leaf Collection Services (Dranesville District)
4	**Approved**	Authorization to Advertise a Public Hearing for the Creation and De-Creation/Re-Creation of Small and Local Sanitary Districts for Refuse/Recycling and Vacuum Leaf Collection Services (Lee District)
5	**Approved**	Authorization to Advertise a Public Hearing for the Enlargement of Small and Local Sanitary Districts for Refuse/Recycling and Vacuum Leaf Collection Services (Mason District)
6	**Approved**	Authorization to Advertise a Public Hearing for the Enlargement of Small and Local Sanitary Districts for Refuse/Recycling and Vacuum Leaf Collection Services (Providence District)
7	**Approved**	Authorization for the Department of Neighborhood and Community Services to Apply for and Accept Grant Funding from the U.S. Department of Health and Human Services for the Continuation of Funding Associated with the Head Start and Early Head Start Grant
8	**Approved**	Authorization for the Department of Neighborhood and Community Services to Apply for and Accept Grant Funding from the U.S. Department of Health and Human Services Associated with the Early Head Start Child Care Partnership and Expansion Grant

FAIRFAX COUNTY
BOARD OF SUPERVISORS
March 10, 2020

	ADMINISTRATIVE ITEMS (continued)	
9	**Approved**	Authorization to Advertise Publication of the FY 2021 Budget and Required Tax Rates, the FY 2021 Effective Tax Rate Increase, and the Advertised Capital Improvement Program for Fiscal Years 2021-2025 (With Future Fiscal Years to 2030)
	ACTION ITEMS	
1	**Deferred**	Approval of an Amended Parking Reduction for Reston Gateway (Hunter Mill District)
2	**Approved**	Approval of Contract Award for Tax Exempt Master Lease Agreement and Other Actions Associated with Award of the Contract to Provide Lease Purchase Financing for Acquisition of Equipment
3	**Approved**	Approval of a Resolution Supporting an Additional Project Being Submitted to the Northern Virginia Transportation Commission for FY 2021 to FY 2022 Commuter Choice Funding (Providence, Dranesville, and Mason Districts)
4	**Approved**	Memorandum of Agreement Between the County of Fairfax and the Annandale Volunteer Fire Department (Mason District)
5	**Approved**	Approval of the Disease Carrying Insects Program
6	**Approved**	Approval of the Calendar Year 2020 Forest Pest Management Program
	CONSIDERATION ITEMS	
1	**Approved**	Approval of Resolution and Bylaws Stating the Purposes, Membership, and Procedures of the Young Adults Advisory Council
	INFORMATION ITEMS	
1	**Noted**	Contract Award – Psychiatric Services for First Responders
10:20	**Done**	Matters Presented by Board Members
11:10	**Done**	Closed Session

FAIRFAX COUNTY
BOARD OF SUPERVISORS
March 10, 2020

PUBLIC HEARINGS

3:30	**Deferred to 3/24/20 at 4:30 p.m.**	Public Hearing on PCA 89-D-007-02 and SE 2019-DR-012 (Milestone Tower Limited Partnership IV D/B/A Milestone; Fairfax County School Board) (Dranesville District)
4:00	**Approved**	Public Hearing to Consider Adopting an Ordinance to Establish the Lindsay Park Community Parking District (Braddock District)

REVISED

Fairfax County, Virginia

BOARD OF SUPERVISORS AGENDA

Tuesday
March 10, 2020

9:30 a.m.

CELEBRATION OF THE WASHINGTON NATIONALS WORLD SERIES CHAMPIONSHIP

- RESOLUTION — To recognize and applaud the Washington Nationals Baseball Team for winning the 2019 World Series Championship. Requested by Chairman McKay.

PRESENTATIONS

- RESOLUTION — To recognize South County High School Varsity Football Coach Gerry Pannoni for 40 years of service. Requested by Supervisors Storck and Herrity.
- CERTIFICATE — To recognize the South County High School Varsity Football Team for winning the state championship. Requested by Chairman McKay and Supervisors Storck and Herrity.
- PROCLAMATION — To designate March 2020 as Alternative Dispute Resolution Month in Fairfax County. Requested by Supervisor Storck.

— more —

Board Agenda Item
March 10, 2020

- PROCLAMATION — To designate March 2020 as Developmental Disabilities Inclusion Month in Fairfax County. Requested by Chairman McKay and Supervisor Storck.

- PROCLAMATION — To designate March 2020 as Women's History Month in Fairfax County. Requested by Chairman McKay.

STAFF:
Tony Castrilli, Director, Office of Public Affairs
Bill Miller, Office of Public Affairs
Austin Hendrick, Office of Public Affairs

Board Agenda Item
March 10, 2020

10:00 a.m.

Update on Coronavirus

ENCLOSED DOCUMENTS:
Attachment 1: COVID-19 and the Fairfax County Response Presentation

PRESENTED BY:
Dr. Gloria A. Addo-Ayensu, Director, Fairfax County Health Department

COVID-19 and the Fairfax County Response

Fairfax County Health Department

March 4, 2020

Outline

- Disease overview
- International & domestic situation
- Planning and preparedness
- Fairfax County's response
- Resources

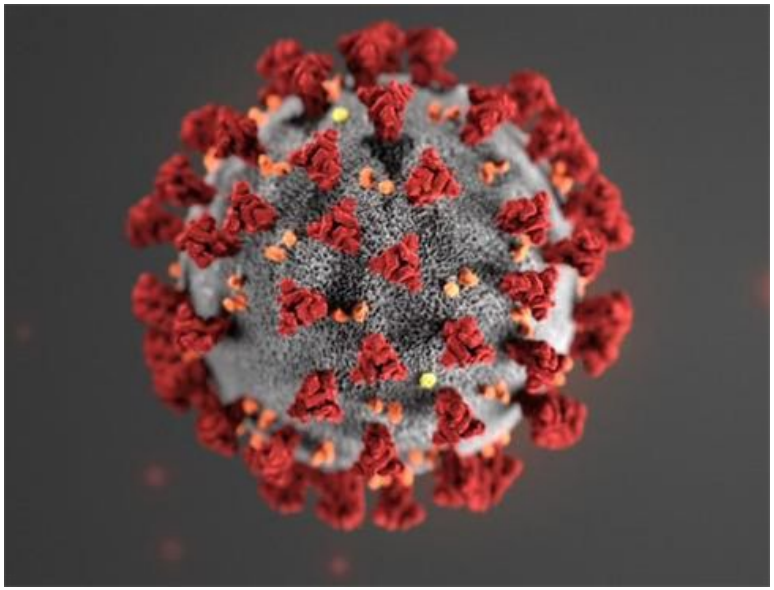
The situation is changing day-to-day.

This presentation includes our best current knowledge.

As information changes, we will provide updates.

Coronaviruses

- A cause of common cold symptoms
- Sometimes new coronaviruses emerge from animal reservoirs to cause severe disease in people
  - SARS (2002) & MERS (2012)
- Spread through coughing, sneezing, or close personal contact
- Symptoms start 2-14 days after exposure



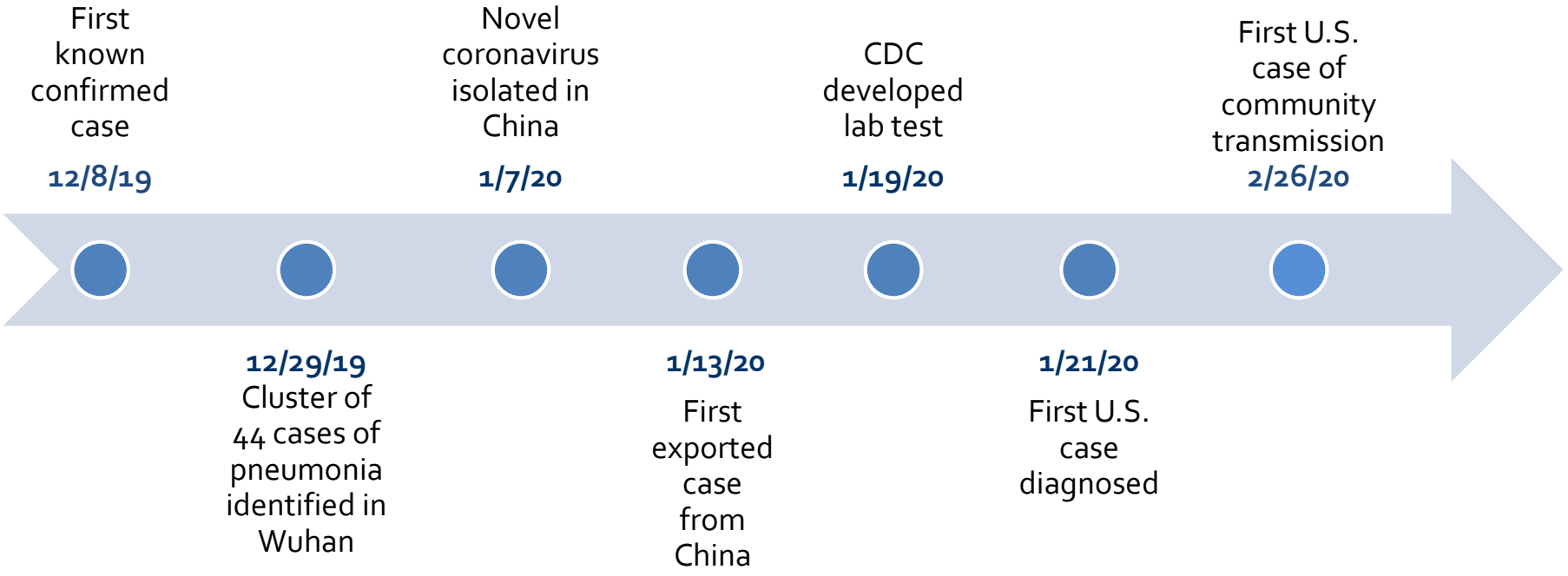
Emergence of COVID-19

- First recognized infections among persons exposed at a wild animal market in Wuhan, China
- The COVID-19 virus likely came from bats
- An intermediate animal host has been proposed but not proven
- COVID-19 – Corona (CO) Virus (VI) Disease (D) which emerged in 2019



Pangolin

When Did the Outbreak Start?



How Many People Are Sick?

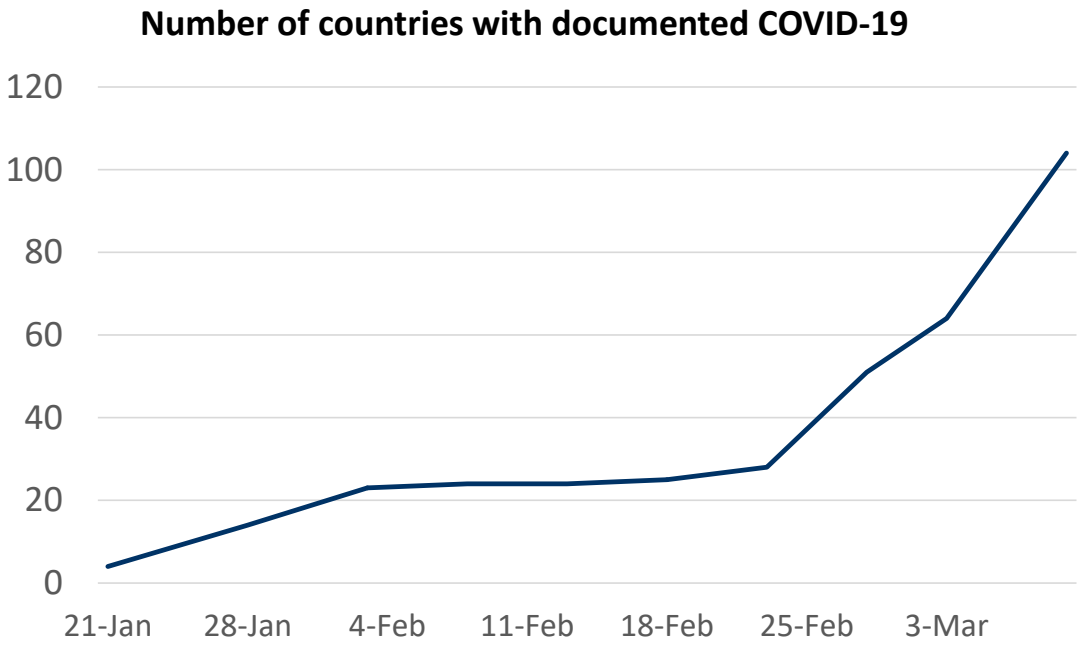
Location	Cases	Deaths
Globally	109,578	3,809
China	80,904	3,123
Outside of China (64 countries)	28,674	686
United States	472*	19
Fairfax County	2	0

*Includes cases among people repatriated to the U.S.

World Health Organization COVID-19 Situation Report (#42, 3/2/20); CDC Situation Update

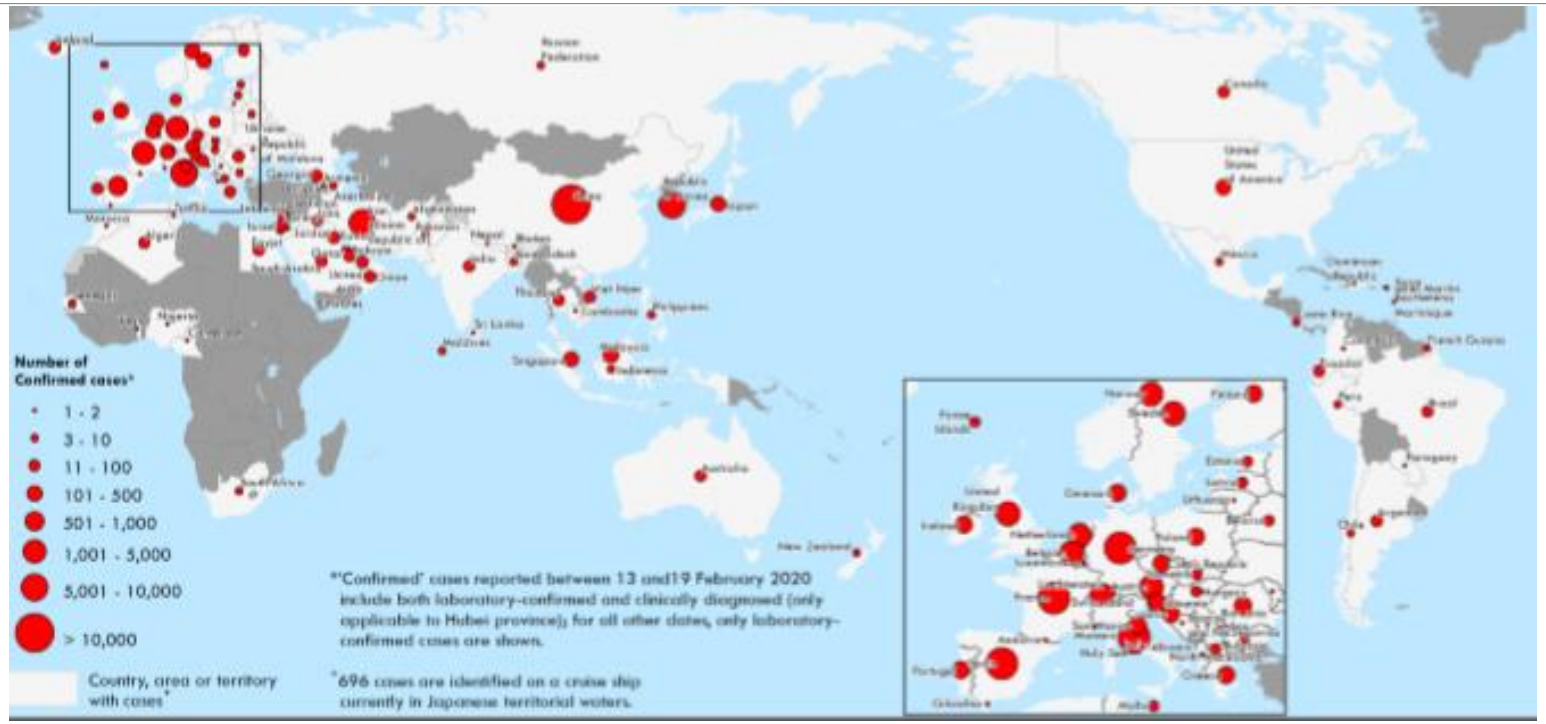
Global Spread of COVID-19

- Initial cases outside of China among travelers from Wuhan (to Japan, South Korea, Thailand)
- Recently, some countries have experienced sustained community outbreaks
  - Iran
  - South Korea
  - Italy
  - Japan



World Health Organization, March 9, 2020

Global Spread of COVID-19



World Health Organization, March 9, 2020

Current Level of Risk in the United States

- **For most people, the immediate risk of being exposed to the virus that causes COVID-19 is thought to be low. This virus is not currently widespread in the United States.**
- People in places with ongoing community spread are at elevated risk of exposure with increase in risk dependent on location
- Others at elevated risk of exposure include:
  - Healthcare workers caring for patients with COVID-19
  - Close contacts of persons with COVID-19
  - Travelers returning from affected locations internationally where community spread is occurring with increase in risk dependent on location

How Does COVID-19 Spread?

- Mainly spread person-to-person:
  - Via respiratory droplets produced when an infected person coughs or sneezes
  - Between people who are in close contact with one another (within about 6 feet)
- Contact with infected surfaces or objects
  - Not thought to be the main way the virus spreads



Symptoms of COVID-19 Infection

- **Common symptoms**: fever, cough (dry), shortness of breath
- **Other symptoms**: fatigue, muscle aches, loss of appetite
- About 15% develop serious illness (pneumonia) and may require hospitalization

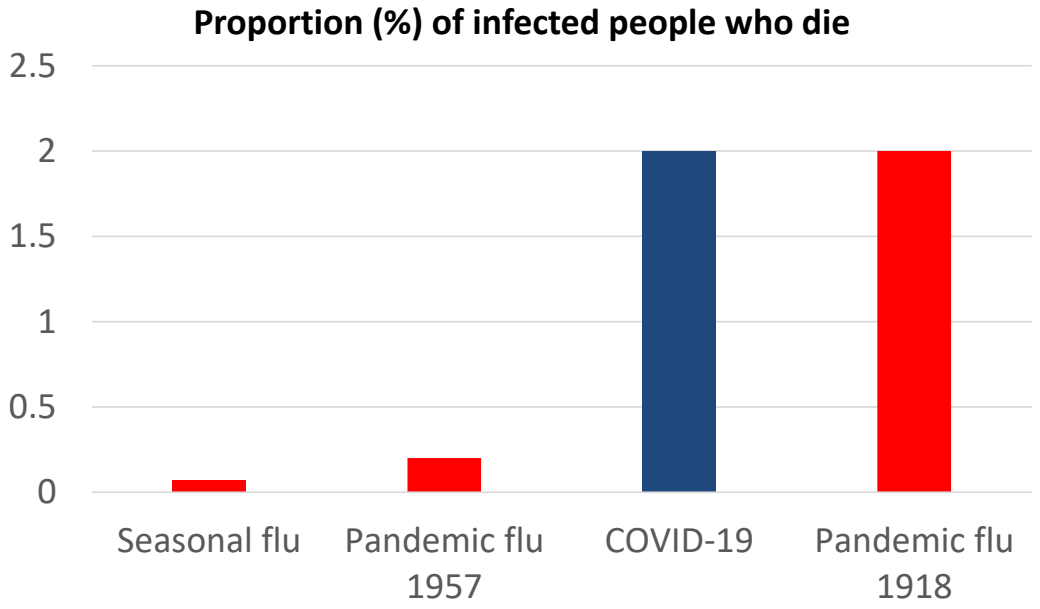






How Severe is COVID-19 Infection?

- About 2% of infected people have died of their illness*
- Highest risk of death in elderly and persons with underlying disease



*Lower death rates may be seen in the U.S. due to the quality of healthcare services

Asymptomatic Infection and Transmission

- It is unknown how many people with COVID-19 do not develop any symptoms of illness
- There are several family clusters reported where it appears that someone who had no symptoms spread infection to their family contacts
- Transmission by asymptomatic people is unlikely
  - Lower levels of virus in the respiratory tract
  - Not coughing or sneezing

Predicting the Future of COVID-19

- No prediction can be made with high confidence because of how much we don't know

"If you can look into the seeds of time, and say which grain will grow and which will not, speak then unto me. "

--William Shakespeare

- The key question is not what we can predict but what we should plan for

Can Public Health Measures Control the Global Spread of COVID-19?

- Absent a vaccine or effective drug therapy, measures to stop disease spread include isolation and quarantine, social distancing, and personal infection prevention (handwashing, respiratory etiquette)
- With SARS these measures led to eradication of the infection
  - People with infection didn't spread disease until several days after illness began
- What about COVID-19?
  - People without symptoms or who just became ill can spread infection
  - Infection has spread to many countries including those where applying public health measures is difficult

Global spread of COVID-19 will continue

COVID-19 Planning Assumptions

- ✓ Disease will continue to spread globally
- ✓ Community outbreaks will occur in the U.S.
- Disease will occur in waves – spring/fall/winter most likely; in a community waves will last 6 weeks to 3 months
- Up to 20% of the population may become infected (extrapolated from influenza pandemics)
- Up to 2% of infected people will die
- Vaccine and antiviral drugs will become available but less likely by the time of the first wave

Containment & Community Mitigation

Response Strategies

What the U.S. is Doing to Respond

- U.S. Public Health Emergency declared
- Guidance to health departments and the public
- Coordination of surveillance with State and local health departments
- Monitoring of travelers
- Diagnostic test developed; expanding lab testing
- Vaccine development and clinical trials of antiviral drugs to treat COVID-19 patients
- Guidance for pandemic preparedness



What the U.S. is Doing to Respond: Travelers from Countries with COVID-19 Transmission

<u>China and Iran</u>

- U.S. citizens and exempted persons traveling directed to 1 of 11 airports (including Dulles)
- Undergo health assessment, and if symptomatic, transferred for medical evaluation
- Contact information shared with the Health Department for follow-up, risk assessment, self-quarantine, and monitoring

<u>South Korea, Italy, Japan</u>

- CDC Travel Warnings and Advisories due to sustained community spread
- For travel warning countries, exit screening before getting on the plane and on arrival, traveler is told to stay at home and away from others for 14 days

COVID-19 Response: Containment and Mitigation Strategies

- **Containment** – implement first when fighting a new infection
  - Goals: 1) Prevent introduction of illness; 2) Prevent community spread; 3) Eradicate infection
  - Strategies: 1) Travel restrictions; 2) Individual case investigations; 3) Isolation & quarantine
- **Mitigation** – implement when spread of infection makes containment ineffective & infeasible
  - Goals: 1) Delay and slow spread of infection in communities; 2) Reduce the peak and overall infection rate; 3) Reduce community disruption – maintain critical services
  - Strategies: 1) Non-pharmaceutical interventions; 2) Continuity of operations plans (COOP); 3) Vaccine and drug treatment – when available and prioritized if supply is limited

Containment and Mitigation Strategies

Containment

- Travel restrictions
- Individual case investigations
- Isolation and quarantine



We are here

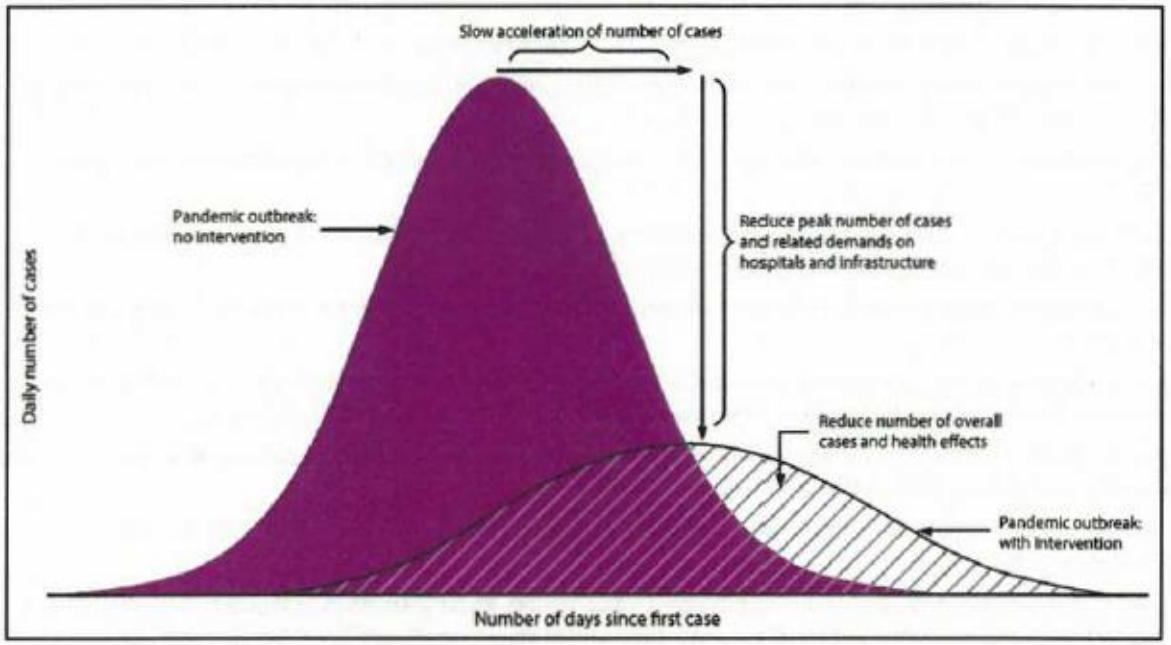


Mitigation

- Non-pharmaceutical interventions
- Continuity of operations plans
- Prioritized vaccine & drug treatment

Goals of Community Mitigation

1. Delay the outbreak
2. Reduce the number of cases that occur each day
3. Reduce the total number of cases in the community



CDC 2007

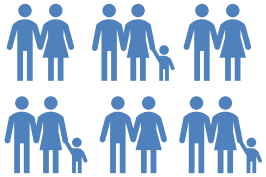
Types of Non-pharmaceutical Interventions (NPIs)

PERSONAL



- Handwashing
- Cover coughs & sneezes
- Keep from touching eyes nose, and mouth
- Social distancing
- Voluntary home isolation
- Voluntary home quarantine

COMMUNITY



- Social distancing
- Dismissal or closing schools
- Modifying work practices
- Canceling mass gatherings

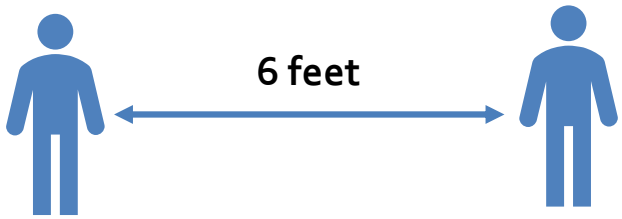
ENVIRONMENTAL



- Environmental surface cleaning

Social Distancing

- Respiratory droplet spread occurs within 6 feet
- Social distancing strategies
  - Shop during off hours / buy online
  - Telework
  - Limit face-to-face meetings / conference calls
  - Rearrange school classrooms
  - Avoid crowded places



Dismissal or Closing Schools

- Rationale – in influenza pandemics, children have the highest attack rate and spread among children often precedes broader community transmission
- Options
  - Dismissal (staff reports to work and can lead distance learning) *versus* closure
  - Pre-emptive *versus* when a disease threshold is reached
  - System-wide *versus* selective
- Decision factors
  - Role of children in transmitting COVID-19 infections
  - Severity of illness and attack rate in communities
  - Capabilities for distance learning



Canceling Mass Gatherings & Temporary Closures

Temporary closure or cancellation of child-care, school, places of worship, sporting events, concerts, etc.



NY Times, 2/27/20



Europa League: Internazionale (Milan) vs Ludogorets, Feb. 27, 2020

What the Health Department is Doing to Respond (1)

- Activated IMT 1/22/20
- Coordinating with federal, state, and local partners
- Public health monitoring of travelers based on level of exposure risk
- Conducting surveillance for respiratory illness
- Consulting with providers regarding persons who have illness consistent with COVID-19, arranging lab testing, and investigating contacts
- Providing information to county partners and the community
- Preparing for mitigation activities to reduce the impact of a potential pandemic

What the Health Department is Doing to Respond (2)

- Ongoing guidance and pandemic preparedness to:
  - Healthcare providers
  - EMS providers
  - Schools and universities
  - Response partners
  - Businesses
- Public messaging and community outreach
- Operating call center

https://www.fairfaxcounty.gov/health/novel-coronavirus

Workplace and Agency Preparedness (1)

- Promote and **enable** personal NPIs – handwashing, respiratory etiquette, staying home when sick
  - Review sick leave policies so they are supportive of good practices
- **Enable** social distancing
  - Review/revise telework and flex-time policies
  - Reduce in-person meetings and travel – plan conference calls or webinars
- Support protective behaviors – provide tissues and hand sanitizer (>60% alcohol)
- Increase environmental cleaning with an EPA registered disinfectant
  - Focus on frequent cleaning of high touch areas



Workplace and Agency Preparedness (2)



- Develop continuity of operations plans
  - Plan for high levels of staff absences (20% plus)
  - Plan for potential workplace closures
  - Plan for disruption of supply chains
  - Support preparedness efforts of key partners
- Plan considering the needs of your entire workforce (employees and contractors)
  - Employees with physical disabilities, those with a primary language other than English, those who do not have paid sick leave, those who are economically disadvantaged (live in crowded settings, use public transportation, etc.)

Should I Wear a Facemask?

- CDC does not recommend that people who are well wear a facemask to protect themselves from respiratory diseases, including COVID-19
- Facemasks should be used by people who show symptoms of respiratory illness (including COVID-19) to help prevent the spread of disease to others.
- At this time, N95 respirator use should be reserved for people who are taking care of someone with COVID-19 in close settings
- Healthcare workers, EMS providers, and law enforcement have additional personal protective equipment (PPE) requirements for COVID-19

Disparities in the Risk of Illness & Consequences of a Pandemic

People from disadvantaged communities…

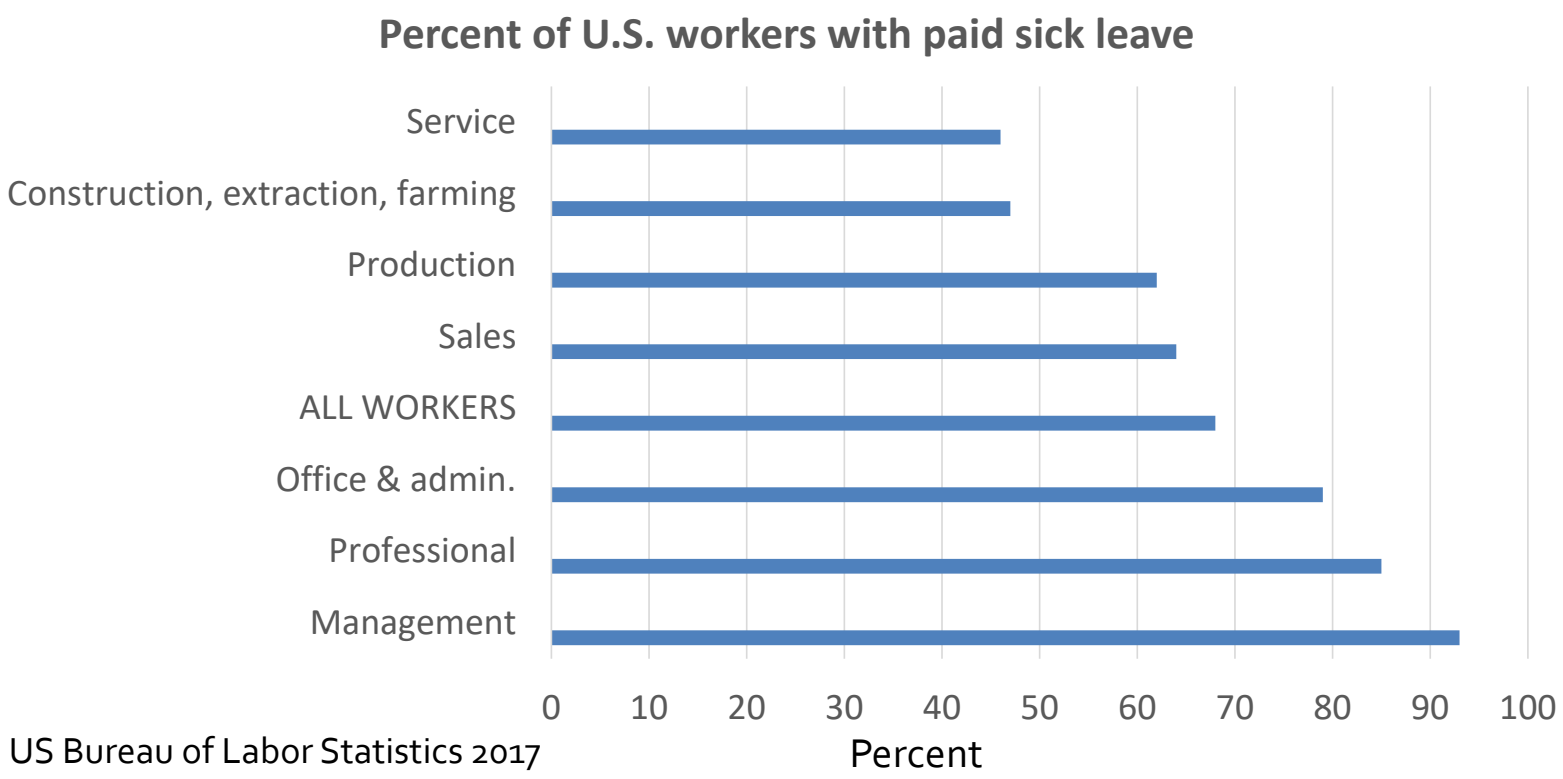
- Live in more crowded settings
- Are more likely to rely on crowded public transportation
- Are less likely to have jobs where social distancing can be done
- Are less likely to have paid sick leave
- Are less likely to have easily accessible sources of medical care



As a result…

- Illness is more likely to occur
- More serious consequences of infection are likely

Disparities in Sick Leave by Occupation



US Bureau of Labor Statistics 2017

Resources

Centers for Disease Control and Prevention (CDC)
www.cdc.gov/coronavirus/2019-nCoV

Virginia Department of Health
http://www.vdh.virginia.gov/surveillance-and-investigation/novel-coronavirus/

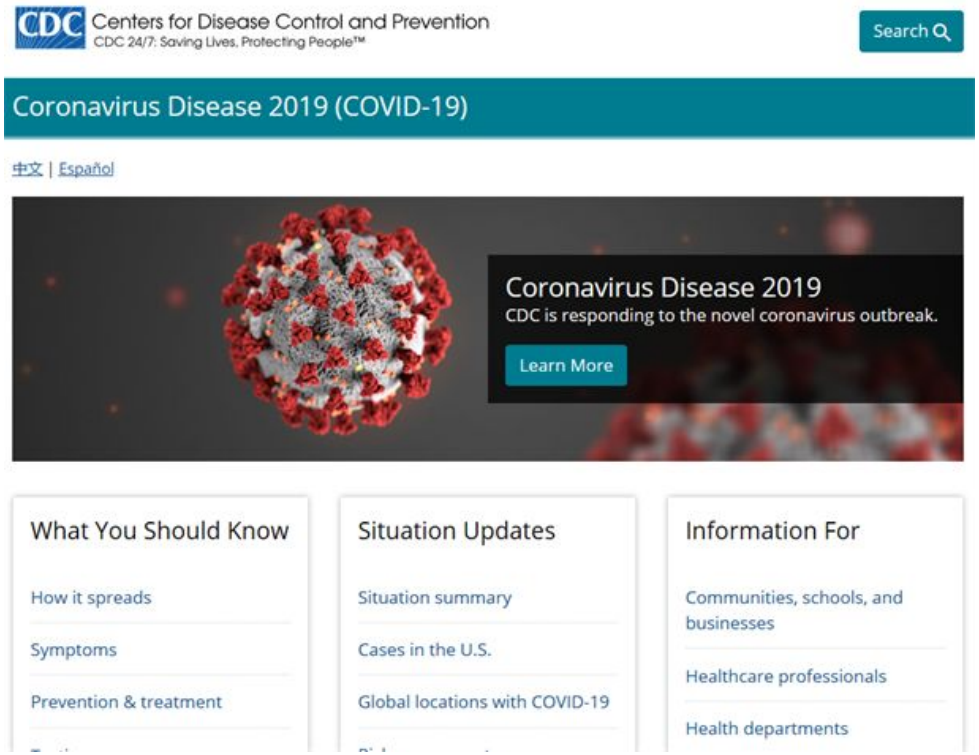
Fairfax County Health Department
https://www.fairfaxcounty.gov/health/novel-coronavirus

Fairfax County Emergency Operations Plan
https://www.fairfaxcounty.gov/emergencymanagement/emergency-plans

Ready Fairfax (Personal and Family Preparedness)
https://www.fairfaxcounty.gov/emergency/readyfairfax

CDC Existing or Pending Guidance

- Individuals and families
- Communities
- Businesses and Employers
- Schools and Child-care
- Universities
- EMS
- Law Enforcement
- Healthcare providers
- Long-term Care Facilities



Thank You!

Questions?

Board Agenda Item
March 10, 2020

10:10 a.m.

Report on General Assembly Activities

ENCLOSED DOCUMENTS:
None. Materials to be distributed to the Board of Supervisors on March 10, 2020, and a printed copy will be available for review in the Office of the Clerk for the Board.

PRESENTED BY:
Supervisor James R. Walkinshaw, Chairman, Board of Supervisors' Legislative Committee
Bryan J. Hill, County Executive

Board Agenda Item
March 10, 2020

10:15 a.m.

Items Presented by the County Executive

Board Agenda Item
March 10, 2020

ADMINISTRATIVE - 1

Streets into the Secondary System (Sully District)

ISSUE:
Board approval of streets to be accepted into the State Secondary System.

RECOMMENDATION:
The County Executive recommends that the street(s) listed below be added to the State Secondary System:

Subdivision	**District**	**Street**
Chantilly Crossing and Southgate Center III	Sully	Penrose Place

TIMING:
Routine.

BACKGROUND:
Inspection has been made of these streets, and they are recommended for acceptance into the State Secondary System.

FISCAL IMPACT:
None.

ENCLOSED DOCUMENTS:
Attachment 1 – Street Acceptance Form

STAFF:
Rachel Flynn, Deputy County Executive
William D. Hicks, P.E., Director, Land Development Services

Attachment 1 Print Form

Street Acceptance Form For Board Of Supervisors Resolution - June 2005

FAIRFAX COUNTY BOARD OF SUPERVISORS
FAIRFAX, VA

Pursuant to the request to inspect certain streets in the subdivisions as described, the Virginia Department of Transportation has made inspections, and recommends that same be included in the secondary system.

VIRGINIA DEPARTMENT OF TRANSPORTATION - OFFICE OF THE ENGINEERING MANAGER, FAIRFAX, VIRGINIA

REQUEST TO THE ENGINEERING MANAGER, FOR INCLUSION OF CERTAIN SUBDIVISION STREETS INTO THE STATE OF VIRGINIA SECONDARY ROAD SYSTEM.

PLAN NUMBER: 7843-SP-02

SUBDIVISION PLAT NAME: Chantilly Crossing & Southgate Center III

COUNTY MAGISTERIAL DISTRICT: Sully

ENGINEERING MANAGER: Houda A. Ali, PMP

BY: Nadia Alphonse

FOR OFFICIAL USE ONLY

DATE OF VDOT INSPECTION APPROVAL: 12/05/2019

STREET NAME	LOCATION		LENGTH MILE
	FROM	TO	
Penrose Place (Re-Alignment)	CL Lee Road (Route 661) - 313' N Flint Lee Road (Route 8100)	205' E to Existing Penrose Place	0.04
Penrose Place	Existing Penrose Place - 1,218' E CL Lee Road (Route 661)	351' E to End of Cul-de-Sac	0.07
NOTES:		**TOTALS:**	0.11

4' Concrete Sidewalk on the North Side to be maintained by VDOT.

Board Agenda Item
March 10, 2020

ADMINISTRATIVE - 2

Designation of Plans Examiner Status Under the Expedited Land Development Review Program

ISSUE:
Board of Supervisors' action to place ten (10) individuals who have elected not to pursue their continuing education requirements into inactive status, pursuant to the adopted criteria and recommendation of the Advisory Plans Examiner Board (APEB).

RECOMMENDATION:
The County Executive recommends that the Board of Supervisors (the Board) take the following actions:

- Designate the following 10 individuals, identified with their registration numbers, as inactive Plans Examiners:

Reza Amirhakimi	#143 (Deceased)
Nicholas Antonopoulos	#124 (Retired)
John Cardenas	#311 (Moved out of area)
Reid Dudley	#2 (Retired)
Peter Gerner	#143
Frank Jett	#332 (Moved out of area)
Jeffrey Lohr	#122 (Retired)
Joseph Mancini	#207
Constantine Mavromatakis	#309
William Schell	#183 (Retired)

TIMING:
Routine.

BACKGROUND:
On August 7, 1989, the Board adopted Chapter 117 (Expedited Land Development Review) of *The Code of the County of Fairfax, Virginia*, (The Code) establishing a Plans Examiner Program under the auspices of an APEB. The purpose of the Plans Examiner Program is to expedite the review of site and subdivision plans submitted by certain specially qualified applicants, i.e., Plans Examiners, to the Department of Land Development Services.

The Code requires that the Board designate an individual's status under the Expedited Land Development Review Program.

Inactive Status: Chapter 117 requires Plans Examiners to participate in the Board adopted Continuing Education Program. Consonant with the requirements of Section 117-1-3(a), and subject to Board approval, the APEB will recommend designation of inactive status for individuals electing not to pursue the continuing education program. This status designation continues until and if they wish to reactivate their Designated Plans Examiner (DPE) status by completing the continuing education requirements. An inactive status makes these individuals ineligible to participate in the expedited plan process procedure. At the time, they are placed in inactive status, individuals are provided with information concerning requirements for reinstatement as an active DPE.

In a letter dated 1/27/2020, from the Chairman of the APEB, James H. Scanlon, P.E., L.S., to Chairman Jeffrey C. McKay, 10 individuals were identified that have elected not to pursue the continuing education requirements. The APEB recommends that their status become inactive until and if they wish to reactivate their status as a DPE by completing their continuing education requirements.

Staff concurs with these recommendations as being in accordance with Chapter 117 and the Board-adopted criteria.

FISCAL IMPACT:
None.

ENCLOSED DOCUMENTS:
Attachment I – Letter dated 1/27/2020, from the Chairman of the APEB to the Chairman of the Board of Supervisors

STAFF:
Rachel Flynn, Deputy County Executive
William D. Hicks, P.E., Director, Department of Land Development Services

Attachment 1

Engineers & Surveyors Institute

"a public/private partnership"

4795 Meadow Wood Lane
Suite 115 East
Chantilly, VA 20151
703-263-2232

Board of Directors
Chairman
Kevin E. Murray, P.E.
Tri-Tek Engineering

Vice Chairman
Kayvan Jaboori, P.E.
KJ & Associates

Treasurer
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Town of Leesburg

Bob Brown, P.E.
J2 Enginering

Phillip DeLeon, P.E.
VA Dept. Rail & Public Transportation

Ann O. Germain, PE
christopher consultants, ltd.

Lee Ann Hall, P.E.
Virginia Department of Transportation

Latheasha Hinton
City of Alexandria, T&ES

Bryan James
Bohler Engineering, P.C.

Paul B. Johnson, P.E.
Charles P. Johnson & Associates, Inc..

R.J. Keller, L.S.
R.C. Fields & Associates, P.C.

Matthew K. Koirtyohann
Bowman Consulting Group

J. Keith Sinclair, Jr., P.E.
A. Morton Thomas & Associates, Inc..

Blake A. Smith, P.E.
Smith Engineering

Ross Stilling
Fairfax Water

Dennis M. Thomas, P.E.
Burgess & Niple, Inc.

Anita M. Tierney
Loudoun County, B&D

Clayton C. Tock, P.E.
Urban, Ltd.

Patrick Veltri
ESE Consultants, Inc.

Robert W. Walker, P.E., CLA
Gordon

Susan S. Wolford, CLA, AICP
Pennoni Associates

Current Past Chairman
John Cummings, P.E.
Rinker Design Associates, P.C.

Executive Director
Jeffrey L. Blackford, P.E.

Received

FEB 6 2020

Land Development Services
Directors Office

January 27, 2020

Jeffrey C. McKay, Chairman
Fairfax County Board of Supervisors
12000 Government Center Parkway
Fairfax, VA 22035

Dear Chairman, McKay:

The Board of Supervisors approved the following individuals as Designated Plans Examiners:

Name	Reg. Number
Reza Amirhakimi	#143 (Died)
Nicolas Antonopoulos	#124 (Retired)
John Cardenas	#311 (Moved out of area)
Reid Dudley	#2 (Retired)
Peter Gerner	#143
Frank Jett	#332 (Moved out of area)
Jeffrey Lohr	#122 (Retired)
Joseph Mancini	#207
Constantine Mavromatakis	#309
William Schell	#183 (Retired)

However, they have elected not to pursue the continuing education requirements at this time. It is recommended that their status become inactive until and if they wish to reactivate their status by completing their continuing education requirements. As such, they would no longer be eligible to participate in the expedited plan process procedure.

Following the Board of Supervisors' approval of this recommendation, each will be notified of his/her status change, as well as the procedure to be followed for reinstatement.

Sincerely,

James H. Scanlon, PE. LS
Chairman
Fairfax County Advisory Plans Examiner Board

Board Agenda Item
March 10, 2020

ADMINISTRATIVE - 3

Authorization to Advertise a Public Hearing for the Creation and Enlargement of Small and Local Sanitary Districts for Refuse/Recycling and/or Vacuum Leaf Collection Services (Dranesville District)

ISSUE:
Board of Supervisors' authorization to advertise a Public Hearing for the Creation and Enlargement of Small and Local Sanitary Districts for Refuse/Recycling and/or Vacuum Leaf Collection Services.

RECOMMENDATION:
The County Executive recommends that the Board of Supervisors authorize advertisement of a public hearing at 4:00 p.m. on Tuesday, May 5, 2020, to consider the following changes to small and local sanitary districts for refuse/recycling and/or leaf collection service in accordance with the Board of Supervisor's adopted criteria for the creation of Small or Local Sanitary Districts.

Sanitary District	Action	Service	Recommendation
Small District 7 Within Dranesville District (Boxwood and Beacon Area)	Enlarge	Refuse, Recycling, & Vacuum Leaf	Approve
Small District 9 Within Dranesville District (Haycock Road Area)	Enlarge	Refuse & Recycling	Approve
Small District 11 Within Dranesville District (Cliff Edge Drive Area)	Enlarge	Refuse & Recycling	Approve
Small District 13 Within Dranesville District (El Nido Area)	Enlarge	Refuse & Recycling	Approve

Local District 1-V Within Dranesville District (McLean Manor Area)	Create	Refuse & Recycling	Approve
Local District 1-Y Within Dranesville District (Churchill Area)	Enlarge	Refuse & Recycling	Approve

TIMING:
Board of Supervisors' authorization to advertise on March 10, 2020, is required for a Public Hearing to be held on May 5, 2020, at 4:00 p.m.

BACKGROUND:
The administrative responsibility for the Creation/Enlargement/De-Creation/Re-Creation of Small and Local Sanitary Districts in the County of Fairfax for refuse/recycling and/or leaf collection is with the Department of Public Works and Environmental Services. The establishment of sanitary districts is accomplished through the action of the Board of Supervisors at public hearings. Prior to any action by the Board of Supervisors on a proposed small or local sanitary district, certain relevant standards and criteria must be met in accordance with the Board of Supervisors' adopted criteria for the Creation/Enlargement/De-Creation/Re-Creation of Small and Local Sanitary Districts.

The submitted petitions have been reviewed, and it has been determined that the petitions meets the Board of Supervisors' Adopted Criteria. Staff recommends that the authorization to advertise a public hearing for the creation and enlargement of small and/or local sanitary districts for refuse/recycling and/or leaf collection be approved. If approved, the modifications will become permanent on July 1, 2020.

FISCAL IMPACT:
None.

ENCLOSED DOCUMENTS:
Attachment 1: Summary Sheet
Attachment 2: Data Sheet with Proposed Resolution and Map (Boxwood and Beacon Area)
Attachment 3: Data Sheet with Proposed Resolution and Map (Haycock Road Area)
Attachment 4: Data Sheet with Proposed Resolution and Map (Cliff Edge Drive Area)

Attachment 5: Data Sheet with Proposed Resolution and Map (El Nido Area)
Attachment 6: Data Sheet with Proposed Resolution and Map (McLean Manor Area)
Attachment 7: Data Sheet with Proposed Resolution and Map (Churchill Area)

STAFF:
Rachel Flynn, Deputy County Executive
Randolph W. Bartlett, Director, Department of Public Works and Environmental Services (DPWES)
John W. Kellas, Deputy Director, DPWES, Solid Waste Management Program

Attachment 1

SUMMARY SHEET

Proposed alterations to the following small and local sanitary districts for refuse/recycling and/or leaf collection service:

1. Enlarge Small District 7 within Dranesville District for the purpose of providing refuse/recycling and vacuum leaf Collection Services to Boxwood and Beacon Area.

2. Enlarge Small District 9 within Dranesville District for the purpose of providing refuse and recycling Collection Services to Haycock Road Area.

3. Enlarge Small District 11 within Dranesville District for the purpose of providing refuse and recycling Collection Services to Cliff Edge Drive Area.

4. Enlarge Small District 13 within Dranesville District for the purpose of providing refuse and recycling Collection Services to El Nido Area.

5. Create Local District 1-V within Dranesville District for the purpose of providing refuse and recycling Collection Services to McLean Manor Area.

6. Enlarge Local District 1-Y within Dranesville District for the purpose of providing refuse and recycling Collection Services to Churchill Area.

Attachment 2

DATA SHEET
Enlarge
Small District 7
Within the Dranesville District

Purpose: To provide County Refuse/Recycling and Vacuum Leaf Collection Service to the Boxwood and Beacon Area.

- Petition requesting service received October 8, 2019.
- Petition Area: 5 Properties.
- 5 Property Owners in favor.
- 0 property owners opposed.
- 0 Non-responsive / unable to contact.
- The Department of Public Works and Environmental Services can provide the requested service using existing equipment.
- The Department of Public Works and Environmental Services recommends that the proposed action be approved effective July 1, 2020.

NOTICE OF INTENTION TO PROPOSE FOR ADOPTION
A RESOLUTION AND A PUBLIC HEARING THEREON

TO ENLARGE
SMALL DISTRICT 7
WITHIN DRANESVILLE DISTRICT

TAKE NOTICE that at a regular meeting of the Board of Supervisors of the County of Fairfax, Virginia, held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on Tuesday the 10th day of March, 2020, it was proposed by said Board to adopt a resolution to enlarge a small district known as Small District 7 within Dranesville District to include Boxwood and Beacon Area for the purpose of providing for refuse/recycling and vacuum leaf collection to be effective July 1, 2020, and the Clerk of said Board was directed to cause notice thereof by publication once a week for two consecutive weeks in a newspaper published in or having general circulation in said County, together with a notice that at a regular meeting of said Board to be held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on

TUESDAY
May 5, 2020
COMMENCING AT 4:00 P.M.

The said Board of Supervisors of Fairfax County, Virginia, will hold a public hearing at which time and place any interested parties may appear and be heard. The full text of the resolution to be adopted is in the following words and figures, to-wit:

WHEREAS, Virginia Code Section *15.2-858*, as amended, provides for, among other things, the Creation by the Board of Supervisors of Fairfax County, Virginia, of a small/local sanitary district by resolution; and

WHEREAS, the Board of Supervisors has been presented with facts and information upon consideration of which said Board, finding the property embraced in the proposed small sanitary district will be benefited by enlarging the small sanitary district for the purpose of providing for refuse/recycling and vacuum leaf collection for the citizens who reside therein.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors of Fairfax County, Virginia, authorizes the advertisement for the proposed enlargement of a small sanitary district, pursuant to Virginia Code Section *15.2-858*, as amended, to be known as Small District 7 within Dranesville District, Fairfax County, Virginia, which said enlargement of the small sanitary district shall be described as follows:

The enlargement of Small District 7 within Dranesville District to include

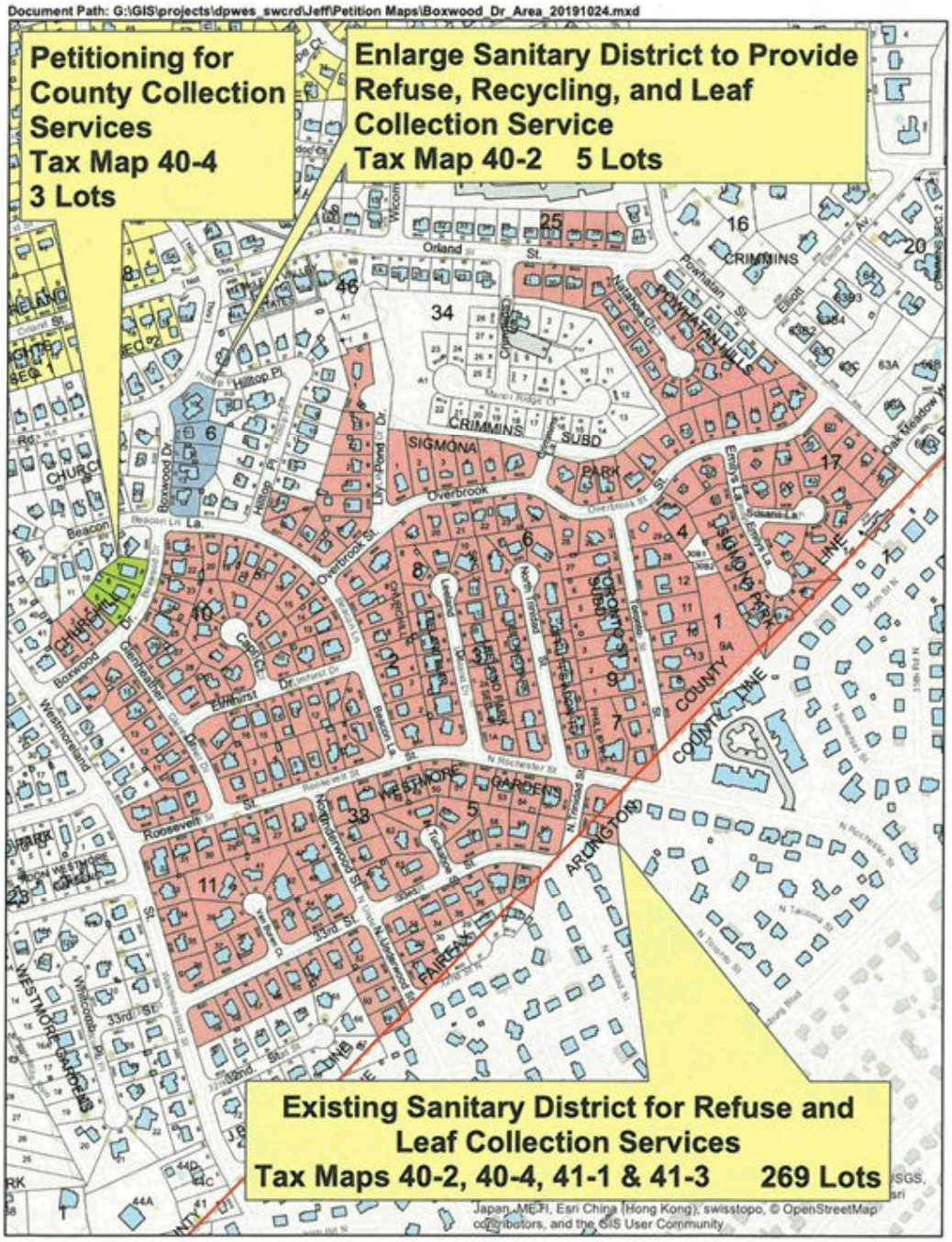
Boxwood and Beacon Area located in the County of Fairfax, Virginia, and as shown on the attached map.

AND BE IT FURTHER RESOLVED that the Board of Supervisors of Fairfax County, Virginia, declares its intention to implement the purpose for which said Small District 7 within Dranesville District is hereby created to wit:

To provide refuse/recycling and vacuum leaf collection service for the citizens who reside therein.

Given under my hand this____day of March, 2020

_____
Jill G. Cooper
Clerk for the Board



TAX MAP 40-2, 40-4, 41-1 & 41-3 **BOXWOOD AND BEACON AREA**

Attachment 3

DATA SHEET
Enlarge
Small District 9
Within the Dranesville District

Purpose: To provide County Refuse and Recycling Collection Service to Haycock Road Area.

- Petition requesting service received July 11, 2019.
- Petition Area: 115 Property.
- 85 Property Owners in favor.
- 8 property owners opposed.
- 22 Non-responsive / unable to contact.
- The Department of Public Works and Environmental Services can provide the requested service using existing equipment.
- The Department of Public Works and Environmental Services recommends that the proposed action be approved effective July 1, 2020.

NOTICE OF INTENTION TO PROPOSE FOR ADOPTION
A RESOLUTION AND A PUBLIC HEARING THEREON

TO ENLARGE
SMALL DISTRICT 9
WITHIN DRANESVILLE DISTRICT

TAKE NOTICE that at a regular meeting of the Board of Supervisors of the County of Fairfax, Virginia, held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on Tuesday the 10th day of March, 2020, it was proposed by said Board to adopt a resolution to enlarge a small district known as Small District 9 within Dranesville District to include Haycock Road Area for the purpose of providing for refuse and recycling collection to be effective July 1, 2020, and the Clerk of said Board was directed to cause notice thereof by publication once a week for two consecutive weeks in a newspaper published in or having general circulation in said County, together with a notice that at a regular meeting of said Board to be held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on

TUESDAY
MAY 5, 2020
COMMENCING AT 4:00 P.M.

The said Board of Supervisors of Fairfax County, Virginia, will hold a public hearing at which time and place any interested parties may appear and be heard. The full text of the resolution to be adopted is in the following words and figures, to-wit:

WHEREAS, Virginia Code Section *15.2-858*, as amended, provides for, among other things, the Creation by the Board of Supervisors of Fairfax County, Virginia, of a small/local sanitary district by resolution; and

WHEREAS, the Board of Supervisors has been presented with facts and information upon consideration of which said Board, finding the property embraced in the proposed small sanitary district will be benefited by enlarging the small sanitary district for the purpose of providing for refuse and recycling and collection for the citizens who reside therein.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors of Fairfax County, Virginia, authorizes the advertisement for the proposed enlargement of a small sanitary district, pursuant to Virginia Code Section *15.2-858*, as amended, to be known as Small District 9 within Dranesville District, Fairfax County, Virginia, which said enlargement of the small sanitary district shall be described as follows:

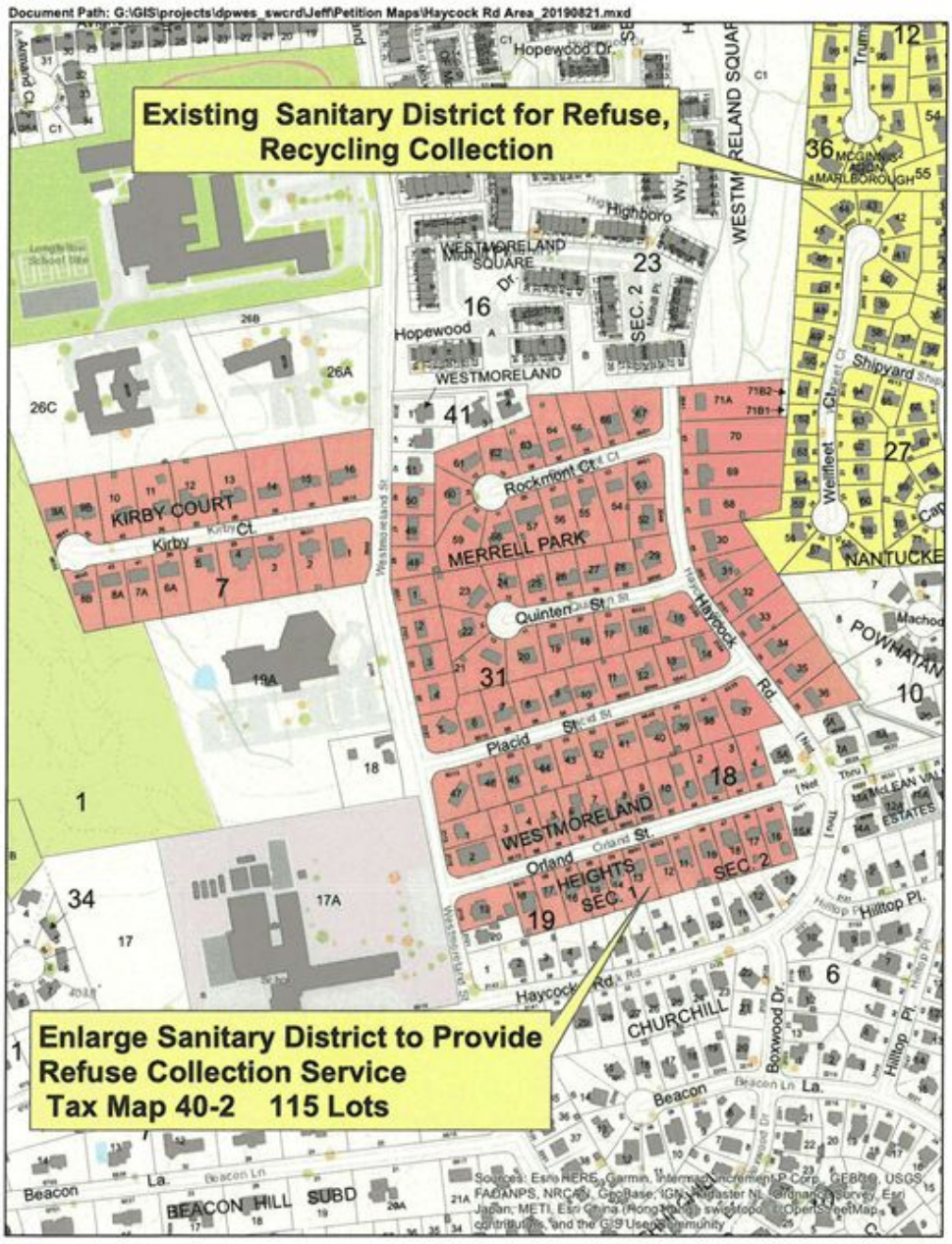
The enlargement of Small District 9 within Dranesville District to include Haycock Road Area located in the County of Fairfax, Virginia, and as shown on the attached map.

AND BE IT FURTHER RESOLVED that the Board of Supervisors of Fairfax County, Virginia, declares its intention to implement the purpose for which said Small District 9 within Dranesville District is hereby created to wit:

To provide refuse and recycling collection service for the citizens who reside therein.

Given under my hand this____day of March, 2020

_____
Jill G. Cooper
Clerk for the Board



TAX MAP 40-2 **HAYCOCK ROAD AREA**

Attachment 4

DATA SHEET
Enlarge
Small District 11
Within the Dranesville District

Purpose: To provide County Refuse and Recycling Collection Service to the Cliff Edge Drive Area.

- Petition requesting service received July 10, 2019.
- Petition Area: 7 Properties.
- 5 Property Owners in favor.
- 0 property owners opposed.
- 2 Non-responsive / unable to contact.
- The Department of Public Works and Environmental Services can provide the requested service using existing equipment.
- The Department of Public Works and Environmental Services recommends that the proposed action be approved effective July 1, 2020.

NOTICE OF INTENTION TO PROPOSE FOR ADOPTION
A RESOLUTION AND A PUBLIC HEARING THEREON

TO ENLARGE
SMALL DISTRICT 11
WITHIN DRANESVILLE DISTRICT

TAKE NOTICE that at a regular meeting of the Board of Supervisors of the County of Fairfax, Virginia, held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on Tuesday the 10th day of March, 2020, it was proposed by said Board to adopt a resolution to enlarge a small district known as Small District 11 within Dranesville District to include Cliff Edge Drive Area for the purpose of providing for refuse and recycling collection to be effective July 1, 2020, and the Clerk of said Board was directed to cause notice thereof by publication once a week for two consecutive weeks in a newspaper published in or having general circulation in said County, together with a notice that at a regular meeting of said Board to be held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on

TUESDAY
May 5, 2020
COMMENCING AT 4:00 P.M.

The said Board of Supervisors of Fairfax County, Virginia, will hold a public hearing at which time and place any interested parties may appear and be heard. The full text of the resolution to be adopted is in the following words and figures, to-wit:

WHEREAS, Virginia Code Section *15.2-858*, as amended, provides for, among other things, the Creation by the Board of Supervisors of Fairfax County, Virginia, of a small/local sanitary district by resolution; and

WHEREAS, the Board of Supervisors has been presented with facts and information upon consideration of which said Board, finding the property embraced in the proposed small sanitary district will be benefited by enlarging the small sanitary district for the purpose of providing for refuse and recycling collection for the citizens who reside therein.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors of Fairfax County, Virginia, authorizes the advertisement for the proposed enlargement of a small sanitary district, pursuant to Virginia Code Section *15.2-858*, as amended, to be known as Small District 11 within Dranesville District, Fairfax County, Virginia, which said enlargement of the small sanitary district shall be described as follows:

The enlargement of Small District 11 within Dranesville District to include

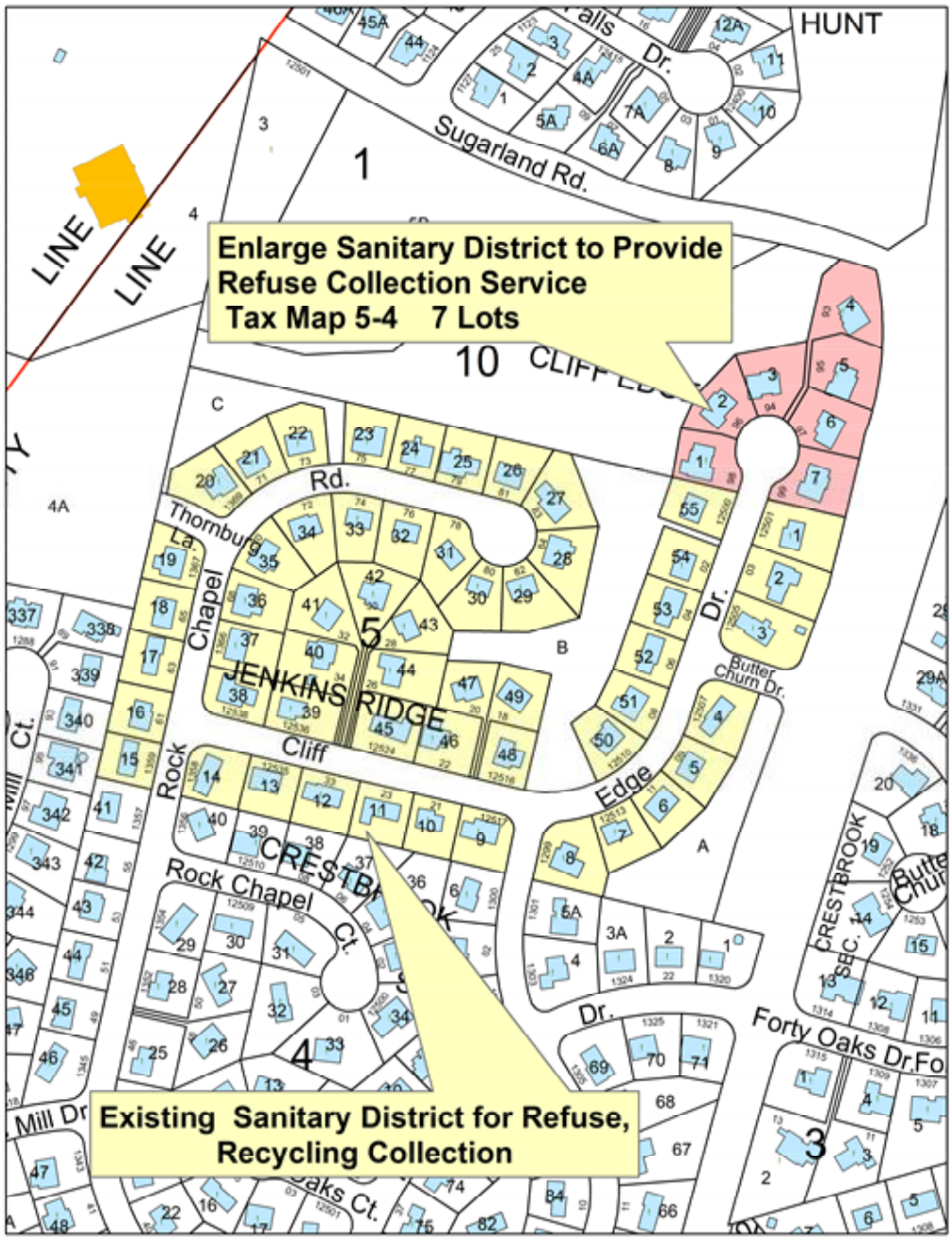
Cliff Edge Drive Area located in the County of Fairfax, Virginia, and as shown on the attached map.

AND BE IT FURTHER RESOLVED that the Board of Supervisors of Fairfax County, Virginia, declares its intention to implement the purpose for which said Small District 11 within Dranesville District is hereby created to wit:

To provide refuse and recycling collection service for the citizens who reside therein.

Given under my hand this____day of March, 2020

_____
Jill G. Cooper
Clerk for the Board


Enlarge Sanitary District to Provide
Refuse Collection Service
Tax Map 5-4 7 Lots
Existing Sanitary District for Refuse,
Recycling Collection
HUNT
Sugarland Rd.
LINE
LINE
JENKINS RIDGE
Rock Chapel Ct.
Cliff Edge Dr.
Butter Churn Dr.
Forty Oaks Dr.
Mill Dr
Thornburg La.
Chapel Rd.
CRESTBROOK
TAX MAP 5-4
CLIFF EDGE DR AREA

Attachment 5

DATA SHEET
Enlarge
Small District 13
Within the Dranesville District

Purpose: To provide County Refuse and Recycling Collection Service to El Nido Area.

- Petition requesting service received August 27, 2019.
- Petition Area: 20 Property.
- 11 Property Owners in favor.
- 4 property owners opposed.
- 5 Non-responsive / unable to contact.
- The Department of Public Works and Environmental Services can provide the requested service using existing equipment.
- The Department of Public Works and Environmental Services recommends that the proposed action be approved effective July 1, 2020.

NOTICE OF INTENTION TO PROPOSE FOR ADOPTION
A RESOLUTION AND A PUBLIC HEARING THEREON

TO ENLARGE
SMALL DISTRICT 13
WITHIN DRANESVILLE DISTRICT

TAKE NOTICE that at a regular meeting of the Board of Supervisors of the County of Fairfax, Virginia, held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on Tuesday the 10th day of March, 2020, it was proposed by said Board to adopt a resolution to enlarge a small district known as Small District 13 within Dranesville District to include El Nido Area for the purpose of providing for refuse and recycling collection to be effective July 1, 2020, and the Clerk of said Board was directed to cause notice thereof by publication once a week for two consecutive weeks in a newspaper published in or having general circulation in said County, together with a notice that at a regular meeting of said Board to be held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on

TUESDAY
MAY 5, 2020
COMMENCING AT 4:00 P.M.

The said Board of Supervisors of Fairfax County, Virginia, will hold a public hearing at which time and place any interested parties may appear and be heard. The full text of the resolution to be adopted is in the following words and figures, to-wit:

WHEREAS, Virginia Code Section *15.2-858*, as amended, provides for, among other things, the Creation by the Board of Supervisors of Fairfax County, Virginia, of a small/local sanitary district by resolution; and

WHEREAS, the Board of Supervisors has been presented with facts and information upon consideration of which said Board, finding the property embraced in the proposed small sanitary district will be benefited by enlarging the small sanitary district for the purpose of providing for refuse and recycling and collection for the citizens who reside therein.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors of Fairfax County, Virginia, authorizes the advertisement for the proposed enlargement of a small sanitary district, pursuant to Virginia Code Section *15.2-858*, as amended, to be known as Small District 13 within Dranesville District, Fairfax County, Virginia, which said enlargement of the small sanitary district shall be described as follows:

The enlargement of Small District 13 within Dranesville District to include

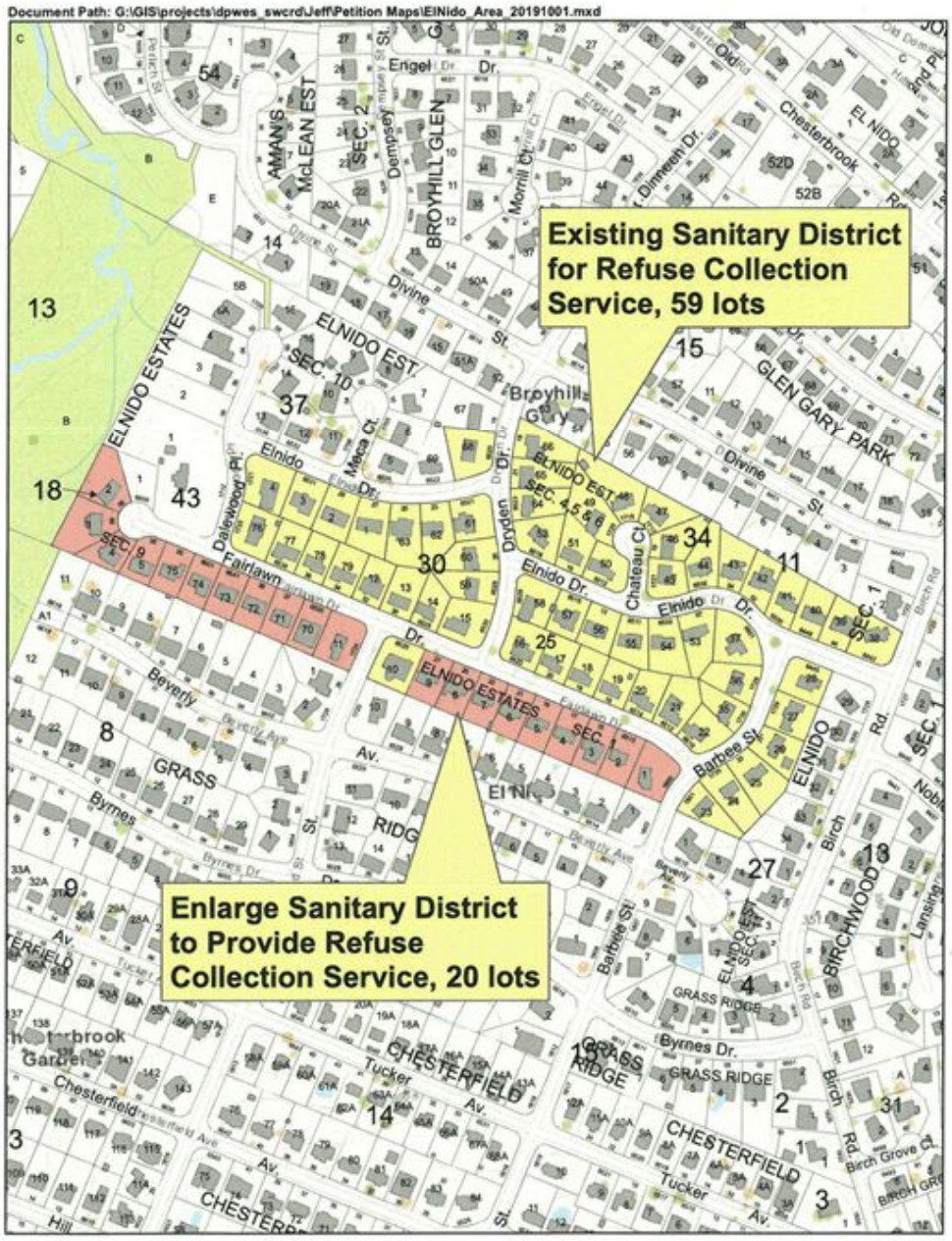
El Nido Area located in the County of Fairfax, Virginia, and as shown on the attached map.

AND BE IT FURTHER RESOLVED that the Board of Supervisors of Fairfax County, Virginia, declares its intention to implement the purpose for which said Small District 13 within Dranesville District is hereby created to wit:

To provide refuse and recycling collection service for the citizens who reside therein.

Given under my hand this____day of March, 2020

_____
Jill G. Cooper
Clerk for the Board



TAX MAPS; 30-4 & 31-3 **EL NIDO AREA**

Attachment 6

DATA SHEET
Create
Local District 1-V
Within the Dranesville District

Purpose: To provide County Refuse and Recycling Collection Service to McLean Manor Area.

- Petition requesting service received July 25, 2019.
- Petition Area: 55 Property.
- 36 Property Owners in favor.
- 15 property owners opposed.
- 4 Non-responsive / unable to contact.
- The Department of Public Works and Environmental Services can provide the requested service using existing equipment.
- The Department of Public Works and Environmental Services recommends that the proposed action be approved effective July 1, 2020.

NOTICE OF INTENTION TO PROPOSE FOR ADOPTION
A RESOLUTION AND A PUBLIC HEARING THEREON

TO CREATE
LOCAL DISTRICT 1-V
WITHIN DRANESVILLE DISTRICT

TAKE NOTICE that at a regular meeting of the Board of Supervisors of the County of Fairfax, Virginia, held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on Tuesday the 10th day of March, 2020, it was proposed by said Board to adopt a resolution to create a local district known as Local District 1-V within Dranesville District to include McLean Manor Area for the purpose of providing for refuse and recycling collection to be effective July 1, 2020, and the Clerk of said Board was directed to cause notice thereof by publication once a week for two consecutive weeks in a newspaper published in or having general circulation in said County, together with a notice that at a regular meeting of said Board to be held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on

TUESDAY
MAY 5, 2020
COMMENCING AT 4:00 P.M.

The said Board of Supervisors of Fairfax County, Virginia, will hold a public hearing at which time and place any interested parties may appear and be heard. The full text of the resolution to be adopted is in the following words and figures, to-wit:

WHEREAS, Virginia Code Section *15.2-858*, as amended, provides for, among other things, the Creation by the Board of Supervisors of Fairfax County, Virginia, of a small/local sanitary district by resolution; and

WHEREAS, the Board of Supervisors has been presented with facts and information upon consideration of which said Board, finding the property embraced in the proposed local sanitary district will be benefited by creating the local sanitary district for the purpose of providing for refuse and recycling and collection for the citizens who reside therein.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors of Fairfax County, Virginia, authorizes the advertisement for the proposed creation of a local sanitary district, pursuant to Virginia Code Section *15.2-858*, as amended, to be known as Local District 1-V within Dranesville District, Fairfax County, Virginia, which said creation of the local sanitary district shall be described as follows:

The creation of Local District 1-V within Dranesville District to include

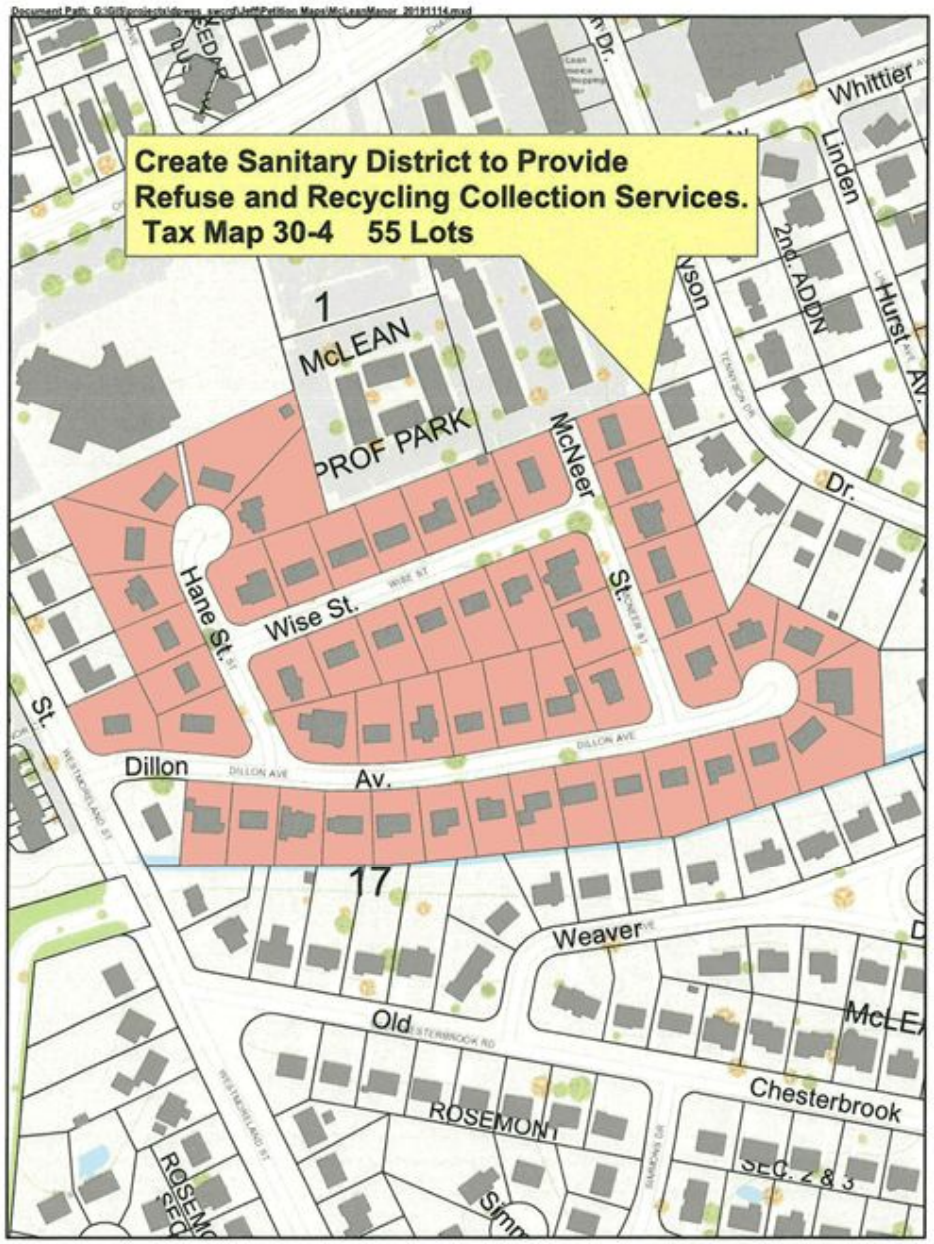
McLean Manor Area located in the County of Fairfax, Virginia, and as shown on the attached map.

AND BE IT FURTHER RESOLVED that the Board of Supervisors of Fairfax County, Virginia, declares its intention to implement the purpose for which said Local District 1-V within Dranesville District is hereby created to wit:

To provide refuse and recycling collection service for the citizens who reside therein.

Given under my hand this____day of March, 2020

_____
Jill G. Cooper
Clerk for the Board



Tax Maps 30-4

MCLEAN MANOR AREA

Attachment 7

DATA SHEET
Enlarge
Local District 1-Y
Within the Dranesville District

Purpose: To provide County Refuse and Recycling Collection Service to the Churchill Area.

- Petition requesting service received September 9, 2019.
- Petition Area: 3 Properties.
- 3 Property Owners in favor.
- 0 property owners opposed.
- 0 Non-responsive / unable to contact.
- The Department of Public Works and Environmental Services can provide the requested service using existing equipment.
- The Department of Public Works and Environmental Services recommends that the proposed action be approved effective July 1, 2020.

NOTICE OF INTENTION TO PROPOSE FOR ADOPTION
A RESOLUTION AND A PUBLIC HEARING THEREON

TO ENLARGE
LOCAL DISTRICT 1-Y
WITHIN DRANESVILLE DISTRICT

TAKE NOTICE that at a regular meeting of the Board of Supervisors of the County of Fairfax, Virginia, held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on Tuesday the 10th day of March, 2020, it was proposed by said Board to adopt a resolution to enlarge a local district known as Local District 1-Y within Dranesville District to include Churchill Area for the purpose of providing for refuse and recycling collection to be effective July 1, 2020, and the Clerk of said Board was directed to cause notice thereof by publication once a week for two consecutive weeks in a newspaper published in or having general circulation in said County, together with a notice that at a regular meeting of said Board to be held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on

TUESDAY
May 5, 2020
COMMENCING AT 4:00 P.M.

The said Board of Supervisors of Fairfax County, Virginia, will hold a public hearing at which time and place any interested parties may appear and be heard. The full text of the resolution to be adopted is in the following words and figures, to-wit:

WHEREAS, Virginia Code Section *15.2-858*, as amended, provides for, among other things, the Creation by the Board of Supervisors of Fairfax County, Virginia, of a small/local sanitary district by resolution; and

WHEREAS, the Board of Supervisors has been presented with facts and information upon consideration of which said Board, finding the property embraced in the proposed local sanitary district will be benefited by enlarging the local sanitary district for the purpose of providing for refuse and recycling collection for the citizens who reside therein.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors of Fairfax County, Virginia, authorizes the advertisement for the proposed enlargement of a local sanitary district, pursuant to Virginia Code Section *15.2-858*, as amended, to be known as Local District 1-Y within Dranesville District, Fairfax County, Virginia, which said enlargement of the local sanitary district shall be described as follows:

The enlargement of Local District 1-Y within Dranesville District to include

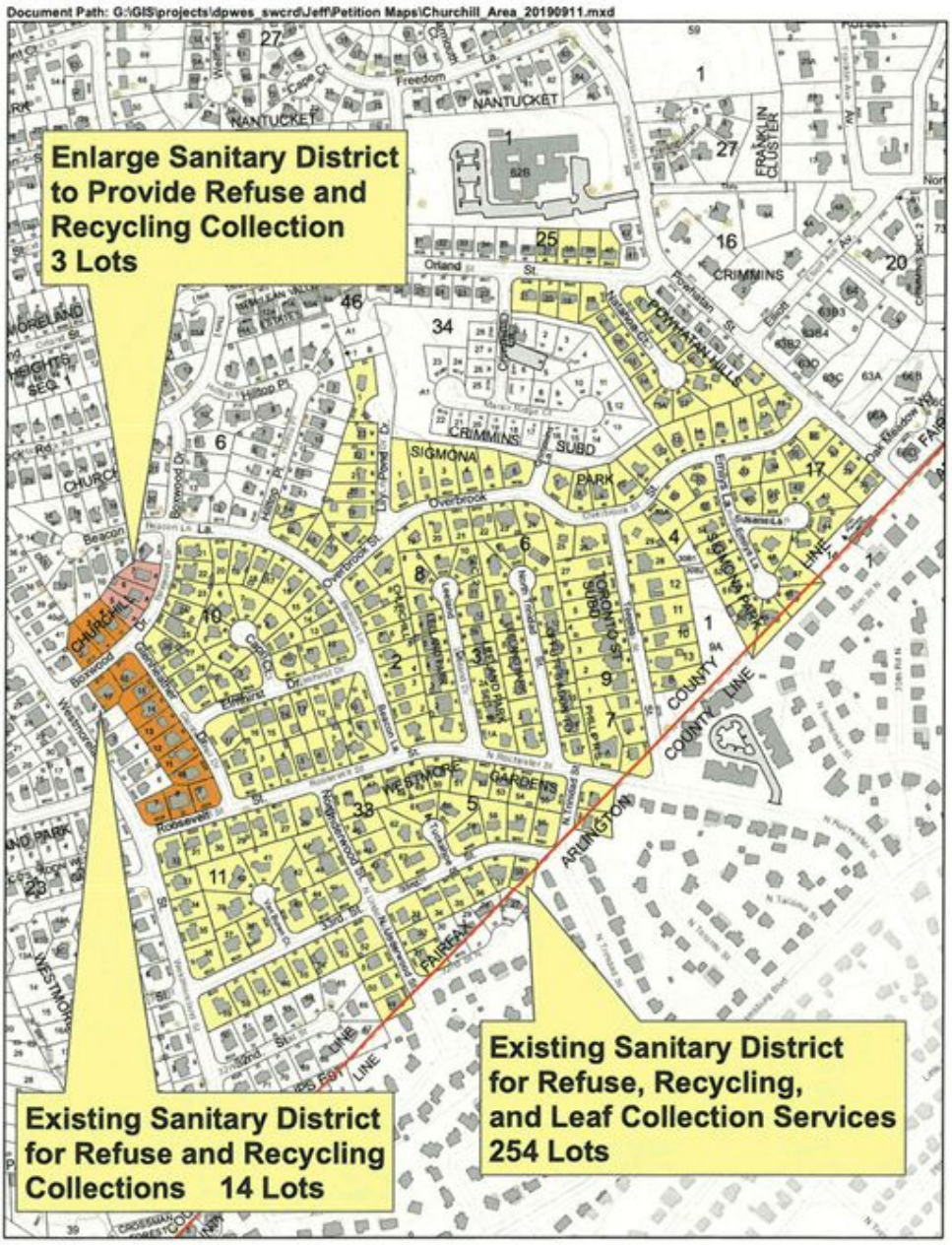
Churchill Area located in the County of Fairfax, Virginia, and as shown on the attached map.

AND BE IT FURTHER RESOLVED that the Board of Supervisors of Fairfax County, Virginia, declares its intention to implement the purpose for which said Local District 1-Y within Dranesville District is hereby created to wit:

To provide refuse and recycling collection service for the citizens who reside therein.

Given under my hand this____day of March, 2020

_____
Jill G. Cooper
Clerk for the Board



TAX MAPS; 40-2, 40-4, 41-1 & 41-3 **CHURCHILL AREA**

Board Agenda Item
March 10, 2020

ADMINISTRATIVE - 4

Authorization to Advertise a Public Hearing for the Creation and De-Creation/Re-Creation of Small and Local Sanitary Districts for Refuse/Recycling and Vacuum Leaf Collection Services (Lee District)

ISSUE:
Board of Supervisors' authorization to advertise a Public Hearing for the Creation and De-Creation/Re-Creation of Small and Local Sanitary Districts for Refuse/Recycling and Vacuum Leaf Collection Services.

RECOMMENDATION:
The County Executive recommends that the Board of Supervisors authorize advertisement of a public hearing at 4:00 p.m. on Tuesday, May 5, 2020, to consider the following change to small and local sanitary districts for refuse/recycling and/or leaf collection service in accordance with the Board of Supervisor's adopted criteria for the creation of Small or Local Sanitary Districts.

Sanitary District	Action	Service	Recommendation
Local District 1-F Within Lee District (Grayson Street Area)	Create	Refuse, Recycling, & Vacuum Leaf	Deny
Local District 1-B Within Lee District (5402 Hopark Drive)	De-Create/ Re-Create	Refuse, Recycling, & Adding Vacuum Leaf	Approve

TIMING:
Board of Supervisors' authorization to advertise on March 10, 2020, is required for a Public Hearing to be held on May 5, 2020, at 4:00 p.m.

BACKGROUND:
The administrative responsibility for the Creation/Enlargement/De-Creation/Re-Creation of Small and Local Sanitary Districts in the County of Fairfax for

refuse/recycling and/or leaf collection is with the Department of Public Works and Environmental Services (DPWES). The establishment of sanitary districts is accomplished through the action of the Board of Supervisors at public hearings. Prior to any action by the Board of Supervisors on a proposed small or local sanitary district, certain relevant standards and criteria must be met in accordance with the Board of Supervisors' adopted criteria for the Creation/Enlargement/De-Creation/Re-Creation of Small and Local Sanitary Districts.

The submitted petitions have been reviewed, and it has been determined that the petitions meet the Board of Supervisors' Adopted Criteria.

Staff recommends that the authorization to advertise a public hearing for the creation of the Grayson Street Area for refuse/recycling and vacuum leaf collection be denied, as DPWES cannot provide the requested service using existing equipment.

Staff recommends that the authorization to advertise a public hearing for the de-creation/re-creation of 5402 Hopark Drive for refuse/recycling, adding vacuum leaf collection be approved. If approved, the modification will become permanent on July 1, 2020.

FISCAL IMPACT:
None.

ENCLOSED DOCUMENTS:
Attachment 1: Summary Sheet
Attachment 2: Data Sheet with Proposed Resolution and Map (Grayson Street Area)
Attachment 3: Data Sheet with Proposed Resolution and Map (5402 Hopark Drive)

STAFF:
Rachel Flynn, Deputy County Executive
Randolph W. Bartlett, Director, Department of Public Works and Environmental Services (DPWES)
John W. Kellas, Deputy Director, DPWES, Solid Waste Management Program

Attachment 1

SUMMARY SHEET

Proposed alterations to the following small and local sanitary districts for refuse/recycling and/or leaf collection service:

1. Create Local District 1-F within Lee District for the purpose of providing refuse/recycling and vacuum leaf Collection Services to Grayson Street Area.

2. De-Create/Re-Create Local District 1-B within Lee District for the purpose of providing refuse/recycling and adding vacuum leaf Collection Services to 5402 Hopark Drive.

Attachment 2

DATA SHEET
Create
Local District 1-F
Within the Lee District

Purpose: To provide County Refuse/Recycling and Vacuum Leaf Collection Service to the Grayson Street Area.

- Petition requesting service received August 21, 2019.
- Petition Area: 75 Properties.
- 49 Property Owners in favor.
- 5 property owners opposed.
- 21 Non-responsive / unable to contact.
- The Department of Public Works and Environmental Services cannot provide the requested service using existing equipment.
- The Department of Public Works and Environmental Services recommends that the authorization for a public hearing on this proposed action be denied.

NOTICE OF INTENTION TO PROPOSE FOR ADOPTION
A RESOLUTION AND A PUBLIC HEARING THEREON

TO CREATE
LOCAL DISTRICT 1-F
WITHIN LEE DISTRICT

TAKE NOTICE that at a regular meeting of the Board of Supervisors of the County of Fairfax, Virginia, held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on Tuesday the 10th day of March, 2020, it was proposed by said Board to adopt a resolution to create a local district known as Local District 1-F within Lee District to include Grayson Street Area for the purpose of providing for refuse/recycling and vacuum leaf collection to be effective July 1, 2020, and the Clerk of said Board was directed to cause notice thereof by publication once a week for two consecutive weeks in a newspaper published in or having general circulation in said County, together with a notice that at a regular meeting of said Board to be held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on

TUESDAY
May 5, 2020
COMMENCING AT 4:00 P.M.

The said Board of Supervisors of Fairfax County, Virginia, will hold a public hearing at which time and place any interested parties may appear and be heard. The full text of the resolution to be adopted is in the following words and figures, to-wit:

WHEREAS, Virginia Code Section *15.2-858*, as amended, provides for, among other things, the Creation by the Board of Supervisors of Fairfax County, Virginia, of a small/local sanitary district by resolution; and

WHEREAS, the Board of Supervisors has been presented with facts and information upon consideration of which said Board, finding the property embraced in the proposed local sanitary district will be benefited by creating the local sanitary district for the purpose of providing for refuse/recycling and vacuum leaf collection for the citizens who reside therein.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors of Fairfax County, Virginia, authorizes the advertisement for the proposed creation of a local sanitary district, pursuant to Virginia Code Section *15.2-858*, as amended, to be known as Local District 1-F within Lee District, Fairfax County, Virginia, which said creation of the local sanitary district shall be described as follows:

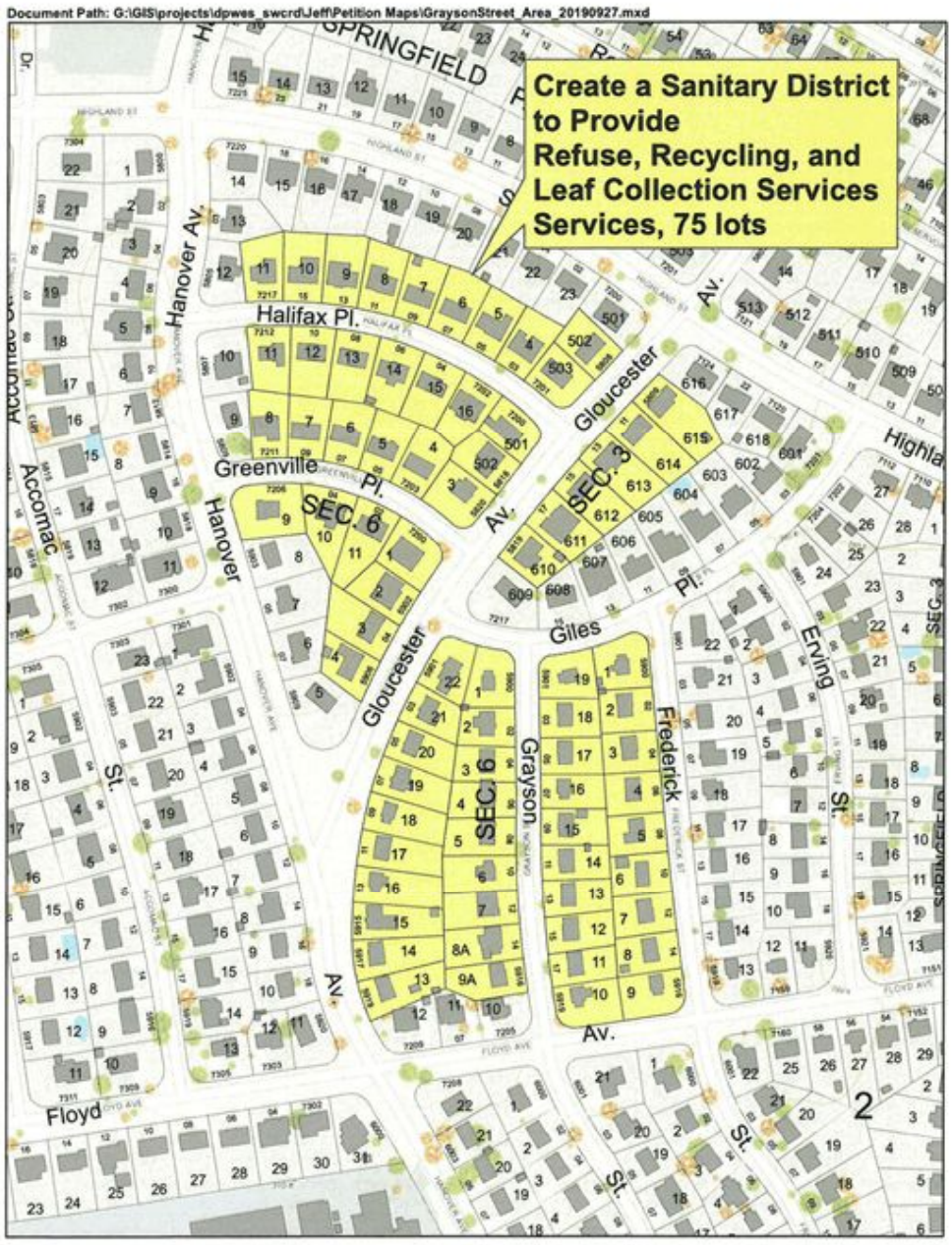
The creation of Local District 1-F within Lee District to include Grayson Street Area located in the County of Fairfax, Virginia, and as shown on the attached map.

AND BE IT FURTHER RESOLVED that the Board of Supervisors of Fairfax County, Virginia, declares its intention to implement the purpose for which said Local District 1-F within Lee District is hereby created to wit:

To provide refuse/recycling and vacuum leaf collection service for the citizens who reside therein.

Given under my hand this____day of March, 2020

_____
Jill G. Cooper
Clerk for the Board



TAX MAPS; 80-1 & 80-3 **GRAYSON STREET AREA**

Attachment 3

DATA SHEET
De-Create/Re-Create
Local District 1-B
Within the Lee District

Purpose: To provide County Refuse/Recycling and add Vacuum Leaf Collection Service to 5402 Hopark Drive.

- Petition requesting service received December 5, 2019.
- Petition Area: 1 Property.
- 1 Property Owners in favor.
- 0 property owners opposed.
- 0 Non-responsive / unable to contact.
- The Department of Public Works and Environmental Services can provide the requested service using existing equipment.
- The Department of Public Works and Environmental Services recommends that the proposed action be approved effective July 1, 2020.

NOTICE OF INTENTION TO PROPOSE FOR ADOPTION
A RESOLUTION AND A PUBLIC HEARING THEREON

TO DE-CREATE/RE-CREATE
LOCAL DISTRICT 1-B
WITHIN LEE DISTRICT

TAKE NOTICE that at a regular meeting of the Board of Supervisors of the County of Fairfax, Virginia, held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on Tuesday the 10th day of March, 2020, it was proposed by said Board to adopt a resolution to de-create/re-create a local district known as Local District 1-B within Lee District to include 5402 Hopark Drive for the purpose of providing for refuse/recycling and adding vacuum leaf collection to be effective July 1, 2020, and the Clerk of said Board was directed to cause notice thereof by publication once a week for two consecutive weeks in a newspaper published in or having general circulation in said County, together with a notice that at a regular meeting of said Board to be held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on

TUESDAY
MAY 5, 2020
COMMENCING AT 4:00 P.M.

The said Board of Supervisors of Fairfax County, Virginia, will hold a public hearing at which time and place any interested parties may appear and be heard. The full text of the resolution to be adopted is in the following words and figures, to-wit:

WHEREAS, Virginia Code Section *15.2-858*, as amended, provides for, among other things, the Creation by the Board of Supervisors of Fairfax County, Virginia, of a small/local sanitary district by resolution; and

WHEREAS, the Board of Supervisors has been presented with facts and information upon consideration of which said Board, finding the property embraced in the proposed local sanitary district will be benefited by de-creating/re-creating the local sanitary district for the purpose of providing for refuse/recycling and vacuum leaf collection for the citizens who reside therein.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors of Fairfax County, Virginia, authorizes the advertisement for the proposed de-creation/re-creation of a local sanitary district, pursuant to Virginia Code Section *15.2-858*, as amended, to be known as Local District 1-B within Lee District, Fairfax County, Virginia, which said de-creation/re-creation of the local sanitary district shall be described as follows:

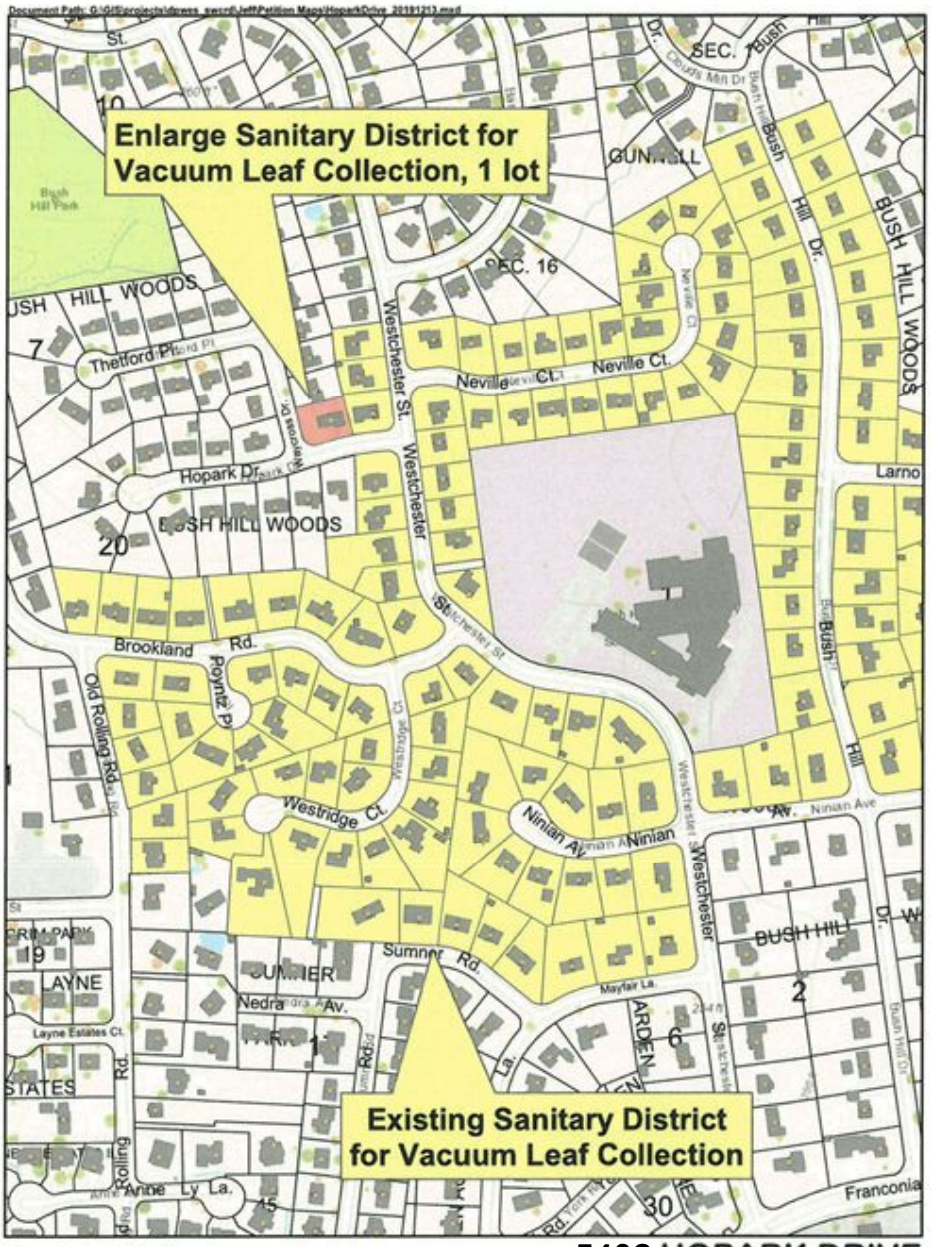
The de-creation/re-creation of Local District 1-B within Lee District to include 5402 Hopark Drive located in the County of Fairfax, Virginia, and as shown on the attached map.

AND BE IT FURTHER RESOLVED that the Board of Supervisors of Fairfax County, Virginia, declares its intention to implement the purpose for which said Local District 1-B within Lee District is hereby created to wit:

To provide refuse/recycling and adding vacuum leaf collection service for the citizens who reside therein.

Given under my hand this____day of March, 2020

_____
Jill G. Cooper
Clerk for the Board



Tax Maps 81-4

5402 HOPARK DRIVE

Board Agenda Item
March 10, 2020

ADMINISTRATIVE - 5

Authorization to Advertise a Public Hearing for the Enlargement of Small and Local Sanitary Districts for Refuse/Recycling and Vacuum Leaf Collection Services (Mason District)

ISSUE:
Board of Supervisors' authorization to advertise a Public Hearing for the Enlargement of Small and Local Sanitary Districts for Refuse/Recycling and Vacuum Leaf Collection Services.

RECOMMENDATION:
The County Executive recommends that the Board of Supervisors authorize advertisement of a public hearing at 4:00 p.m. on Tuesday, May 5, 2020, to consider the following change to small and local sanitary districts for refuse/recycling and/or leaf collection service in accordance with the Board of Supervisor's adopted criteria for the creation of Small or Local Sanitary Districts.

Sanitary District	Action	Service	Recommendation
Small District 2 Within Mason District (Pleasant Ridge Area)	Enlarge	Refuse, Recycling, & Vacuum Leaf	Approve
Small District 4 Within Mason District (6467 Overlook Drive)	Enlarge	Refuse, Recycling, & Vacuum Leaf	Approve

TIMING:
Board of Supervisors' authorization to advertise on March 10, 2020, is required for a Public Hearing to be held on May 5, 2020, at 4:00 p.m.

BACKGROUND:
The administrative responsibility for the Creation/Enlargement/De-Creation/Re-Creation of Small and Local Sanitary Districts in the County of Fairfax for

refuse/recycling and/or leaf collection is with the Department of Public Works and Environmental Services. The establishment of sanitary districts is accomplished through the action of the Board of Supervisors at public hearings. Prior to any action by the Board of Supervisors on a proposed small or local sanitary district, certain relevant standards and criteria must be met in accordance with the Board of Supervisors' adopted criteria for the Creation/Enlargement/De-Creation/Re-Creation of Small and Local Sanitary Districts.

The submitted petitions have been reviewed, and it has been determined that the petitions meet the Board of Supervisors' Adopted Criteria. Staff recommends that the authorization to advertise a public hearing for the enlargement of small and/or local sanitary districts for refuse/recycling and/or leaf collection be approved. If approved, the modification will become permanent on July 1, 2020.

FISCAL IMPACT:
None.

ENCLOSED DOCUMENTS:
Attachment 1: Summary Sheet
Attachment 2: Data Sheet with Proposed Resolution and Map (Pleasant Ridge Area)
Attachment 3: Data Sheet with Proposed Resolution and Map (6467 Overlook Drive)

STAFF:
Rachel Flynn, Deputy County Executive
Randolph W. Bartlett, Director, Department of Public Works and Environmental Services (DPWES)
John W. Kellas, Deputy Director, DPWES, Solid Waste Management Program

Attachment 1

SUMMARY SHEET

Proposed alterations to the following small and local sanitary districts for refuse/recycling and/or leaf collection service:

1. Enlarge Small District 2 within Mason District for the purpose of providing refuse/recycling and vacuum leaf Collection Services to Pleasant Ridge Area.

2. Enlarge Small District 4 within Mason District for the purpose of providing refuse/recycling and vacuum leaf Collection Services to 6467 Overlook Drive.

Attachment 2

DATA SHEET
Enlarge
Small District 2
Within the Mason District

Purpose: To provide County Refuse/Recycling and Vacuum Leaf Collection Service to the Pleasant Ridge Area.

- Petition requesting service received July 9, 2019.
- Petition Area: 109 Properties.
- 71 Property Owners in favor.
- 26 property owners opposed.
- 12 Non-responsive / unable to contact.
- The Department of Public Works and Environmental Services can provide the requested service using existing equipment.
- The Department of Public Works and Environmental Services recommends that the proposed action be approved effective July 1, 2020.

NOTICE OF INTENTION TO PROPOSE FOR ADOPTION
A RESOLUTION AND A PUBLIC HEARING THEREON

TO ENLARGE
SMALL DISTRICT 2
WITHIN MASON DISTRICT

TAKE NOTICE that at a regular meeting of the Board of Supervisors of the County of Fairfax, Virginia, held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on Tuesday the 10th day of March, 2020, it was proposed by said Board to adopt a resolution to enlarge a small district known as Small District 2 within Mason District to include Pleasant Ridge Area for the purpose of providing for refuse/recycling and vacuum leaf collection to be effective July 1, 2020, and the Clerk of said Board was directed to cause notice thereof by publication once a week for two consecutive weeks in a newspaper published in or having general circulation in said County, together with a notice that at a regular meeting of said Board to be held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on

TUESDAY
May 5, 2020
COMMENCING AT 4:00 P.M.

The said Board of Supervisors of Fairfax County, Virginia, will hold a public hearing at which time and place any interested parties may appear and be heard. The full text of the resolution to be adopted is in the following words and figures, to-wit:

WHEREAS, Virginia Code Section *15.2-858,* as amended, provides for, among other things, the Creation by the Board of Supervisors of Fairfax County, Virginia, of a small/local sanitary district by resolution; and

WHEREAS, the Board of Supervisors has been presented with facts and information upon consideration of which said Board, finding the property embraced in the proposed small sanitary district will be benefited by enlarging the small sanitary district for the purpose of providing for refuse/recycling and vacuum leaf collection for the citizens who reside therein.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors of Fairfax County, Virginia, authorizes the advertisement for the proposed enlargement of a small sanitary district, pursuant to Virginia Code Section *15.2-858,* as amended, to be known as Small District 2 within Mason District, Fairfax County, Virginia, which said enlargement of the small sanitary district shall be described as follows:

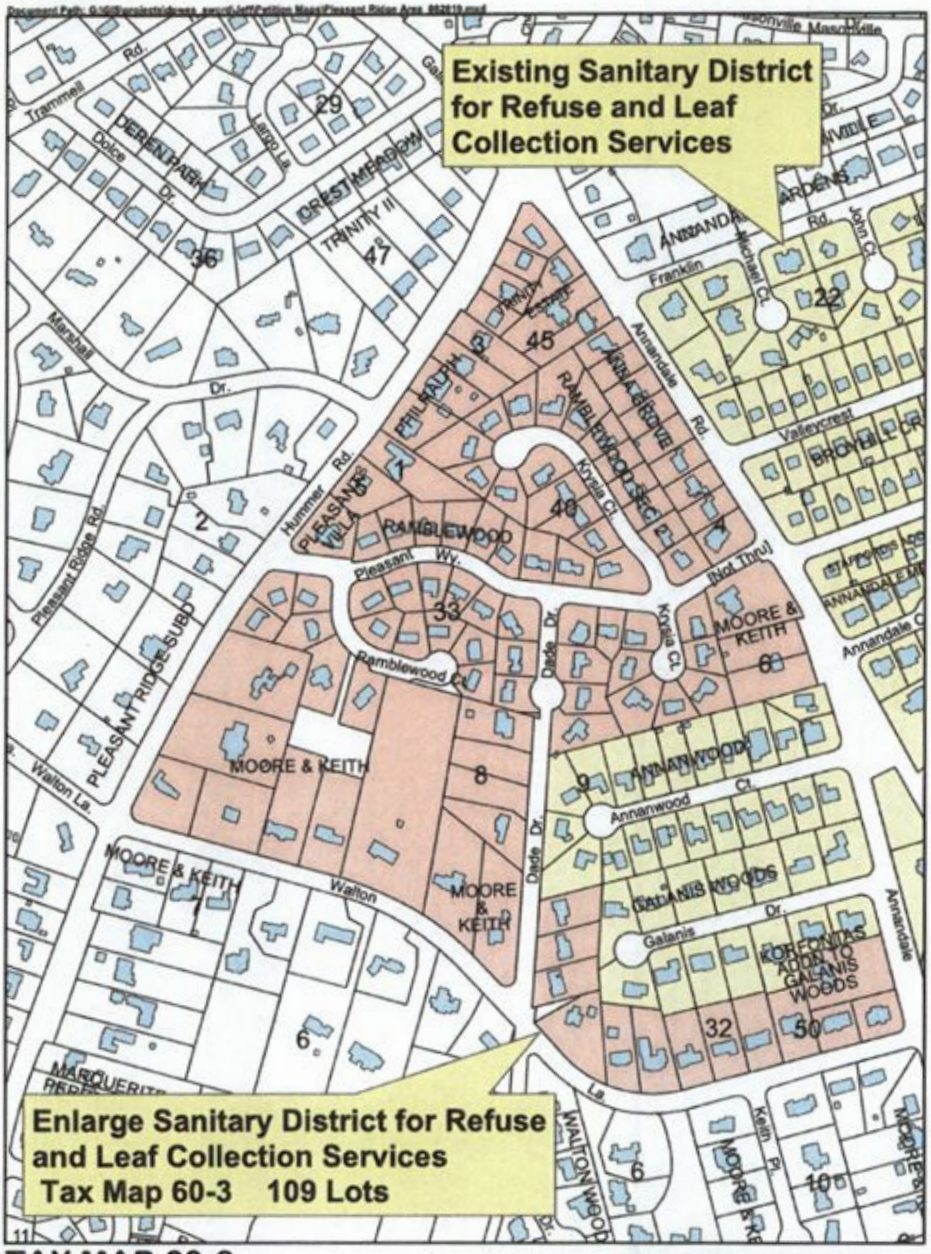
The enlargement of Small District 2 within Mason District to include Pleasant Ridge Area located in the County of Fairfax, Virginia, and as shown on the attached map.

AND BE IT FURTHER RESOLVED that the Board of Supervisors of Fairfax County, Virginia, declares its intention to implement the purpose for which said Small District 2 within Mason District is hereby created to wit:

To provide refuse/recycling and vacuum leaf collection service for the citizens who reside therein.

Given under my hand this____day of March, 2020

_____
Jill G. Cooper
Clerk for the Board


Existing Sanitary District for Refuse and Leaf Collection Services
Enlarge Sanitary District for Refuse and Leaf Collection Services
Tax Map 60-3 109 Lots
TAX MAP 60-3
PLEASANT RIDGE AREA
RAMBLEWOOD
MOORE & KEITH
ANNANWOODS
GALANIS WOODS
PLEASANT RIDGE SUBD
CREST MEADOW
TRINITY II
ANNANDALE
BRONTE LA
Pleasant Wy.
Ramblewood Ct.
Annanwood Ct.
Galanis Dr.
Walton
Walton La.
Dade Dr.
Annandale Rd.
Not Thru
Pleasant Ridge Rd.
Hummer Rd.
Marshall Dr.
Trammel Rd.
Largo La.
Franklin
Valleycrest
Keith Pl.
KORFONTAS ADDN TO GALANIS WOODS

Attachment 3

DATA SHEET
Enlarge
Small District 4
Within the Mason District

Purpose: To provide County Refuse/Recycling and Vacuum Leaf Collection Service to 6467 Overlook Drive.

- Petition requesting service received August 26, 2019.
- Petition Area: 1 Property.
- 1 Property Owners in favor.
- 0 property owners opposed.
- 0 Non-responsive / unable to contact.
- The Department of Public Works and Environmental Services can provide the requested service using existing equipment.
- The Department of Public Works and Environmental Services recommends that the proposed action be approved effective July 1, 2020.

NOTICE OF INTENTION TO PROPOSE FOR ADOPTION
A RESOLUTION AND A PUBLIC HEARING THEREON

TO ENLARGE
SMALL DISTRICT 4
WITHIN MASON DISTRICT

TAKE NOTICE that at a regular meeting of the Board of Supervisors of the County of Fairfax, Virginia, held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on Tuesday the 10th day of March, 2020, it was proposed by said Board to adopt a resolution to enlarge a small district known as Small District 4 within Mason District to include 6467 Overlook Drive for the purpose of providing for refuse/recycling and vacuum leaf collection to be effective July 1, 2020, and the Clerk of said Board was directed to cause notice thereof by publication once a week for two consecutive weeks in a newspaper published in or having general circulation in said County, together with a notice that at a regular meeting of said Board to be held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on

TUESDAY
MAY 5, 2020
COMMENCING AT 4:00 P.M.

The said Board of Supervisors of Fairfax County, Virginia, will hold a public hearing at which time and place any interested parties may appear and be heard. The full text of the resolution to be adopted is in the following words and figures, to-wit:

WHEREAS, Virginia Code Section *15.2-858*, as amended, provides for, among other things, the Creation by the Board of Supervisors of Fairfax County, Virginia, of a small/local sanitary district by resolution; and

WHEREAS, the Board of Supervisors has been presented with facts and information upon consideration of which said Board, finding the property embraced in the proposed small sanitary district will be benefited by enlarging the small sanitary district for the purpose of providing for refuse/recycling and vacuum leaf collection for the citizens who reside therein.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors of Fairfax County, Virginia, authorizes the advertisement for the proposed enlargement of a small sanitary district, pursuant to Virginia Code Section *15.2-858*, as amended, to be known as Small District 4 within Mason District, Fairfax County, Virginia, which said enlargement of the small sanitary district shall be described as follows:

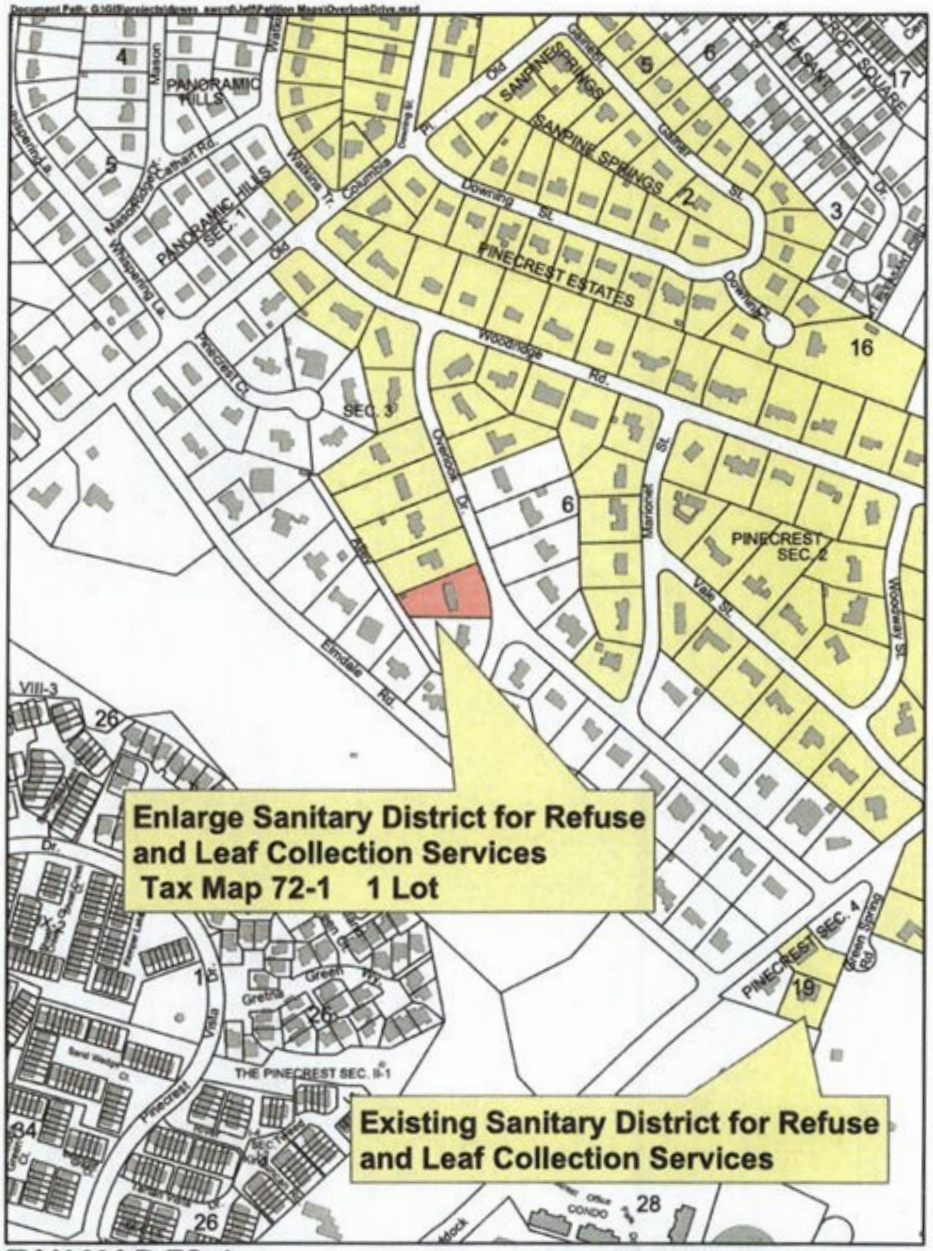
The enlargement of Small District 4 within Mason District to include 6467 Overlook Drive located in the County of Fairfax, Virginia, and as shown on the attached map.

AND BE IT FURTHER RESOLVED that the Board of Supervisors of Fairfax County, Virginia, declares its intention to implement the purpose for which said Small District 4 within Mason District is hereby created to wit:

To provide refuse/recycling and vacuum leaf collection service for the citizens who reside therein.

Given under my hand this____day of March, 2020

_____
Jill G. Cooper
Clerk for the Board



TAX MAP 72-1 **6467 OVERLOOK DRIVE**

Board Agenda Item
March 10, 2020

ADMINISTRATIVE - 6

Authorization to Advertise a Public Hearing for the Enlargement of Small and Local Sanitary Districts for Refuse/Recycling and Vacuum Leaf Collection Services (Providence District)

ISSUE:
Board of Supervisors' authorization to advertise a Public Hearing for the Enlargement of Small and Local Sanitary Districts for Refuse/Recycling and Vacuum Leaf Collection Services.

RECOMMENDATION:
The County Executive recommends that the Board of Supervisors authorize advertisement of a public hearing at 4:00 p.m. on Tuesday, May 5, 2020, to consider the following change to small and local sanitary districts for refuse/recycling and/or leaf collection service in accordance with the Board of Supervisor's adopted criteria for the creation of Small or Local Sanitary Districts.

Sanitary District	Action	Service	Recommendation
Small District 8 Within Providence District (2421 Williams Avenue)	Enlarge	Refuse, Recycling, & Vacuum Leaf	Approve

TIMING:
Board of Supervisors' authorization to advertise on March 10, 2020, is required for a Public Hearing to be held on May 5, 2020, at 4:00 p.m.

BACKGROUND:
The administrative responsibility for the Creation/Enlargement/De-Creation/Re-Creation of Small and Local Sanitary Districts in the County of Fairfax for refuse/recycling and/or leaf collection is with the Department of Public Works and Environmental Services. The establishment of sanitary districts is accomplished through the action of the Board of Supervisors at public hearings. Prior to any action by the Board of Supervisors on a proposed small or local sanitary district, certain relevant standards and criteria must be met in accordance with the Board

of Supervisors' adopted criteria for the Creation/Enlargement/De-Creation/Re-Creation of Small and Local Sanitary Districts.

The submitted petition has been reviewed, and it has been determined that the petition meets the Board of Supervisors' Adopted Criteria. Staff recommends that the authorization to advertise a public hearing for the enlargement of small and/or local sanitary districts for refuse/recycling and/or leaf collection be approved. If approved, the modification will become permanent on July 1, 2020.

FISCAL IMPACT:
None.

ENCLOSED DOCUMENTS:
Attachment 1: Summary Sheet
Attachment 2: Data Sheet with Proposed Resolution and Map

STAFF:
Rachel Flynn, Deputy County Executive
Randolph W. Bartlett, Director, Department of Public Works and Environmental Services (DPWES)
John W. Kellas, Deputy Director, DPWES, Solid Waste Management Program

Attachment 1

SUMMARY SHEET

Proposed alterations to the following small and local sanitary districts for refuse/recycling and/or leaf collection service:

1. Enlarge Small District 8 within Providence District for the purpose of providing refuse/recycling and vacuum leaf Collection Services to 2421 Williams Avenue.

Attachment 2

DATA SHEET
Enlarge
Small District 8
Within the Providence District

Purpose: To provide County Refuse/Recycling and Vacuum Leaf Collection Service to 2421 Williams Avenue.

- Petition requesting service received November 1, 2019.
- Petition Area: 1 Property.
- 1 Property Owners in favor.
- 0 property owners opposed.
- 0 Non-responsive / unable to contact.
- The Department of Public Works and Environmental Services can provide the requested service using existing equipment.
- The Department of Public Works and Environmental Services recommends that the proposed action be approved effective July 1, 2020.

NOTICE OF INTENTION TO PROPOSE FOR ADOPTION
A RESOLUTION AND A PUBLIC HEARING THEREON

TO ENLARGE
SMALL DISTRICT 8
WITHIN PROVIDENCE DISTRICT

TAKE NOTICE that at a regular meeting of the Board of Supervisors of the County of Fairfax, Virginia, held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on Tuesday the 10th day of March, 2020, it was proposed by said Board to adopt a resolution to enlarge a small district known as Small District 8 within Providence District to include 2421 Williams Avenue for the purpose of providing for refuse/recycling and vacuum leaf collection to be effective July 1, 2020, and the Clerk of said Board was directed to cause notice thereof by publication once a week for two consecutive weeks in a newspaper published in or having general circulation in said County, together with a notice that at a regular meeting of said Board to be held in the Board Auditorium of the Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on

TUESDAY
May 5, 2020
COMMENCING AT 4:00 P.M.

The said Board of Supervisors of Fairfax County, Virginia, will hold a public hearing at which time and place any interested parties may appear and be heard. The full text of the resolution to be adopted is in the following words and figures, to-wit:

WHEREAS, Virginia Code Section *15.2-858*, as amended, provides for, among other things, the Creation by the Board of Supervisors of Fairfax County, Virginia, of a small/local sanitary district by resolution; and

WHEREAS, the Board of Supervisors has been presented with facts and information upon consideration of which said Board, finding the property embraced in the proposed small sanitary district will be benefited by enlarging the small sanitary district for the purpose of providing for refuse/recycling and vacuum leaf collection for the citizens who reside therein.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors of Fairfax County, Virginia, authorizes the advertisement for the proposed enlargement of a small sanitary district, pursuant to Virginia Code Section *15.2-858*, as amended, to be known as Small District 8 within Providence District, Fairfax County, Virginia, which said enlargement of the small sanitary district shall be described as follows:

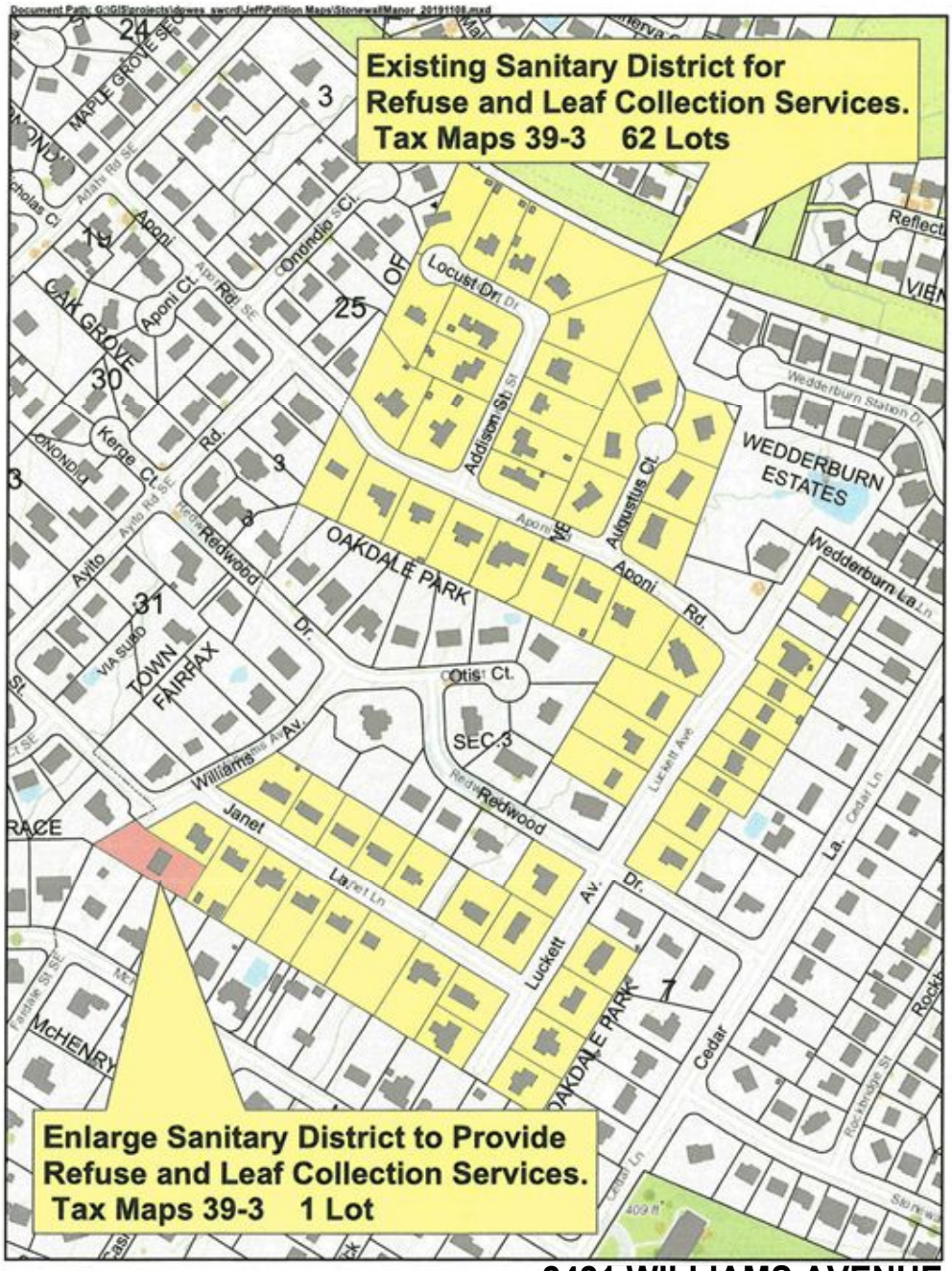
The enlargement of Small District 8 within Providence District to include 2421 Williams Avenue located in the County of Fairfax, Virginia, and as shown on the attached map.

AND BE IT FURTHER RESOLVED that the Board of Supervisors of Fairfax County, Virginia, declares its intention to implement the purpose for which said Small District 8 within Providence District is hereby created to wit:

To provide refuse/recycling and vacuum leaf collection service for the citizens who reside therein.

Given under my hand this____day of March, 2020

_____
Jill G. Cooper
Clerk for the Board



Tax Maps 39-3

2421 WILLIAMS AVENUE

Board Agenda Item
March 10, 2020

ADMINISTRATIVE - 7

Authorization for the Department of Neighborhood and Community Services to Apply for and Accept Grant Funding from the U.S. Department of Health and Human Services for the Continuation of Funding Associated with the Head Start and Early Head Start Grant

ISSUE:
Board of Supervisors authorization is requested for the Department of Neighborhood and Community Services to apply for and accept grant funding, if received, from the U.S. Department of Health and Human Services in the amount of $9,604,696, including $1,157,848 in Local Cash Match. Funding will be used to continue to provide services through the County's Head Start and Early Head Start programs. Funding will enable the County to serve 658 children and their families in a comprehensive, seamless birth-to-five Head Start and Early Head Start program. The grant period is July 1, 2020 through June 30, 2021. The total required non-federal match will be met through $1,157,848 in Local Cash Match from the Federal-State Grant Fund and $953,864 from in-kind contributions.

While the Head Start and Early Head Start grant is included in the Adopted budget, the grantor has indicated that before funding is awarded, the Board of Supervisors must formally approve the application. If the actual award received is significantly different from the application amount, another item will be submitted to the Board requesting appropriation of grant funds. Otherwise, staff will process the award administratively as per Board policy. Board authorization is also requested for the Chairman of the Board of Supervisors, the County Executive and/or a designee appointed by the County Executive to enter into the grant agreement and any related agreements, including but not limited to Federal Subaward Agreements, on behalf of the County.

RECOMMENDATION:
The County Executive recommends that the Board of Supervisors authorize the Department of Neighborhood and Community Services to apply for and accept grant funding, if received, from the U.S. Department of Health and Human Services. Funding in the amount of $9,604,696, including $1,157,848 in Local Cash Match, will support the continuation of Head Start and Early Head Start services to 658 children and their families. This funding will continue to support 53/45.6 FTE existing grant positions. No new grant positions are being requested with this funding. The County Executive also recommends that the Board authorize the Chairman of the Board of Supervisors, the County Executive and/or a designee appointed by the County Executive to enter into the grant agreement and any related agreements, including but not limited to Federal Subaward Agreements, on behalf of the County.

Board Agenda Item
March 10, 2020

TIMING:
Board action is requested on March 10, 2020.

BACKGROUND:
The Department of Neighborhood and Community Services (NCS), Office for Children was awarded a five-year Head Start and Early Head Start grant in June 2016, with four annually appropriated renewals. The grantor requires annual submission of a continuation application for each subsequent year of funding. Current grant funding enables the County to serve 658 children and their families in a comprehensive, seamless birth-to-five Head Start and Early Head Start program. This funding will continue to support 53/45.6 FTE existing grant positions.

Head Start and Early Head Start are national child and family development programs that provide quality early childhood education and comprehensive family support services to income eligible families with children birth to five years of age and expectant parents.

The Department of Neighborhood and Community Services, Office for Children is applying for year-five continuation funding for the Head Start and Early Head Start grant. This funding will continue existing services being provided by NCS, Office for Children, Fairfax County Public Schools, and Higher Horizons Day Care Center, Inc., and include services offered in a home-based option, center-based option and family child care option.

FISCAL IMPACT:
Federal grant funding in the amount of $9,604,696, including $1,157,848 in Local Cash Match, is being requested to support the continuation of Head Start and Early Head Start services to 658 children and their families. The total required non-federal match will be met through $1,157,848 in Local Cash Match from the Federal-State Grant Fund and $953,864 from in-kind contributions. It should be noted that including the in-kind contributions, total funding for this program is $10,558,560. This action does not increase the expenditure level of the Federal-State Grant Fund, as funds are held in reserve for anticipated grant awards and the Local Cash Match of $1,157,848 is available from the Local Cash Match Reserve. This grant does allow the recovery of indirect costs; however, because this funding opportunity is highly competitive, the Department of Neighborhood and Community Services has elected to omit inclusion of indirect costs to maximize the proposal's competitive position.

Board Agenda Item
March 10, 2020

CREATION OF NEW POSITIONS:
There are no new grant positions associated with this award. This funding is a continuation of the existing Head Start and Early Head Start programs; therefore, funding will continue to support 26/24.4 FTE positions associated with Head Start services and 27/21.2 FTE positions associated with Early Head Start services, for a total of 53/45.6 FTE positions. The County is under no obligation to continue these positions once grant funding expires.

ENCLOSED DOCUMENTS:
Attachment 1: Head Start and Early Head Start Summary of Grant Proposal
Attachment 2: Head Start and Early Head Start Letter of Funding Guidance dated January 7, 2020 regarding grant #03CH010411

STAFF:
Tisha Deeghan, Deputy County Executive
Christopher A. Leonard, Director, NCS
Anne-Marie D. Twohie, Director, Office for Children, NCS

HEAD START/EARLY HEAD START GRANT

SUMMARY OF GRANT PROPOSAL

Grant Title:	Head Start and Early Head Start Grant
Funding Agency:	U.S. Department of Health and Human Services, Administration for Children and Families, Office of Head Start
Applicant:	Department of Neighborhood and Community Services
Partners:	Department of Neighborhood and Community Services, Fairfax County Public Schools, Higher Horizons Day Care, Inc., and Community Family Child Care Providers
Purpose of Grant:	Early Head Start and Head Start are national child development programs that provide quality early childhood education and comprehensive family support services to income eligible families with children birth to five years of age and expectant parents. The purpose of this grant is to serve 658 children and their families in a comprehensive, seamless birth-to-five Head Start and Early Head Start program. Children will be served in a home-based, center-based or family child care option.
Funding Amount:	$9,604,696 including $1,157,848 in Local Cash Match. The total required non-federal match will be met through $1,157,848 in Local Cash Match from the Federal-State Grant Fund, and $953,864 from in-kind contributions. It should be noted that including the in-kind contributions, total funding for this program is $10,558,560. The grant period is from July 1, 2020 through June 30, 2021. The grant is for year five continuation funding of the five-year grant.
Positions:	There are no new grant positions associated with this award; however, funding will continue to support a total of 53/45.6 FTE existing grant positions.
Proposed Use of Funds:	Funding will support the continuation of quality early childhood education and comprehensive family support services. Funding will primarily support program operations, staffing, materials and equipment. Funding will also support training and technical assistance for the purpose of improving quality and helping prepare children to succeed in school.

Target Population:	Children from birth to five years of age and their families and expectant parents who reside in areas of the County that have high poverty rates, large numbers of children on Early Head Start/Head Start waiting lists, lack of affordable housing, limited transportation and large populations of immigrant families.
Performance Measures:	The success of the program will be based on full compliance with Head Start program performance standards.
Grant Period:	The grant period is from July 1, 2020 through June 30, 2021. The grant is for year five continuation funding of the five-year grant.

ADMINISTRATION FOR CHILDREN & FAMILIES

Office of Head Start | 330 C St., SW, 4th Floor, Washington DC 20201 | eclkc.ohs.acf.hhs.gov

January 07, 2020

Grant No. 03CH010411

Dear Head Start Grantee:

A grant application must be completed for the upcoming budget period. The application for the Head Start grant is due April 1, 2020.

The following table reflects the annual funding and enrollment levels for your grant.

Funding Type	Head Start	Early Head Start
Program Operations	$4,581,396	$3,712,148
Training and Technical Assistance	$69,574	$83,730
Total Funding		**$8,446,848**

Program	Head Start	Early Head Start
Federal Funded Enrollment	434	224

Period of Funding: 07/01/2020 - 06/30/2021

Application Submission Requirements

The application must be prepared and submitted in accordance with the *Head Start Grant Application Instructions with Guidance, Version 3 (Application Instructions)* for a continuation application. It must be submitted on behalf of the Authorizing Official registered in the HSES.

Incomplete applications will not be processed.

The *Application Instructions* are available on the home page of HSES. Please review the instructions carefully prior to preparing the application. Submission guidance can be found in the "Instructions" section of the HSES.

Please contact Cynthia Romero, Head Start Program Specialist, at 215-861-4002 or cynthia.romero@acf.hhs.gov or Kimberly Logan, Grants Management Specialist, at 215-861-4049 or kimberly.logan@acf.hhs.gov with questions regarding the Application Instructions.

For assistance submitting the application in HSES, contact help@hsesinfo.org or 1-866-771-4737.

Funding is contingent upon the availability of federal funds and satisfactory performance under the terms and conditions of the Head Start grant in the current budget period.

Thank you for your cooperation and timely submission of the grant application.

Sincerely,

/Brenda Hewitt/

Brenda Hewitt
Regional Program Manager
Office of Head Start

Board Agenda Item
March 10, 2020

ADMINISTRATIVE - 8

Authorization for the Department of Neighborhood and Community Services to Apply for and Accept Grant Funding from the U.S. Department of Health and Human Services Associated with the Early Head Start Child Care Partnership and Expansion Grant

ISSUE:
Board of Supervisors authorization is requested for the Department of Neighborhood and Community Services to apply for and accept grant funding, if received, from the U.S. Department of Health and Human Services, in the amount of $1,024,212, including $181,534 in Local Cash Match. Funding will be used to provide services through the County's Early Head Start Child Care Partnership and Expansion programs. This funding will continue existing services being provided to 56 infants and toddlers and their families. The grant period is July 1, 2020 to June 30, 2021. The total required non-federal match will be met through $181,534 in Local Cash Match from the Federal-State Grant Fund and $29,136 from in-kind contributions.

While the Early Head Start Child Care Partnership and Expansion grant is included in the Adopted Budget, the grantor has indicated that before funding is awarded, the Board of Supervisors must formally approve the application. If the actual award received is significantly different from the application amount, another item will be submitted to the Board requesting appropriation of grant funds. Otherwise, staff will process the award administratively as per Board policy. Board authorization is also requested for the Chairman of the Board of Supervisors, the County Executive and/or a designee appointed by the County Executive to enter into the grant agreement and any related agreements, including but not limited to Federal Subaward Agreements, on behalf of the County.

RECOMMENDATION:
The County Executive recommends that the Board of Supervisors authorize the Department of Neighborhood and Community Services to apply for and accept grant funding, if received, from the U.S. Department of Health and Human Services. Funding in the amount of $1,024,212, including $181,534 in Local Cash Match, will support the continuation of Early Head Start Child Care Partnership and Expansion services to 56 infants and toddlers and their families. This funding will support 11/11.0 FTE existing grant positions. No new grant positions are being requested with this funding. The County Executive also recommends that the Board authorize the Chairman of the Board of Supervisors, the County Executive and/or a designee appointed by the County Executive to enter into the grant agreement and any related agreements, including but not limited to Federal Subaward Agreements, on behalf of the County.

Board Agenda Item
March 10, 2020

TIMING:
Board action is requested on March 10, 2020.

BACKGROUND:
The Department of Neighborhood and Community Services (NCS), Office for Children was awarded a five-year Early Head Start Child Care Partnership and Expansion grant in FY 2015 to serve 56 infants and toddlers and their families, by establishing new partnerships with family child care providers and expanding the existing Early Head Start (EHS) center-based option at the Gum Springs Glen Early Head Start program. Funding of the original grant project expired June 30, 2019 and continuation funding was awarded for a five-year project period on July 1, 2019. This application is for continuation funding for the EHS Child Care Partnership and Expansion program. If awarded, this grant application will represent year two of a five-year project period.

This funding will continue existing services being provided to 56 infants and toddlers, and their families, by:

- Sustaining and/or establishing new partnerships with up to 15 regulated family child care providers located across the County in areas where there is greatest need for EHS services (40 children).
- Supporting the two expansion classrooms at the existing EHS center-based option at the Gum Springs Glen Early Head Start program (16 children).

FISCAL IMPACT:
Federal grant funding in the amount of $1,024,212, including $181,534 in Local Cash Match, is being requested to support the continuation of EHS services to 56 infants and toddlers and their families. The total required non-federal match will be met through $181,534 in Local Cash Match from the Federal-State Grant Fund and $29,136 from in-kind contributions. It should be noted that including in-kind contributions, total funding for this program is $1,053,348. This action does not increase the expenditure level of the Federal-State Grant Fund as funds are held in reserve for anticipated grant awards and the Local Cash Match of $181,534 is available from the Local Cash Match Reserve. This grant does allow the recovery of indirect costs; however, because this funding opportunity is highly competitive, the Department of Neighborhood and Community Services has elected to omit inclusion of indirect costs to maximize the proposal's competitive position.

CREATION OF NEW POSITIONS:
There are no new grant positions associated with this award. This funding supports the continuation of the existing Early Head Start Child Care Partnership and Expansion

program; therefore, funding will continue to support 11/11.0 FTE positions. The County is under no obligation to continue these positions once grant funding expires.

ENCLOSED DOCUMENTS:
Attachment 1: Early Head Start Child Care Partnership and Expansion Summary of Grant Proposal
Attachment 2: Early Head Start Child Care Partnership and Expansion Letter of Funding Guidance dated January 7, 2020 regarding grant #03HP000205

STAFF:
Tisha Deeghan, Deputy County Executive
Christopher A. Leonard, Director, NCS
Anne-Marie D. Twohie, Director, Office for Children, NCS

EARLY HEAD START CHILD CARE PARTNERSHIP AND EXPANSION GRANT

SUMMARY OF GRANT PROPOSAL

Grant Title:	Early Head Start Child Care Partnership and Expansion Grant
Funding Agency:	U.S. Department of Health and Human Services, Administration for Children and Families, Office of Head Start
Applicant:	Department of Neighborhood and Community Services
Partners:	Department of Neighborhood and Community Services and Community Family Child Care Providers
Purpose of Grant:	Early Head Start is a national child development program that provides quality early childhood education and comprehensive family support services to income eligible families with children birth to three years of age and expectant parents. The purpose of this grant is to serve 56 infants and toddlers and their families through partnerships with family child care providers and the expansion of the existing Early Head Start center-based option at the Gum Springs Glen Early Head Start program.
Funding Amount:	$1,024,212, including $181,534 in Local Cash Match. The total required non-federal match will be met through $181,534 in Local Cash Match from the Federal-State Grant Fund, and $29,136 from in-kind contributions. It should be noted that including the in-kind contributions, total funding for this program is $1,053,348. The grant period is from July 1, 2020 to June 30, 2021. The grant is for year two continuation funding of the five-year grant.
Positions:	There are no new grant positions associated with this award; however, funding will support a total of 11/11.0 FTE existing grant positions.
Proposed Use of Funds:	Funding will support the continuation of quality early childhood education and comprehensive family support services. Funding will primarily support program operations, staffing, materials and equipment. Funding will also support training and technical assistance for the purpose of improving quality and helping prepare children to succeed in school.
Target Population:	Children from birth to three years of age and their families and expectant parents who reside in areas of the County that have high poverty rates, large numbers of children on Early Head Start waiting

	lists, lack of affordable housing, limited transportation and large populations of immigrant families.
Performance Measures:	The success of the program will be based on full compliance with Head Start program performance standards.
Grant Period:	The grant period is from July 1, 2020 to June 30, 2021. This grant is year two continuation funding of the five-year grant.

ADMINISTRATION FOR CHILDREN & FAMILIES

Office of Head Start | 330 C St., SW, 4th Floor, Washington DC 20201 | eclkc.ohs.acf.hhs.gov

January 07, 2020

Grant No. 03HP000205

Dear Head Start Grantee:

A grant application must be completed for the upcoming budget period. The application for the Head Start grant is due April 1, 2020.

The following table reflects the annual funding and enrollment levels for your grant.

Funding Type	Early Head Start
Program Operations	$823,502
Training and Technical Assistance	$19,176
Total Funding	**$842,678**

Program	Early Head Start
Federal Funded Enrollment	56

Period of Funding: 07/01/2020 - 06/30/2021

Application Submission Requirements

The application must be prepared and submitted in accordance with the *Head Start Grant Application Instructions with Guidance, Version 3 (Application Instructions)* for a continuation application. It must be submitted on behalf of the Authorizing Official registered in the HSES.

Incomplete applications will not be processed.

The *Application Instructions* are available on the home page of HSES. Please review the instructions carefully prior to preparing the application. Submission guidance can be found in the "Instructions" section of the HSES.

Please contact Latasha Shears, Head Start Program Specialist, at 215-861-4005 or latasha.shears@acf.hhs.gov or Kimberly Logan, Grants Management Specialist, at 215-861-4049 or kimberly.logan@acf.hhs.gov with questions regarding the Application Instructions.

For assistance submitting the application in HSES, contact help@hsesinfo.org or 1-866-771-4737.

Funding is contingent upon the availability of federal funds and satisfactory performance under the terms and conditions of the Head Start grant in the current budget period.

Thank you for your cooperation and timely submission of the grant application.

Sincerely,

/Brenda Hewitt/

Brenda Hewitt
Regional Program Manager
Office of Head Start

Board Agenda Item
March 10, 2020

ADMINISTRATIVE - 9

Authorization to Advertise Publication of the FY 2021 Budget and Required Tax Rates, the FY 2021 Effective Tax Rate Increase, and the Advertised Capital Improvement Program for Fiscal Years 2021-2025 (With Future Fiscal Years to 2030)

ISSUE:
Board authorization to advertise the FY 2021 County budget, Capital Improvement Program, and the tax rates that are proposed to support the FY 2021 budget. Advertising these rates will not prevent the Board from lowering any advertised tax rate, but higher tax rates could not be imposed without advertising such rates.

RECOMMENDATION:
The County Executive recommends that the Board authorize advertisement of a brief synopsis of the FY 2021 Budget and a real estate tax rate for FY 2021 of $1.18 per $100 of assessed value. The FY 2021 Advertised Budget Plan is balanced based on a Real Estate Tax rate of $1.18 per $100 of assessed value, which is an increase of $0.03 over the current rate for FY 2020. Advertising an increase in the rate does not prevent the Board from lowering any advertised tax rate, but a higher tax rate cannot be imposed without having advertised the higher rate.

Virginia Code Section 58.1-3321 requires that a separate public hearing be held on the effective tax rate if the reassessment of real property results in an increase of one percent or more in the total real property tax levied. The public hearing on the effective tax rate must be advertised at least thirty days before the date of the hearing. The total increase in assessed value of existing property is expected to be 2.71 percent. In FY 2021, the assessed value of residential real property is expected to increase by 2.65 percent and non-residential property is expected to increase by 2.87 percent.

In addition, the County Executive recommends that the Board authorize advertisement of a public hearing on the FY 2021 – FY 2025 Advertised Capital Improvement Program (With Future Fiscal Years to 2030).

Please note that the draft tax resolution to be advertised includes the following recommendations regarding rates for FY 2021.

The following rates are recommended to increase:

- Refuse Collection Services assessment from $385 per household unit to $400 per household unit.

- I-95 Ash Disposal Fee from $26.50 per ton to $27.50.

The following rates are recommended to be advertised with no change:

- Leaf Collection Districts at $0.012 per $100 assessed value.
- Reston Community Center at $0.047 per $100 assessed value.
- McLean Community Center at $0.023 per $100 assessed value.
- Burgundy Village Community Center at $0.020 per $100 assessed value.
- Commercial and Industrial Tax for Transportation at $0.125 per $100 assessed value.
- Special service district for pest infestations at $0.0010 per $100 assessed value.
- Rail to Dulles Phase I Transportation Improvement District Levy at $0.11 per $100 assessed value.
- Rail to Dulles Phase II Transportation Improvement District Levy at $0.20 per $100 assessed value.
- Reston Transportation Service District at $0.021 per $100 of assessed value.
- Route 28 Taxing District Levy at $0.18 per $100 assessed value.
- Tysons Transportation Service District at $0.05 per $100 assessed value.
- Stormwater Service District Levy at $0.0325 per $100 assessed value.
- EMS Transport Fee: (1) a service fee of $500 for Basic Life Support transport (BLS), (2) $650 for Advanced Life Support, level 1 transport (ALS1), (3) $800 for Advanced Life Support, level 2 transport (ALS2), and (4) $12.00 per mile for ground transport mileage.

Also included in the brief synopsis of the FY 2021 budget advertisement is information as it relates to the Personal Property Tax Relief Act (PPTRA) and the percentage of state “Car Tax” subsidy on qualifying personal property tax levy. On November 21, 2005, as part of Action Item 3, the Board of Supervisors adopted a resolution to implement the state “Car Tax” changes found in the Executive Amendments to the 2004-2006 Biennial Budget, specifically state Budget Item 503(E) of the Central Appropriations Act, in accordance with the requirements set forth in Virginia Code Sections 58.1-3524(C)(2) and 58.1-3912(E), as

amended by Chapter 1 of the Acts of Assembly (2004 Special Session 1) and as set forth in Item 503(E)(Personal Property Tax Relief Program) of Chapter 951 of the 2005 Acts of Assembly.

Beginning in tax year 2006, the state "Car Tax" subsidy on qualifying vehicles was "capped" to a statewide total of $950 million. Based on the final report from the state Auditor of Public Accounts, dated February 2006, Fairfax County's share of this $950 million was fixed at 22.2436 percent, or $211,313,944.16. The annual subsidy is frozen at this amount and is factored into the FY 2021 Advertised Budget Plan.

Consistent with the November 21, 2005, Board resolution, the state "Car Tax" funding will provide a 100 percent subsidy of the tax year 2020 levy for qualifying vehicles valued at $1,000 or less and a 100 percent subsidy of the tax year 2020 levy on the value up to $20,000 for vehicles leased by a qualified military service member and/or spouse. Furthermore, the state "Car Tax" funding is estimated to provide a 58.5 percent subsidy of the tax year 2020 levy for all other qualifying vehicles on the value up to $20,000.

A separate public hearing on the effective tax rate will be held on Tuesday, April 14, 2020, as required by Virginia Code Section 58.1-3321. In addition, public hearings on the FY 2021 budget, the advertised capital improvement plan (CIP) and proposed tax rates for tax year 2020 will be held on April 14-16, 2020.

Please note that a separate item recommending Board authorization to advertise public hearings for sewer rate revision notices was included in the February 25, 2020, Board package. The sewer rate revision notices authorize the increase in the Base Charge from $32.91 per quarter, totaling $131.64 per year, to $35.50 per quarter, totaling $142.00 per year. The Sewer Service Charge will increase from $7.28 per 1,000 gallons of water consumption to $7.56 per 1,000 gallons of water consumption. The Sewer Availability Fee will increase from $8,340 to $8,423 per new home being constructed. A separate public hearing on sewer rate revisions will be held on Tuesday, April 14, 2020.

In addition, a separate item recommending Board authorization to advertise public hearings to establish an admissions tax will be included in the March 24, 2020, Board package. A separate public hearing on the admissions tax will be held on Tuesday, April 14, 2020.

TIMING:
Action must be taken on March 10, 2020, in order to provide adequate time to include the effective tax rate advertisement, if required, in the newspaper no later than March 13, 2020, to meet advertising legal requirements and ensure as broad a circulation as possible.

Board Agenda Item
March 10, 2020

BACKGROUND:
Virginia Code Section 15.2-2506 specifies the time frame within which the advertisements must be published. That section requires the publication of a brief synopsis of the budget at least seven days prior to the date set for public hearing.

Virginia Code Section 58.1-3321 also specifies advertisement requirements for an increase in the real estate tax levy for existing property based on an equalization increase greater than one percent. The assessed value of existing real estate is projected to increase 2.71 percent due to equalization, which exceeds the one-percent threshold for that statute. That section requires the publication of a notice in the paper at least thirty days prior to the date set for the public hearing and a separate public hearing is required to consider the effective tax increase.

Therefore, this item requests Board authorization to advertise the following items in accordance with the notification requirements listed above.

- A brief synopsis of the FY 2021 Budget, including information as it relates to the impact of the Personal Property Tax Relief Act (PPTRA) on the percentage of state "Car Tax" subsidy on qualifying personal property tax levy

- Proposed Tax Rates for tax year 2020

- The effective tax rate notice required by Virginia Code Section 58.1-3321

- Notice of public hearings on the FY 2021 – FY 2025 Advertised Capital Improvement Program (With Future Fiscal Years to 2030)

In order to meet these legal requirements and hold to the scheduled public hearing dates, the advertisements must be approved no later than March 10, 2020. This will permit the County to adhere to the following budget schedule:

- Public Hearing on the FY 2021 Effective Tax Rate – April 14, 2020. Please note the Public Hearing on the Effective Tax Rate is separate from the Public Hearings on the Budget. However, citizens may speak on the Effective Tax Rate during the Public Hearings on the FY 2021 Budget.

- Public Hearings on the FY 2021 Budget, the FY 2021 – FY 2025 Advertised Capital Improvement Program (With Future Fiscal Years to 2030) and proposed FY 2021 Tax Rates – April 14-16, 2020.

- Public Hearings on the *FY 2020 Third Quarter Review* – April 14-16, 2020.

- FY 2021 Budget Mark-up and Board Adoption of the *FY 2020 Third Quarter Review* – April 28, 2020.

- Board Adoption of Fiscal Plan, Tax Levies, and Appropriation Resolution – May 5, 2020.

- School transfer set (required by May 15 or 30 days after the State approves aid to schools).

In addition, it should be noted that during FY 2021 the allowable asset limits and income limits associated with the Real Estate Tax Relief Program for the Elderly and Disabled are maintained at the FY 2020 level. In FY 2021, the income limits of the Tax Relief program provide 100 percent exemption for elderly and disabled taxpayers with incomes up to $52,000; 50 percent exemption for eligible applicants with income between $52,001 and $62,000; and 25 percent exemption if income is between $62,001 and $72,000. The allowable asset limit in FY 2021 is $340,000 for all ranges of tax relief and that limit does not include the value of the residence of the applicant and one acre of land on which the residence is located. In addition, veterans who have a 100 percent permanent and total disability related to military service, or their surviving spouse, are eligible for full Real Estate Tax relief regardless of income and assets.

FISCAL IMPACT:
The FY 2021 Real Estate Tax rate of $1.18 per $100 of assessed value results in the revenue projections outlined in the FY 2021 Advertised Budget Plan. Each penny on the Real Estate Tax rate equates to $26,494,102 in General Fund revenue.

ENCLOSED DOCUMENTS:
Attachment I - Brief Synopsis of the FY 2021 Budget
Attachment II - Draft Resolution Adopting Fairfax County Tax Rates for FY 2021
Attachment III - Notice of a Proposed Tax Increase for FY 2021

STAFF:
Bryan J. Hill, County Executive
Joe Mondoro, Chief Financial Officer
Christina Jackson, Director, Department of Management and Budget
Philip Hagen, Deputy Director, Department of Management and Budget
Jaydeep Doshi, Director, Department of Tax Administration

ASSIGNED COUNSEL:
Patricia McCay, Senior Assistant County Attorney

COMMONWEALTH OF VIRGINIA
COUNTY OF FAIRFAX

In accordance with Virginia law, notice is hereby given that the Board of Supervisors of Fairfax County, Virginia, will meet in the Board Auditorium of the Fairfax County Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on April 14 at 4:00 P.M. and April 15 and April 16 at 3:00 P.M. The purpose of these meetings shall be to consider the adoption of an FY 2021 County Budget and to consider such tax rate changes as described therein. A brief synopsis of the FY 2021 Advertised Budget Plan is shown below. Citizens may appear and be heard for and against the following estimates of revenues, expenditures, transfers and surpluses as contained in the FY 2021 Advertised Budget Plan and proposed tax rate changes. Fiscal Year 2021 begins on July 1, 2020, and ends on June 30, 2021.

At the same time, the Board of Supervisors will hear public testimony regarding proposed adoption of the FY 2021 – FY 2025 Advertised Capital Improvement Program (With Future Fiscal Years to 2030).

All persons wishing to present their views on these subjects may sign up to be placed on the Speakers List at www.fairfaxcounty.gov/bosclerk/speakers-form, call the Office of the Clerk to the Board at 703-324-3151 to be placed on the Speakers List, or appear and be heard. As required by law, copies of the full text of proposed ordinances, plans and amendments, as applicable, as well as other documents relating to the aforementioned subjects, are on file and may be examined at the Office of the Clerk to the Board of Supervisors, Suite 533 of the Fairfax County Government Center, 12000 Government Center Parkway, Fairfax, Virginia.

Fairfax County supports the Americans with Disabilities Act by making reasonable accommodations for persons with disabilities. Open captioning will be provided in the Board Auditorium. For sign language interpreters or other accommodations, please call the Clerk's Office, 703-324-3151, TTY 711 (Virginia Relay Center) no later than 48 hours before the public hearing. Assistive listening devices will be available at the meeting.

Copies of the FY 2021 Advertised Budget Plan and the FY 2021 – FY 2025 Advertised Capital Improvement Program (With Future Fiscal Years to 2030) are available on the Internet at www.fairfaxcounty.gov/budget.

Fund	EXPENDITURES	TRANSFERS OUT	TOTAL EXPENDITURES & TRANSFERS OUT	TAX REQUIRED AMOUNT	FY 2021 Rate	FY 2020 RATE	FY 2019 RATE	OTHER RESOURCES STATE AID	FEDERAL AID	OTHER RECEIPTS	TRANSFERS IN	APPROPRIATED FROM/(ADDED TO) SURPLUS
GOVERNMENTAL FUNDS												
General Fund Group												
10001 General Fund [1]	$1,685,213,377	$2,940,083,447	$4,625,296,824	$3,496,745,560	1.180 a 4.57 b	1.150 a 4.57 b	1.150 a 4.57 b	$313,196,918 c	$40,235,797	$766,531,947	$8,707,781	($121,179) d
10010 Revenue Stabilization	0	0	0	0				0	0	2,500,000	1,392,102	(3,892,102)
10015 Economic Opportunity Reserve	0	0	0	0				0	0	350,000	11,981,088	(12,331,088) e
10020 Consolidated Community Funding Pool	12,283,724	0	12,283,724	0				0	0	0	12,283,724	0
10030 Contributory Fund	15,432,962	0	15,432,962	0				0	0	2,309,415 f	13,122,836	711
10040 Information Technology	250,000	0	250,000	0				0	0	250,000	0	0
Total General Fund Group	**$1,713,180,063**	**$2,940,083,447**	**$4,653,263,510**	**$3,496,745,560**				**$313,196,918**	**$40,235,797**	**$771,941,362**	**$47,487,531**	**($16,343,658)**
Debt Service Funds												
20000 Consolidated Debt Service	$336,676,960	$0	$336,676,960	$0				$0	$2,500,000	$528,000	$333,648,960	$0
Capital Project Funds												
30000 Metro Operations and Construction	$81,772,074	$3,153,437	$84,925,511	$0				$0	$0	$38,000,000	$46,925,511	$0
30010 General Construction and Contributions	22,240,805	0	22,240,805	0				0	0	4,575,000	17,665,805	0
30015 Environmental and Energy Program	1,300,000	0	1,300,000	0				0	0	0	1,300,000	0
30020 Infrastructure Replacement and Upgrades	0	0	0	0				0	0	0	0	0
30030 Library Construction	0	0	0	0				0	0	0	0	0
30040 Contributed Roadway Improvement	0	181,732	181,732	0				0	0	181,732	0	0
30050 Transportation Improvements	0	0	0	0				0	0	0	0	0
30060 Pedestrian Walkway Improvements	700,000	0	700,000	0				0	0	0	700,000	0
30070 Public Safety Construction	0	0	0	0				0	0	0	0	0
30080 Commercial Revitalization Program	0	0	0	0				0	0	0	0	0
30090 Pro Rata Share Drainage Construction	0	0	0	0				0	0	0	0	0
30300 Affordable Housing Development and Investment	45,741,000	0	45,741,000	39,741,000 g				0	0	6,000,000	0	0
30310 Housing Assistance Program	0	0	0	0				0	0	0	0	0
30400 Park Authority Bond Construction	0	0	0	0				0	0	0	0	0
S31000 Public School Construction	203,770,390	0	203,770,390	0				0	0	181,483,793	22,347,474	(60,877)
Total Capital Project Funds	**$355,524,269**	**$3,335,169**	**$358,859,438**	**$39,741,000**				**$0**	**$0**	**$230,240,525**	**$88,938,790**	**($60,877)**
Special Revenue Funds												
40000 County Transit Systems	$107,995,174	$0	$107,995,174	$0				$15,149,360	$0	$8,706,750	$84,139,064	$0
40010 County and Regional Transportation Projects	58,242,329	38,430,481	96,672,810	61,201,872	0.125 h	0.125 h	0.125 h	35,340,938	0	130,000	0	0
40030 Cable Communications	10,327,378	9,887,664	20,215,042	0				0	0	20,215,042	0	0
40040 Fairfax-Falls Church Community Services Board	190,920,619	0	190,920,619	0				9,051,932	4,208,641	23,571,244	154,088,802	0
40045 Early Childhood Birth to 5	34,592,365	0	34,592,365	0				0	44,689	171,271	34,376,405	0
40050 Reston Community Center	9,752,395	0	9,752,395	8,505,019	0.047 i	0.047 i	0.047 i	0	0	1,298,512	0	(51,136)
40060 McLean Community Center	6,189,284	0	6,189,284	4,894,469	0.023 i	0.023 i	0.023 i	0	0	1,294,815	0	0
40070 Burgundy Village Community Center	47,029	0	47,029	34,415	0.020 j	0.020 j	0.020 j	0	0	46,138	0	(33,524)
40080 Integrated Pest Management Program	3,377,465	141,000	3,518,465	2,639,992	0.001 k	0.001 k	0.001 k	0	0	7,691	0	870,782
40090 E-911	54,662,521	0	54,662,521	0				3,396,251	0	49,222,982	0	2,043,288
40100 Stormwater Services	83,964,976	1,125,000	85,089,976	85,089,976	0.0325 l	0.0325 l	0.0325 l	0	0	0	0	0
40110 Dulles Rail Phase I Transportation Improvement District	14,457,600	0	14,457,600	19,738,140	0.11 m	0.11 m	0.13 m	0	0	0	0	(5,280,540)
40120 Dulles Rail Phase II Transportation Improvement District	500,000	0	500,000	20,484,176	0.20 n	0.20 n	0.20 n	0	0	0	0	(19,984,176)
40125 Metrorail Parking System Pledged Revenues	15,439,113	0	15,439,113	0				0	0	11,204,319	0	4,234,794
40130 Leaf Collection	2,382,997	54,000	2,436,997	0	0.012 o	0.012 o	0.013 o	0	0	2,191,251	0	245,746
40140 Refuse Collection and Recycling Operations	20,735,554	494,000	21,229,554	0	400 p	385 p	350 p	125,288	0	19,513,839	0	1,590,427
40150 Refuse Disposal	57,001,538	626,000	57,627,538	0	68 q	68 q	66 q	0	0	55,836,738 r	0	1,790,800
40170 I-95 Refuse Disposal	11,418,022	186,000	11,604,022	0	27.50 s	26.50 s	26.50 s	0	0	10,871,000	0	733,022
40180 Tysons Service District	0	0	0	8,999,317	0.05 t	0.05 t	0.05 t	0	0	0	0	(8,999,317)
40190 Reston Service District	0	0	0	2,308,810	0.021 u	0.021 u	0.021 u	0	0	0	0	(2,308,810)
40300 Housing Trust	3,661,782	0	3,661,782	0				0	0	3,661,782	0	0 v
40330 Elderly Housing Programs	3,138,121	0	3,138,121	0				0	0	1,296,831	1,913,396	(72,106)
40360 Homeowner and Business Loan Programs	0	0	0	0				0	0	0	0	0 w
50000 Federal/State Grants	119,943,967	0	119,943,967	0				44,969,046	63,988,080	6,496,257	4,490,584	0

Fund	EXPENDITURES	TRANSFERS OUT	TOTAL EXPENDITURES & TRANSFERS OUT	TAX REQUIRED AMOUNT	FY 2021 Rate	FY 2020 RATE	FY 2019 RATE	OTHER RESOURCES STATE AID	FEDERAL AID	OTHER RECEIPTS	TRANSFERS IN	APPROPRIATED FROM/(ADDED TO) SURPLUS
Special Revenue Funds (Cont.)												
50800 Community Development Block Grant	5,609,339	0	5,609,339	0				0	5,609,339	0	0	0
50810 HOME Investment Partnerships Program	1,940,695	0	1,940,695	0				0	1,940,695	0	0	0
S10000 Public School Operating [2]	3,120,486,778	34,067,094	3,154,553,872	0				777,686,925	45,466,957	77,969,247	2,222,408,075	31,022,668
S40000 Public School Food and Nutrition Services	102,511,846	0	102,511,846	0				1,492,819	41,282,778	41,826,190	0	17,910,059 x
S43000 Public School Adult and Community Education	9,518,861	0	9,518,861	0				913,767	2,134,615	5,495,479	975,000	0
S50000 Public School Grants & Self Supporting Programs	81,350,180	0	81,350,180	0				9,029,512	37,625,191	9,002,085	22,258,026	3,435,366 y
Total Special Revenue Funds	**$4,130,167,928**	**$85,011,239**	**$4,215,179,167**	**$213,896,186**				**$897,155,838**	**$202,300,985**	**$350,029,463**	**$2,524,649,352**	**$27,147,343**
TOTAL GOVERNMENTAL FUNDS	**$6,535,549,220**	**$3,028,429,855**	**$9,563,979,075**	**$3,750,382,746**				**$1,210,352,756**	**$245,036,782**	**$1,352,739,350**	**$2,994,724,633**	**$10,742,808**
PROPRIETARY FUNDS												
Internal Service Funds												
60000 County Insurance	$28,538,987	$0	$28,538,987	$0				$0	$0	$2,370,859	$24,349,405	$1,818,723
60010 Department of Vehicle Services	83,034,500	0	83,034,500	0				0	0	81,978,751	0	1,055,749
60020 Document Services Division	9,503,902	0	9,503,902	0				0	0	5,525,223	3,941,831	36,848
60030 Technology Infrastructure Services	45,425,684	0	45,425,684	0				0	0	39,378,504	4,714,102	1,333,078
60040 Health Benefits	183,542,654	0	183,542,654	0				0	0	188,450,351	0	(4,907,697)
S60000 Public School Insurance	18,698,552	0	18,698,552	0				0	0	15,731,339	0	2,967,213 z
S62000 Public School Health and Flexible Benefits	521,674,775	0	521,674,775	0				0	0	448,842,114	0	72,832,661 aa
Total Internal Service Funds	**$890,419,054**	**$0**	**$890,419,054**	**$0**				**$0**	**$0**	**$782,277,141**	**$33,005,338**	**$75,136,575**
Enterprise Funds												
69000 Sewer Revenue	$0	$256,600,000	$256,600,000	$0	7.56 **ab** 8,423 **ac** 35.50 **ad**	7.28 **ab** 8,340 **ac** 32.91 **ad**	7.00 **ab** 8,100 **ac** 30.38 **ad**	$0	$0	$247,791,183	$0	$8,808,817
69010 Sewer Operation and Maintenance	112,895,509	2,850,000	115,745,509	0				0	0	0	115,500,000	245,509
69020 Sewer Bond Parity Debt Service	32,316,306	0	32,316,306	0				0	0	0	32,072,175	244,131
69030 Sewer Bond Debt Reserve	0	0	0	0				0	0	8,200,000	0	(8,200,000)
69040 Sewer Bond Subordinate Debt Service	25,437,026	0	25,437,026	0				0	0	0	25,100,000	337,026
69300 Sewer Construction Improvements	85,000,000	0	85,000,000	0				0	0	0	85,000,000	0
69310 Sewer Bond Construction	190,727,825	1,072,175	191,800,000	0				0	0	191,800,000	0	0
Total Enterprise Funds	**$446,376,666**	**$260,522,175**	**$706,898,841**	**$0**				**$0**	**$0**	**$447,791,183**	**$257,672,175**	**$1,435,483**
TOTAL PROPRIETARY FUNDS	**$1,336,795,720**	**$260,522,175**	**$1,597,317,895**	**$0**				**$0**	**$0**	**$1,230,068,324**	**$290,677,513**	**$76,572,058**
FIDUCIARY FUNDS												
Custodial Funds												
70000 Route 28 Tax District	$13,003,764	$0	$13,003,764	$12,003,764	0.18 **ae**	0.18 **ae**	0.18 **ae**	$0	$0	$1,000,000	$0	$0
70040 Mosaic District Community Development Authority	5,664,600	0	5,664,600	5,664,600				0	0	0	0	0
Total Custodial Funds	**$18,668,364**	**$0**	**$18,668,364**	**$17,668,364**				**$0**	**$0**	**$1,000,000**	**$0**	**$0**
Trust Funds												
73000 Employees' Retirement Trust	$428,543,063	$0	$428,543,063	$0				$0	$0	$610,426,420	$0	($181,883,357)
73010 Uniformed Employees Retirement Trust	144,202,059	0	144,202,059	0				0	0	238,796,753	0	(94,594,694)
73020 Police Retirement Trust	112,449,301	0	112,449,301	0				0	0	186,489,902	0	(74,040,601)
73030 OPEB Trust	12,544,546	0	12,544,546	0				0	350,000	1,877,278	4,490,000	5,827,268
S71000 Educational Employees' Retirement	223,764,655	0	223,764,655	0				0	0	417,138,200	0	(193,373,545)
S71100 Public School OPEB Trust	19,994,500	0	19,994,500	0				0	0	29,894,000	0	(9,899,500)
Total Trust Funds	**$941,498,124**	**$0**	**$941,498,124**	**$0**				**$0**	**$350,000**	**$1,484,622,553**	**$4,490,000**	**($547,964,429)**
TOTAL FIDUCIARY FUNDS	**$960,166,488**	**$0**	**$960,166,488**	**$17,668,364**				**$0**	**$350,000**	**$1,485,622,553**	**$4,490,000**	**($547,964,429)**
TOTAL ALL FUNDS	**$8,832,511,428**	**$3,288,952,030**	**$12,121,463,458**	**$3,768,051,110**				**$1,210,352,756**	**$245,386,782**	**$4,068,430,227**	**$3,289,892,146**	**($460,649,563)**

[1] Personal Property taxes of $211,313,944 that are reimbursed by the Commonwealth as a result of the Personal Property Tax Relief Act of 1998 are included in the Revenue from the Commonwealth category in accordance with guidelines from the State Auditor of Public Accounts.

[2] The proposed County General Fund transfer for school operations in FY 2021 totals $2,221,533,075, an increase of $85,516,378, or 4.00 percent, over the FY 2020 Adopted Budget Plan level. It should be noted that the actual transfer request approved by the School Board on February 6, 2020, reflects a General Fund transfer of $2,064,051,800, an increase of $97,132,200, or 4.9 percent, over the FY 2020 Adopted Budget Plan. The advertisement expenditure total for School Operating reflects the level that is supportable by the proposed General Fund transfer.

FOOTNOTES

OTHER REAL ESTATE & PERSONAL PROPERTY TAX RATES	Revenue Amount	Tax Required 2021 Rate	2020 Rate	2019 Rate
PUBLIC SERVICE CORPORATIONS				
Equalized **a**	$49,935,026	1.180	1.150	1.150
Vehicles **b**	296,782	4.57	4.57	4.57
OTHER				
Mining and Manufacturing Machinery and Tools (General Fund Revenue) **b**	1,476,738	4.57	4.57	4.57
Research and Development (General Fund Revenue) **b**	10,781	4.57	4.57	4.57
Antique Automobiles **b**	-	0.01	0.01	0.01
Mobile Homes **a**	172,875	1.180	1.150	1.150
Van Pools-Privately Owned Vans **b**	-	0.01	0.01	0.01
Motor Vehicles Owned by Members of a Volunteer Rescue Squad or Volunteer Fire Department **b**	-	0.01	0.01	0.01
Motor Vehicles Owned by Members of the Auxiliary Police **b**	-	0.01	0.01	0.01
Motor Vehicles Owned by Members of the Auxiliary Deputy Sheriff **b**	-	0.01	0.01	0.01
Homeowners Associations Furniture, office equipment and maintenance equipment **b**	-	0.01	0.01	0.01
Aircraft and Flight Simulators **b**	-	0.01	0.01	0.01
Motor Vehicles Specially Equipped to Provide Transportation to Physically Handicapped Individuals **b**	-	0.01	0.01	0.01
Boats **b**	-	0.01	0.01	0.01
Motor Vehicles Owned by Disabled Veterans **b**	-	0.01	0.01	0.01
Motor Vehicles Owned by Certain Qualifying Elderly and Disabled Individuals **b**	-	0.01	0.01	0.01
Special Service District for Pest Infestations **j**	2,639,992	0.001	0.001	0.001

a. Real Estate Tax Rate per $100 of assessed value. T**he FY 2021 Advertised Budget Plan proposes a tax rate of $1.180 per $100 of assessed value. The real estate tax bill for the typical residential homeowner would increase by $346 in FY 2021 with a real estate tax rate of $1.180 per $100 of assessed value. Advertising an increase in the rate does not prevent the Board from lowering any advertised tax rate, but a higher tax rate cannot be imposed without advertising the higher rate.**

b. Personal Property Tax Rate per $100 of assessed value (excluding household furnishings). Tax collections, as a percentage of total taxes levied, are estimated as follows:
   - 10001 General Fund - Real Estate, 99.70 percent; Personal Property, 98.0 percent
   - Sanitary District - Refuse Assessments, 100 percent.

c. Percentage of state "Car Tax" subsidy on qualifying personal property tax levy. On November 21, 2005, as part of Action Item 3, the Board of Supervisors adopted a resolution to implement the state "Car Tax" changes found in the Executive Amendments to the 2004-2006 Biennial Budget, specifically state Budget Item 503(E) of the Central Appropriations Act, in accordance with the requirements set forth in Virginia Code §§ 58.1-3524(C)(2) and 58.1-3912(E), as amended by Chapter 1 of the Acts of Assembly (2004 Special Session 1) and as set forth in Item 503(E)(Personal Property Tax Relief Program) of Chapter 951 of the 2005 Acts of Assembly.

   Beginning in tax year 2006, the state "Car Tax" subsidy on qualifying vehicles was "capped" to a statewide total of $950 million. Based on the final report from the state Auditor of Public Accounts, dated February 2006, Fairfax County's share of this $950 million was fixed at 22.2436%, or $211,313,944.16. The annual subsidy is frozen at this amount and is factored into the FY 2021 Advertised Budget Plan.

   Consistent with the November 21, 2005, Board resolution, the state "Car Tax" funding will provide a 100% subsidy of the tax year 2020 levy for qualifying vehicles valued at $1,000 or less and a 100% subsidy of the tax year 2020 levy on the value up to $20,000 for vehicles leased by a qualified military service member and/or spouse. Furthermore, the state "Car Tax" funding is estimated to provide a 58.5% subsidy of the tax year 2020 levy for all other qualifying vehicles on the value up to $20,000.

d. Fund 10001, General Fund, does not reflect carryover of FY 2019 Audit Adjustment Reserve of ($908) and Reserve for Potential FY 2020 One-Time Requirements of ($4,977,253) from FY 2020 to FY 2021.

e. Fund 10015, Economic Opportunity Reserve, assumes carryover of the Total Available funding of $33,921,880 from FY 2020 to FY 2021.

f. Includes revenue from admissions tax of 4% on the sale of movie, concert and theater tickets.

g. Real Estate revenue reflected in Fund 30300, Affordable Housing Development and Investment, reflects the allocation of the approximate value of one and a half cents on the real estate tax rate to this program.

h. Additional tax assessment per $100 of assessed value for commercial and industrial property in the County to support transportation.

i. Operating costs and debt service - Community Center. Tax Rate per $100 of assessed value.

j. Utilities and other operating costs - Community Center. Tax Rate per $100 of assessed value.

k. Additional special tax levy of real estate within Fairfax County, but exclusive of the Lake Barcroft Water Improvement District to control infestations of pests. Tax Rate per $100 of assessed value.

l. Additional special tax levy of real estate to support operating and construction requirements for the stormwater management program. Tax Rate per $100 of assessed value.

m. Additional tax assessment per $100 of assessed value for commercial and industrial property for the Phase I Dulles Rail Transportation Improvement District.

n. Additional tax assessment per $100 of assessed value for commercial and industrial property for the Phase II Dulles Rail Transportation Improvement District.

o. Leaf Collection rate per $100 of assessed value. (See districts listed below)

Leaf Collection:
Small District 2 Braddock
Local District 1A11 Dranesville
Local District 1A21 Dranesville
Local District 1A22 Dranesville
Local District 1A61 Dranesville
Local District 1B1 Dranesville
Local District 1E Dranesville
Small District 3 Dranesville
Small District 7 Dranesville
Small District 8 Dranesville
Small District 10 Dranesville
Small District 12 Dranesville
Small District 15 Dranesville
Local District 1B Lee
Local District 1C Lee
Local District 1D Lee
Local District 1E Lee
Small District 1 Mason
Local District 1A Mason
Small District 2 Mason
Small District 4 Mason
Local District 7A Mason
Small District 9 Mason
Small District 10 Mason
Local District 1A Mount Vernon
Local District 1B Mount Vernon
Local District 1C Mount Vernon
Local District 1D Mount Vernon
Local District 1E Mount Vernon
Small District 1 Providence
Small District 2 Providence
Small District 4 Providence
Small District 6 Providence
Small District 7 Providence
Small District 8 Providence

p. Refuse Collection assessment - the base annual charge for refuse collection service to be added to the regular real estate tax bill. (See districts listed below)

Refuse Service:
Small District 2 Braddock
Small District 3 Braddock
Small District 2 Hunter Mill
Small District 3 Hunter Mill
Local District 5A Hunter Mill
Local District 1A1 Dranesville
Local District 1A2 Dranesville
Local District 1A3 Dranesville
Local District 1A4 Dranesville
Local District 1A5 Dranesville
Local District 1A6 Dranesville
Local District 1A8 Dranesville
Local District 1A9 Dranesville
Local District 1A11 Dranesville
Local District 1A12 Dranesville
Local District 1A21 Dranesville
Local District 1A22 Dranesville
Local District 1A61 Dranesville
Local District 1B Dranesville
Local District 1B1 Dranesville
Local District 1B2 Dranesville
Local District 1E Dranesville
Small District 3 Dranesville
Small District 4 Dranesville
Small District 6 Dranesville
Small District 7 Dranesville
Small District 8 Dranesville
Small District 9 Dranesville
Small District 10 Dranesville
Small District 11 Dranesville
Small District 12 Dranesville
Small District 13 Dranesville
Small District 14 Dranesville
Small District 15 Dranesville
Small District 1 Lee
Local District 1A Lee
Local District 1B Lee
Local District 1C Lee
Local District 1D Lee
Local District 1E Lee
Small District 2 Lee
Small District 3 Lee
Small District 4 Lee
Small District 1 Mason
Local District 1A Mason
Local District 1B Mason
Local District 1C Mason
Local District 1D Mason
Local District 1F Mason
Small District 2 Mason
Small District 3 Mason
Small District 4 Mason
Small District 5 Mason
Small District 6 Mason
Small District 7 Mason
Local District 7A Mason
Small District 8 Mason
Small District 9 Mason
Small District 10 Mason
Small District 11 Mason
Small District 1 Mount Vernon
Local District 1A Mount Vernon
Local District 1B Mount Vernon
Local District 1C Mount Vernon
Local District 1D Mount Vernon

Refuse Service (continued)

Local District 1E Mount Vernon	Small District 6 Providence
Small District 2 Mount Vernon	Small District 7 Providence
Local District 2A Mount Vernon	Small District 8 Providence
Local District 2B Mount Vernon	Small District 9 Providence
Small District 1 Providence	Small District 11 Providence
Local District 1A Providence	Small District 12 Providence
Local District 1B Providence	Small District 13 Providence
Small District 3 Providence	Small District 4 Springfield
Small District 4 Providence	Small District 6 Springfield

q. Per ton refuse disposal fee charged to County refuse collectors, other jurisdictions, and private haulers.

r. Includes revenues from user fees charged at the Recycling and Disposal Center. Information regarding the schedule of fees is available from the Department of Public Works and Environmental Services (DPWES) Solid Waste Management Program at 12000 Government Center Parkway, Suite 458, Fairfax, Virginia, 22035 or online at www.fairfaxcounty.gov/dpwes. Residents who use the Recycling and Disposal Center are charged for disposal of waste based on weight and category of waste. There are different fees for disposal of brush, yard waste, white goods, tires, and other materials.

s. Per ton ash disposal fee charged to the County and participating jurisdictions.

t. Additional tax assessment per $100 of assessed value for the Tysons Service District.

u. Additional tax assessment per $100 of assessed value for the Reston Service District.

v. Fund 40300, Housing Trust, assumes balance of $2,749,970 will be moved from Fund 40360, Homeowner and Business Loan Programs, at year-end FY 2020.

w. Fund 40360, Housing Trust, assumes balance of $2,749,970 will be moved to Fund 40300, Homeowner and Business Loan Programs, at year-end FY 2020.

x. Fund S40000, Public School Food and Nutrition Services, assumes carryover of General Reserve of $17,910,059 from FY 2020 to FY 2021.

y. Fund S50000, Public School Grants & Self Supporting Programs, assumes carryover of Summer School Reserve of $3,820,629 and reflects the proposed Transfer In from Fund S10000, Public School Operating, as shown in the School Board's Advertised Budget, which is currently ($385,263) less than the Transfer Out from Fund S50000. Final adjustments will be reflected at the *FY 2020 Carryover Review*.

z. Fund S60000, Public School Insurance, assumes carryover of Allocated Reserve of $2,967,213 from FY 2020 to FY 2021.

aa. Fund S62000, Public School Health and Flexible Benefits, assumes carryover of premium stabilization reserve of $72,832,661 from FY 2020 to FY 2021.

ab. Sewer service rate per 1,000 gallons of water.

ac. Sewer availability fee for single family homes.

ad. Sewer service per bill base charge.

ae. Additional tax assessment per $100 of assessed value for road improvements to State Route 28.

DRAFT
Resolution Adopting Tax Rates for Fairfax County **ATTACHMENT II**
Fiscal Year 2021

At a regular meeting of the Board of Supervisors of Fairfax County, Virginia, held in the Board Room in the Fairfax County Government Center at Fairfax, Virginia, on Tuesday, May 5, 2020, at which meeting a quorum was present and voting, the following resolution was adopted:

RESOLUTION ADOPTING TAX RATES
FOR FAIRFAX COUNTY

FISCAL YEAR 2021

BE IT RESOLVED that, pursuant to the provisions of Virginia Code § 58.1-3001, and after having first complied with the provisions of the Virginia Code §§ 15.2-2506 and 58.1-3321, the Board does hereby establish the tax levies for the fiscal budget year beginning July 1, 2020, and ending June 30, 2021, and calendar tax year beginning January 1, 2020 and ending December 31, 2020, as follows to wit:

COUNTY LEVIES

General provisions. The County property taxes are levied on each $100.00 of assessed valuation of real estate and tangible personal property, excluding household furnishings, and including machinery and tools of mining, manufacturing, radio or television broadcasting, dairy, dry cleaning or laundry firms, and all personal property of research and development firms, in the County, including such property within the incorporated towns that are within the County. Except as otherwise stated herein, all such taxes are imposed generally pursuant with Virginia law on all taxable property throughout the County, including the incorporated towns therein, and the revenues derived from such levies shall be appropriated by the Board of Supervisors in accordance with Virginia law.

Real Estate*

On each $100.00 of the assessed valuation of real estate and improvements on real estate in the County the tax rate shall be $1.180

*Tax will be levied and collected in two semi-annual tax billings.

Commercial and Industrial Real Estate Tax for Transportation*

On each $100.00 of assessed valuation of the taxable commercial and industrial real estate in the County the tax rate in support of transportation shall be an additional..... $0.125

*Tax will be levied and collected in two semi-annual tax billings.

Personal Property

On each $100.00 of assessed valuation of tangible personal property, including all property separately classified by Virginia Code § 58.1-3503, the tax rate shall be $4.57

Except for the following:

Mobile Homes

On each $100.00 of assessed valuation of mobile homes, as separately classified by Virginia Code § 58.1-3506(A)(10), the tax rate shall be..... $1.180

Machinery and Tools

On each $100.00 of assessed valuation of machinery and tools, as separately classified by Virginia Code § 58.1-3507, the tax rate shall be..... $4.57

Research and Development

On each $100.00 of assessed valuation of tangible personal property used or employed in a research and development business, as separately classified by Virginia Code § 58.1-3506(A)(7), the tax rate shall be $4.57

Certain Personal Property of Planned Residential Subdivisions

On each $100.00 of assessed valuation of furniture, office, and maintenance equipment, exclusive of motor vehicles, which are owned and used by an organization whose real property is assessed in accordance with Virginia Code § 58.1-3284.1 and which is used by that organization for the purpose of maintaining or using the open or common space within a residential development as classified by Virginia Code § 58.1-3506(A)(24), the tax rate shall be $0.01

Van Pools - Privately Owned Vans

On each $100.00 of assessed valuation of privately owned vans, as separately classified by Virginia Code § 58.1-3506(A)(13), the tax rate shall be $0.01

Privately owned vans means vans with a seating capacity of seven to fifteen persons used exclusively pursuant to a ridesharing agreement as defined in Virginia Code § 46.2-1400, and which have been certified as such by the Director of the Department of Tax Administration.

Motor Vehicles Owned by Members of a
Volunteer Rescue Squad or Volunteer Fire Department

On each $100.00 of assessed valuation of motor vehicles as separately classified by Virginia Code § 58.1-3506(A)(15), the tax rate shall be $0.01

Motor vehicles as classified by Virginia Code § 58.1-3506 (A) (15), shall be defined to mean one motor vehicle owned or leased by each member of a volunteer rescue squad or volunteer fire department which is regularly used by such members to respond to emergency calls and certified as such by the Chief or Head of the Volunteer Organization and the Department of Tax Administration.

Motor Vehicles Specially Equipped to Provide
Transportation for Physically Handicapped Individuals

On each $100.00 of assessed valuation of motor vehicles as separately classified by Virginia Code § 58.1-3506(A)(14), the tax rate shall be..... $0.01

Specially equipped means any vehicle which has been modified specifically for the purpose of transporting physically handicapped individuals and the vehicle is certified as such by the Director of the Department of Tax Administration.

Motor Vehicles Owned
By Certain Qualifying Elderly and Disabled Individuals

On each $100.00 of assessed valuation of certain motor vehicles as classified by Virginia Code § 58.1-3506.1, the tax rate shall be $0.01

Applies to one motor vehicle owned and used by certain elderly and disabled persons who qualify on the basis of income and net worth.

Motor Vehicles Owned
By Persons Who Have Been Appointed to Serve as Auxiliary Police Officers

On each $100.00 of assessed valuation of motor vehicles as classified by Virginia Code § 58.1-3506(A)(20), the tax rate shall be $0.01

Motor vehicles as classified by Virginia Code § 58.1-3506 (A) (20), shall be defined to mean one motor vehicle owned or leased by an Auxiliary Police Officer to respond to auxiliary police duties, subject to certification as required by the provisions of the authorizing statute.

Motor Vehicles Owned
By Persons Who Have Been Appointed to Serve as Auxiliary Deputy Sheriffs

On each $100.00 of assessed valuation of motor vehicles as classified by Virginia Code § 58.1-3506 (A)(32), the tax rate shall be $0.01

Motor vehicles as classified by Virginia Code § 58.1-3506 (A)(32), shall be defined to mean one motor vehicle owned or leased by an Auxiliary Deputy Sheriff to respond to auxiliary deputy sheriff duties, subject to certification as required by the provisions of the authorizing statute.

Aircraft and Flight Simulators

On each $100.00 of assessed valuation of aircraft and flight simulators, as classified by Virginia Code § 58.1-3506(A)(2), (3), (4) and (5) the tax rate shall be $0.01

Antique Motor Vehicles

On each $100.00 of assessed valuation of antique motor vehicles, as separately classified by Virginia Code § 58.1-3506(A)(6), the tax rate shall be $0.01

Antique motor vehicles or antique automobiles means every motor vehicle which was actually manufactured or designated by the manufacturer as a model manufactured in a calendar year not less than twenty-five years ago and is owned solely as a collector's item.

Boats

On each $100.00 of assessed valuation of boats and watercraft, as classified by Virginia Code § 58.1-3506(A)(1), (12), (28), (29), (35) and (36) the tax rate shall be $0.01

Motor Vehicles Owned By Qualified Disabled Veterans

On each $100.00 of assessed valuation of motor vehicles, as classified by Virginia Code § 58.1-3506(A)(19), the tax rate shall be $0.01

Motor vehicles as classified by Virginia Code § 58.1-3506(A)(19) shall be defined to mean one motor vehicle owned and regularly used by qualified disabled veterans, subject to certification as required by the provisions of the authorizing statute.

SANITARY DISTRICT LEVIES*

Local District 1A Lee
(Burgundy Village Community Center)

On each $100.00 of assessed valuation of real estate within the boundary of Local District 1A Lee in the County, the tax rate shall be $0.020

Small District 1 Dranesville
(McLean Community Center)

On each $100.00 of assessed valuation of real estate within the boundary of Small District 1 Dranesville in the County, the tax rate shall be $0.023

Small District 5 Hunter Mill
(Reston Community Center)

On each $100.00 of assessed valuation of real estate within the boundary of Small District 5 Hunter Mill in the County, the tax rate shall be $0.047

*Tax will be levied and collected in two semi-annual tax billings.

Leaf Collection:

Small District 2 Braddock
Local District 1A11 Dranesville
Local District 1A21 Dranesville
Local District 1A22 Dranesville
Local District 1A61 Dranesville
Local District 1B1 Dranesville
Local District 1E Dranesville
Small District 3 Dranesville
Small District 7 Dranesville
Small District 8 Dranesville
Small District 10 Dranesville
Small District 12 Dranesville
Small District 15 Dranesville
Local District 1B Lee
Local District 1C Lee
Local District 1D Lee
Local District 1E Lee
Small District 1 Mason
Local District 1A Mason
Small District 2 Mason
Small District 4 Mason
Local District 7A Mason
Small District 9 Mason
Small District 10 Mason
Local District 1A Mount Vernon
Local District 1B Mount Vernon
Local District 1C Mount Vernon
Local District 1D Mount Vernon

Leaf Collection (continued):

Local District 1E Mount Vernon
Small District 1 Providence
Small District 2 Providence
Small District 4 Providence
Small District 6 Providence
Small District 7 Providence
Small District 8 Providence

On each $100.00 of assessed valuation of real estate within the boundaries of the above-enumerated Districts in the County, the tax rate shall be $0.012

On any real estate which is deleted from a sanitary district effective July 1, 2020, as a result of the contraction of such sanitary district, such real estate will be entitled to pro rata abatement from the amount of the annual charge hereby established for leaf collection.

On any real estate, which is added to a sanitary district effective July 1, 2020, as a result of either the creation or the enlargement of a sanitary district, such real estate will be charged a pro rata fee for the annual charge hereby established for leaf collection.

Refuse Service:

Small District 2 Braddock
Small District 3 Braddock
Small District 2 Hunter Mill
Small District 3 Hunter Mill
Local District 5A Hunter Mill
Local District 1A1 Dranesville
Local District 1A2 Dranesville
Local District 1A3 Dranesville
Local District 1A4 Dranesville
Local District 1A5 Dranesville
Local District 1A6 Dranesville
Local District 1A8 Dranesville
Local District 1A9 Dranesville
Local District 1A11 Dranesville
Local District 1A12 Dranesville
Local District 1A21 Dranesville
Local District 1A22 Dranesville
Local District 1A61 Dranesville
Local District 1B Dranesville
Local District 1B1 Dranesville
Local District 1B2 Dranesville
Local District 1E Dranesville
Small District 3 Dranesville
Small District 4 Dranesville
Small District 6 Dranesville
Small District 7 Dranesville
Small District 8 Dranesville
Small District 9 Dranesville
Small District 10 Dranesville
Small District 11 Dranesville
Small District 12 Dranesville
Small District 13 Dranesville
Small District 14 Dranesville
Small District 15 Dranesville
Small District 1 Lee
Local District 1A Lee
Local District 1B Lee
Local District 1C Lee
Local District 1D Lee
Local District 1E Lee
Small District 2 Lee
Small District 3 Lee
Small District 4 Lee
Small District 1 Mason
Local District 1A Mason
Local District 1B Mason
Local District 1C Mason
Local District 1D Mason
Local District 1F Mason
Small District 2 Mason
Small District 3 Mason
Small District 4 Mason
Small District 5 Mason
Small District 6 Mason
Small District 7 Mason
Local District 7A Mason
Small District 8 Mason
Small District 9 Mason
Small District 10 Mason
Small District 11 Mason
Small District 1 Mount Vernon
Local District 1A Mount Vernon
Local District 1B Mount Vernon
Local District 1C Mount Vernon
Local District 1D Mount Vernon
Local District 1E Mount Vernon
Small District 2 Mount Vernon
Local District 2A Mount Vernon
Local District 2B Mount Vernon
Small District 1 Providence
Local District 1A Providence
Local District 1B Providence
Small District 3 Providence
Small District 4 Providence
Small District 6 Providence
Small District 7 Providence

Refuse Service (continued):
Small District 8 Providence
Small District 9 Providence
Small District 11 Providence
Small District 12 Providence
Small District 13 Providence
Small District 4 Springfield
Small District 6 Springfield

On each single-family dwelling and on each unit of two-family dwellings, excluding apartments (garden through high-rise), multi-family condominiums (garden through high-rise), and/or other multi-unit dwelling type buildings, existing or under construction January 1, 2020, within the boundaries of the above enumerated Districts, a base annual charge of $400.00 for refuse collection service to be added to the regular real estate tax bill, and that annual charge shall be subject to penalty and interest charges and becoming a lien against the property if not paid, in the same manner as any other real estate tax.

On any dwelling that is neither completed nor occupied by June 30, 2020, the owner thereof shall, upon application to the Director of the Department of Tax Administration or the Director DPWES, Solid Waste Collection and Recycling, made prior to December 5, 2020, be entitled to relief in the amount of the pro-rata portion based on the service period of the base annual charge hereby established. The claimant must provide acceptable evidence that the dwelling was not occupied, nor generating waste to the Director of the Department of Tax Administration or the Director DPWES, Solid Waste Collection and Recycling.

On any dwelling that is neither completed nor occupied by December 31, 2020, the owner thereof shall, upon application to the Director of the Department of Tax Administration or the Director DPWES, Solid Waste Collection and Recycling, made prior to March 31, 2021, be entitled to relief in the amount of the pro-rata portion based on the service period of the base annual charge hereby established. The claimant must provide acceptable evidence that the dwelling was not occupied, nor generating waste to the Director of the Department of Tax Administration or the Director DPWES, Solid Waste Collection and Recycling.

On any dwelling that is deleted from a sanitary district, as a result of the contraction of such sanitary district, the owner thereof will be entitled to relief in the amount of a pro rata portion of the base annual charge hereby established when service for refuse and recycling collection service is eliminated based on the service period.

On any dwelling that is added to a sanitary district, as a result of either the creation or the enlargement of a sanitary district or construction within the sanitary district, the owner thereof will be charged a pro rata portion of the base annual charge hereby established when service begins for refuse and recycling collection service based on the service period.

Water Service:

Small District One within Springfield District

On any lot within the district, an annual assessment of $661 for thirty years commencing July 1, 1993. This annual assessment is for the purpose of providing water service to Clifton Forest, a group of homes located within the Lincoln-Lewis-Vannoy Conservation District.

Small District Three within Springfield District

On any lot within the district, an annual assessment of $959 commencing January 1, 2003 and ending December 31, 2032. This annual assessment is for the purpose of providing water service to Colchester Road-Lewis Park, a group of 141 homes located within the Lincoln-Lewis-Vannoy Conservation District.

TRANSPORTATION IMPROVEMENT DISTRICT LEVIES*

State Route 28 Transportation Improvement District

On each $100.00 of assessed valuation of the taxable commercial and industrial real estate within the boundary of State Route 28 Transportation Improvement District, as specified by Virginia Code § 15.2-4607 and as set out in Chapter 587 of the 1997 Acts of the General Assembly, the tax rate shall be $0.18

Phase I Dulles Rail Transportation Improvement District

On each $100.00 of assessed valuation of the taxable commercial and industrial real estate within the boundary of Phase I Dulles Rail Transportation Improvement District, as specified by Virginia Code § 33.2-2105, the tax rate shall be $0.11

Phase II Dulles Rail Transportation Improvement District

On each $100.00 of assessed valuation of the taxable commercial and industrial real estate within the boundary of Phase II Dulles Rail Transportation Improvement District, as specified by Virginia Code § 33.2-2105, the tax rate shall be $0.20

*Tax will be levied and collected in two semi-annual tax billings.

SPECIAL SERVICE DISTRICT FOR THE CONTROL OF PEST INFESTATIONS*

On each $100.00 of assessed valuation of real estate within Fairfax County, but exclusive of the Lake Barcroft Water Improvement District, within the service district established by Appendix I of the Fairfax County Code, the tax rate shall be $0.0010

*Tax will be levied and collected in two semi-annual tax billings.

SPECIAL SERVICE DISTRICT FOR STORMWATER MANAGEMENT*

On each $100.00 of assessed valuation of real estate within Fairfax County, within the service district, the tax rate shall be $0.0325

*Tax will be levied and collected in two semi-annual tax billings.

TYSONS TRANSPORTATION SERVICE DISTRICT NO. 1*

On each $100.00 of assessed valuation of real estate within Fairfax County, within the service district, the tax rate shall be $0.05

*Tax will be levied and collected in two semi-annual tax billings.

DRAFT
Resolution Adopting Tax Rates for Fairfax County **ATTACHMENT II**
Fiscal Year 2021

RESTON TRANSPORTATION SERVICE DISTRICT NO. 1*

On each $100.00 of assessed valuation of real estate within Fairfax County, within the service district, the tax rate shall be $0.021

*Tax will be levied and collected in two semi-annual tax billings.

SERVICE CHARGES FOR AMBULANCE TRANSPORT SERVICE

Pursuant to Fairfax County Code § 4-26-1, each person being transported by any emergency medical services vehicle that is operated or maintained by the County or for which a permit has been issued to the County by the Virginia Office of Emergency Medical Services will be charged (1) a service fee of $500 for Basic Life Support transport (BLS), (2) $650 for Advanced Life Support, level 1 transport (ALS1), (3) $800 for Advanced Life Support, level 2 transport (ALS2), and (4) $12.00 per mile for ground transport mileage. The term "emergency medical services vehicle" has the definition specified in Virginia Code § 32.1-111.1.

GIVEN under my hand this _____ day of May, 2020

By: _____
Jill G. Cooper
Clerk for the Board of Supervisors

FAIRFAX COUNTY NOTICE OF PROPOSED REAL PROPERTY TAX INCREASE

In accordance with Virginia Code Section 58.1-3321, notice is hereby given that the Board of Supervisors of Fairfax County, Virginia, will meet in the Board Auditorium of the Fairfax County Government Center, 12000 Government Center Parkway, Fairfax, Virginia, on April 14, 2020, at 3:00 P.M. At that meeting, the Board of Supervisors shall consider the matters described below.

The Fairfax County Executive has proposed the advertisement of a real estate tax rate of $1.18 per $100.00 of assessed value. The tax rate being proposed represents an increase of $0.030 over the FY 2020 rate of $1.150 per $100.00 assessed value. It should be noted that the total increase in assessed value of existing properties is expected to be 2.71 percent, including an increase of 2.65 percent for residential real property and an increase of 2.87 percent for non-residential real property. As a result, most property owners will experience an increase in their real estate tax bill. Because the average value of real property in Fairfax County has appreciated by at least one percent, Virginia Code Section 58.1-3321 requires Fairfax County to publish the following notice.

Fairfax County, Virginia proposes to increase property tax levies.

1. Assessment Increase: Total assessed value of real property, excluding additional assessments due to new construction or improvements to property, exceeds last year's total assessed value of real property by 2.71 percent.

2. Lowered Rate Necessary to Offset Increased Assessment: The tax rate which would levy the same amount of real estate tax as last year, when multiplied by the new total assessed value of real estate with the exclusions mentioned above, would be $1.1197 per $100.00 of assessed value. This rate will be known as the "lowered tax rate."

3. Effective Rate Increase: Fairfax County, Virginia, proposes to adopt a tax rate of $1.18 per $100.00 of assessed value. The difference between the lowered tax rate and the proposed rate would be $0.0603 per $100.00, or 5.39 percent. This difference will be known as the "effective tax rate increase."

   Individual property taxes may, however, increase at a percentage greater than or less than the above percentage.

4. Proposed Total Budget Increase: Based on the proposed real property tax rate and changes in other revenues, the total budget of Fairfax County, Virginia, will exceed last year's by 3.52 percent[1].

A public hearing on this issue will be held at 3:00 P.M. on April 14, 2020, in the Board Auditorium of the Fairfax County Government Center at 12000 Government Center Parkway.

All persons wishing to present their views on these subjects may sign up to be placed on the Speakers List at www.fairfaxcounty.gov/bosclerk/speakers-form, call the Office of the Clerk to the Board at (703) 324-3151 to be placed on the Speakers List, or may appear and be heard. As required by law, copies of the full text of proposed ordinances, plans and amendments, as applicable, as well as other documents relating to the aforementioned subjects, are on file and may be examined at the Office of the Clerk to the Board of Supervisors, Suite 533 of the Fairfax County Government Center, 12000 Government Center Parkway, Fairfax, Virginia.

Fairfax County supports the Americans with Disabilities Act by making reasonable accommodations for persons with disabilities. Open captioning will be provided in the Board Auditorium. For sign language interpreters or other accommodations, please call the Clerk's Office, (703) 324-3151, TTY 711 (Virginia Relay Center) no later than 48 hours before the public hearing. Assistive listening devices will be available at the meeting.

The Board will conduct a separate public hearing on the FY 2021 Advertised Budget Plan which will commence on April 14, 2020, at 4:00 PM and on April 15 and April 16 at 3:00 PM.

Copies of the FY 2021 Advertised Budget Plan and the Advertised Capital Improvement Program for Fiscal Years 2021-2025 (With Future Fiscal Years to 2030) are available on the Internet at https://www.fairfaxcounty.gov/budget/.

A Copy - Teste:

Jill G. Cooper, Clerk
Board of Supervisors

[1] The total budget increase is based on all revenues received by the General Fund of Fairfax County. Projected FY 2021 disbursements reflect an increase of 1.71 percent over the FY 2020 level.

Board Agenda Item
March 10, 2020

ACTION - 1

Approval of an Amended Parking Reduction for Reston Gateway (Hunter Mill District)

ISSUE:
Board of Supervisors (Board) approval of an overall 20 percent reduction (1,663 fewer spaces) of the required parking for Reston Gateway, 2019 Tax Map 17-3 ((1)) 5, 5H1, 29A, and 29B (Property).

RECOMMENDATION:
The County Executive recommends that the Board approve a parking reduction for Reston Gateway pursuant to Paragraphs 5A and 5B of Section 11-102 of the Zoning Ordinance (Ordinance) based on its location in the Reston Transit Station Area (TSA) and the proximity of mass transit as identified in the parking study #5468-PKS-005-02, subject to the conditions in Attachment I.

TIMING:
Board action is requested on March 10, 2020.

BACKGROUND:
The Reston Gateway property is subject to proffers and conditions associated with PCA 86-C-119-07 and PCA 86-C-121-08, approved by the Board on July 31, 2018. The project will include a mix of multi-family residential, office, hotel, shopping center retail and restaurant uses. The parking reduction request is limited to the redevelopment portion of the project (Parcels 29A and 29B). The easternmost parcels, 5H1 and 5, will remain unchanged and are not subject to this parking reduction request. Proffer 25F of the approved Proffer Condition Amendments (PCAs) allows the applicant to pursue additional parking reductions for the site.

In conjunction with the approval of the PCAs, the Board approved an associated parking reduction (5468-PKS-004) for residential, hotel, and shopping center retail and restaurant uses of 7.8 percent below the TSA minimum parking rates. The parking supply for the office development on the site will exceed the Ordinance requirement of 2.0 spaces per 1,000 square feet of gross floor area (SF of GFA) at 2.1 spaces per 1,000 SF of GFA.

The proposed amendment to the parking reduction requests a lower parking rate for both the multi-family residential and hotel components of the site, as shown in Table 1. The applicant requests a reduction of parking to 0.9 spaces per unit of multi-family development. The proposed rate is lower than the baseline residential multi-family rate in the Tysons Urban Center TSA; however, it is consistent with TSA rates allowed by Ordinance in Arlington County, VA, and Montgomery County, MD. The proposed rate is justified for the following reasons:

- The site is immediately adjacent to Metrorail
- Frequent bus service is available at the station and on streets adjacent to the development to serve all of Reston
- Access to the W&OD trail is adjacent to site for commuter and local access bicycling
- Reston Town Center is a walkable three blocks away
- Minimally at least 65 percent, or 3,300, non-residential parking spaces for the total development will always be available for shared use
- The neighborhoods within and around the site are walkable for mixed-use options
- Data provided by the applicant in their parking reduction submission supports the multi-family rate
- Site has proffered to a robust Transportation Demand Management (TDM) program
- The higher density neighborhood where this development is located is more ideal for ridesharing usage such as Lyft/Uber

The proposed multi-family rate equates to an average reduction of 38 percent for multi-family development ranging from zero to three bedrooms, as shown in Table 1.
The applicant is also requesting that there be no requirement for parking for the lodging component of hotel development on the site. The accessory hotel function areas constructed by the applicant would still be required to provide parking spaces for that portion of the use.

Table 2 shows the minimum parking rates approved by the Board in conjunction with 5468-PKS-004 that are to remain unchanged.

A critical component of the proposed reduction is shared parking. The applicant commits to allow residential visitor parking and hotel and shopping center use parking to share spaces in any garage. The proposed reduction conditions cap the number of reserved spaces for office, hotel, and shopping center retail and restaurant uses at 35 percent of the total spaces. To demonstrate how shared parking will operate, office parking demand will diminish in the afternoon and restaurant and retail demand will peak in the early evening. Thus, the spaces vacated by office users will be available for

evening activities. This sharing will offset the need to address parking requirements for each use individually within the development.

The entire redevelopment area is located within ¼ mile of the Reston Town Center Metro Station on the Silver Line, which is currently under construction. This station is scheduled to be operational by early 2022. The character of high-density, mixed-use development, both at the subject site and surrounding neighborhoods, and the proximity to rail and other forms of transit, provides opportunities to reduce parking demand. Analysis of multi-family development adjacent to Metro stations has shown that residents of this type of housing are less likely to own one or more personal vehicles. The availability of Metrorail and other transportation options at the site will encourage people from other neighborhoods and communities to travel to the redevelopment area for work and leisure activities using alternative modes other than their personal vehicle. Collectively, these support the applicant's proposal for this parking reduction based on the proximity of mass transit.

The tables below summarize the Code required parking and the proposed parking at full buildout for Parcels 29A and 29B.

Table 1. Proposed Amended Minimum Parking Rates

Land Use	Size	Rate Required by Code	Number of Spaces Required by Code	Minimum Parking Rates Approved with 5468-PKS-004	Proposed New Reduction	Proposed New Minimum Number of Spaces	Proposed New Minimum Rate
Multi-Family Residential *(within TSA area)*	1,307 for 0-1 BR 603 per 2 BR 100 per 3+ BR	1.3 spaces per 0-1 BR 1.5 spaces per 2 BR 1.6 spaces per 3+ BR	1,700 per 0-1BR 905 per 2 BR 160 per 3+ BR	1.1 spaces per 0-1 BR 1.35 spaces per 2 BR 1.6 spaces per 3+ BR	31% per 0-1BR 40% per 2 BR 44% per +3 BR	1,177 per 0-1BR 543 per 2 BR 90 per 3+ BR	0.9 spaces per unit
Hotel	570 rooms	1 space per room plus 4 spaces per 50 rooms = 1.08 spaces per room	616	0.70 spaces per room	100%	0	0.0 spaces per room

Table 2. Previously Approved Parking Rates to Remain

Land Use	Size	Rate Required by Code	Number of Spaces Required by Code	Proposed Reduction	Approved Minimum Number of Spaces	Approved Minimum Rate
Office *(within 0-1/4 mile from metro station entrance)*	1,850,000 SF of GFA	2.0 spaces per 1,000 SF of GFA	3,700	No reduction (185.0 spaces above Code)	3,885	2.1 spaces per 1,000 SF of GFA
Shopping Center Retail/ Restaurant (<5,000 SF of GFA, within TSA area)	100,500 SF of GFA	4.0 x 0.8 = 3.2 spaces per 1,000 SF of GFA	322	6.2%	302	3.0 spaces per 1,000 SF of GFA
Hotel Function Area	56,800 SF of GFA	6.0 spaces per 1,000 SF of GFA	341	34.9%	222	3.9 spaces per 1,000 SF of GFA
Restaurant (≥5,000 SF of GFA)	62,100 SF of GFA	11.0 spaces per 1,000 SF of GFA	684	18.3%	559	9.0 spaces per 1,000 SF of GFA
Outdoor Restaurant Seating Area (beyond 1st 32 seats)	6,210 SF of GFA	11.0 spaces per 1,000 SF of GFA	69	18.8%	56	

Table 3. Overall Totals

	Number of Spaces Required by Code	Proposed Reduction	Proposed Minimum Number of Spaces
OVERALL TOTALS	8,497	20%	6,834

This recommendation reflects a coordinated review by the Department of Planning and Development, the Office of the County Attorney and Land Development Services (LDS).

FISCAL IMPACT:
None.

ENCLOSED DOCUMENTS:
Attachment I – Parking reduction conditions dated December 19, 2019
Attachment II – Parking reduction request (5468-PKS-005-02) from Wells and Associates dated November 1, 2019

Board Agenda Item
March 10, 2020

STAFF:
Rachel Flynn, Deputy County Executive
William D. Hicks, P.E., Director, LDS
Eleanor Ku Codding, Director, Permitting and Code Administration, LDS
Michael Davis, Parking Program Manager, Site Code Research and Development, LDS

ASSIGNED COUNSEL:
Marc Gori, Assistant County Attorney

ATTACHMENT I

PARKING REDUCTION CONDITIONS
December 19, 2019

1. These conditions supersede all previous conditions associated with 5468-PKS-004 and any other related parking reduction and apply to the current owners, their successors and assigns (hereinafter 'owners') of the parcels identified on 2019 Tax Map 17-3 ((1)) 29A, and 29B.

2. Off-street parking for each use designated below must be provided per the following minimum parking rates associated with the development site:
    a) Residential Multi-Family – up to 2,010 dwelling units (DU): 0.9 spaces per dwelling unit.

    b) Hotel – up to 570 rooms: No minimum requirement.

    c) Hotel Function Area – up to 56,800 square feet of gross floor area (SF of GFA): 3.9 spaces per 1,000 SF of GFA.

    d) Shopping Center Retail/Restaurants – up to 162,000 SF of GFA:

        A minimum of 3.0 spaces per 1,000 SF of GFA for shopping center retail; and,

        A minimum of 3.0 spaces per 1,000 SF of GFA for any restaurant less than 5,000 SF of GFA and its associated outdoor seating area beyond the 1st 20 seats; and,

        A minimum of 9.0 spaces per 1,000 SF of GFA for any restaurant greater than or equal to 5,000 SF of GFA and its associated outdoor seating area beyond the 1st 32 seats.

3. Any uses not listed in Condition #2 must provide parking at rates required by the Zoning Ordinance.

4. If the site is developed in substantial conformance with PCA 86-C-119-07 and PCA 86-C-121-08 (the approved rezoning), then this parking reduction will remain in effect. If the approved rezoning is amended, the owners must submit a request to LDS for review of the parking reduction. A review may require an amended reduction and approval by the Board.

5. The owners must provide a permanent reciprocal parking and access agreement that allows arriving vehicles to park in any available, unreserved space in the non-residential parking areas within the redevelopment area, subject to parking rules and

regulations established by the owners. The agreement must be submitted to the Director of LDS with the recordation documents for the parking reduction.

6. If the Arts Center is constructed on Block J of the approved rezoning area, as discussed in Proffer 36, the owners will allow parking for the facility in any available, unreserved non-residential parking areas within the redevelopment area, subject to parking rules and regulations established by the owners. Neither the Arts Center, nor the owners, will have to provide separate parking for the Arts Center's use.

7. Other than spaces needed to meet accessibility requirements, the owners will be permitted to reserve up to 35 percent of the non-residential development parking spaces within the parking areas subject to this reduction.

8. The owners will utilize access control for the parking through physical and/or virtual strategies that could include, but are not limited to, gated access, license plate recognition software, paid parking, and monitoring.

9. The conditions of approval of this parking reduction must be incorporated into any site plan or site plan revision submitted to the Director of LDS for approval.

10. The owners must submit a parking utilization study for review and approval by the Director at any time in the future that the Zoning Administrator or the Director so requests. Following review of that study, or if a study is not submitted within 90 days after its request, the Director may require alternative measures to satisfy the property's onsite parking needs. Such measures may include, but are not limited to, compliance with the full parking requirements specified in the Zoning Ordinance.

11. Any parking utilization study prepared in response to a request by the Zoning Administrator or the Director must be based on applicable requirements of *The Code of the County of Fairfax, Virginia* and the Zoning Ordinance in effect at the time of the study's submission.

12. Any parking provided must comply with the applicable requirements of the Zoning Ordinance and the Fairfax County Public Facilities Manual including the provisions referencing the Americans with Disabilities Act and the Virginia Uniform Statewide Building Code.

13. These conditions of approval are binding on the owners and must be recorded in the Fairfax County Land Records in a form acceptable to the County Attorney. If these conditions have not been recorded and an extension has not been approved by the

ATTACHMENT I

PARKING REDUCTION CONDITIONS
December 19, 2019

Director, approval of this parking reduction request will expire without notice six months from its approval date.

ATTACHMENT II

WELLS + ASSOCIATES

11220 Assett Loop
Suite 202
Manassas, Virginia
703-365-9262
703-9[illegible]-0739 FAX
www.[illegible]Associates.com

November 01, 2019

Mr. Michael Davis
Site Code Research and Development (SCRD)
Department of Public Works & Environmental Services
12055 Government Center Parkway, Suite 334
Fairfax, Virginia 22035-5503

SUBJECT: **5468-PKS-005-2**
Amendment to the Approved Parking Reduction (5468-PKS-004-1)
Reston Gateway; Reston Section 93 Blocks 1, 2, 3, & 4
PCA 86-C-119-07, DPA 86-C-119-03, PCA 86-C-121-08, DPA 86-C-121-05
2019 Tax Map 17-3 ((1)) 5, 5H1, 29A, and 29B
Fairfax County, Virginia

Dear Mr. Davis:

Herein is an executive summary associated with a 2nd submission parking reduction request that seeks to amend a previous parking reduction that was approved by the Fairfax County Board of Supervisors on July 31, 2018. A check in the amount of $2,811.60 made payable to "Fairfax County" was included with the previous submission on August 2, 2019. As a requested a new submission fee in the amount of $216.00 (equivalent to 2 plan sheet inserts, $108/per sheet) is included with this resubmission. A compact disc is attached to the back cover of the parking reduction request that includes an electronic copy of this letter, the parking reduction request, the overall approved plan set for the site, Board accepted proffers, and the Board approved parking reduction conditions.

The parking reduction amendment is specifically based on the Project's proximity to a mass transit station. The Project is a consolidation of approximately 33.18 acres **[2019 Tax Map 17-3 ((1)) 29A, 29B, 5H1, and 5]** and is located in immediate proximity to the future Reston Town Center Metrorail Station (within ¼ of a mile from the station platform). These adjacent parcels are located north of Sunset Hills Road (Route 675) and the Dulles Toll Road (Route 267), east of Town Center Parkway (Route 7414), and south of Bluemont Way (Route 7199) and the Washington and Old Dominion Railroad Trail (W&OD), and west of Reston Parkway (Route 602) in the Hunter Mill Magisterial District of the County.

Parcel 29B (western parcel) is currently under construction with the initial phases of the recently approved development. Parcel 29A (immediately east of Parcel 29B) is currently developed with two (2) existing office buildings with a total cumulative floor area of approximately 261,000 gross square feet (GSF). The most eastern parcels (Parcel 5H1 and Parcel 5) are currently developed with the Discovery Square 1 and 2 office buildings which are approximately 181,000 GSF and 195,080 GSF, respectively.

Transportation Consultants
INNOVATION + SOLUTIONS

This proposed amendment to the approved parking reduction is specifically based on the following adjustments to the approved minimum parking ratios for multi-family residential dwelling units and hotel rooms:

Use:	Code: (1)	Approved: (2)	Proposed:
Multi-Family Res.	1.3 sp/DU (0-1 BR) 1.5 sp/DU (2 BR) 1.6 sp/DU (≥3BR)	1.1 sp/DU (0-1 BR) 1.35 sp/DU (2 BR) 1.6 sp/DU (≥3BR)	0.9 sp/DU (0-1 BR) 0.9 sp/DU (2 BR) 0.9 sp/DU (≥3BR)
Hotel	1.08 sp/Room	0.7 sp/Room	0.0 sp/Room

(1) Based on Article 11 of Fairfax County's Zoning Ordinance including applicable Transit Station Area (TSA) minimum parking ratios for multi-family residential.
(2) Approved minimum parking ratios associated with 5468-PKS-004-1

All other site uses (e.g. hotel function area and shopping center retail/restaurants) will continue to conform to the minimum parking ratios previously approved by the Board of Supervisors.

In accordance with the Comprehensive Plan, the Applicant received approval to redevelop under the following redevelopment programs and *assumed* use variables on Parcels 29A and 29B:

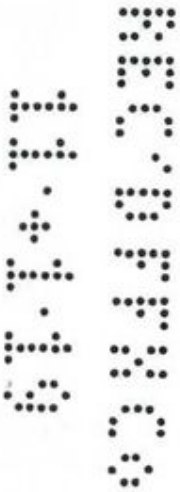
<u>Overall Development Plan (Phase I + Phase II)</u>

- ±1,938,000 GSF of multi-family residential (new)
  - ±2,010 DUs
    - ±1,307 DUs at 0-1 bedrooms
    - ±603 DUs at 2 bedrooms
    - ±100 DUs at 3+ bedrooms
- ±1,850,000 GSF of office (new) -*excludes existing Discovery Square office buildings*
- ±509,000 GSF of hotel (new)
  - ±570 rooms
- ±56,800 GSF of hotel function area (new) – *includes hotel function area*
- ±62,100 GSF of restaurant ≥5,000 GSF (new)
  - ±6,210 SF Outdoor Seating Area (beyond 1st 32 seats)
- ±100,500 GSF of shopping center retail/restaurants <5,000 GSF (new)
  - ±0 SF Outdoor Seating Area (beyond 1st 20 seats)

<u>Phase I Uses Only: Parcel 29B (or Blocks A thru D)</u>

- ±691,000 GSF of multi-family residential (new)

- ±600 DUs
  - ±390 DUs at 0-1 bedrooms
  - ±180 DUs at 2 bedrooms
  - ±30 DUs at 3+ bedrooms
- ±1,207,000 GSF of office (new) *-excludes existing Discovery Square office buildings*
- ±199,000 GSF of hotel (new) – *includes hotel function area*
  - ±240 rooms
- ±14,700 GSF of hotel function area (new)
- ±44,100 GSF of restaurant ≥5,000 GSF (new)
  - ±4,410 SF Outdoor Seating Area (beyond 1st 32 seats)
- ±83,600 GSF of shopping center retail/restaurants <5,000 GSF (new)
  - ±0 SF Outdoor Seating Area (beyond 1st 20 seats)



<u>Phase II Uses Only: Parcel 29B (or Blocks E thru H, J, and the Park)</u>

- ±1,247,000 GSF of multi-family residential (new)
  - ±1,410 DUs
    - ±917 DUs at 0-1 bedrooms
    - ±423 DUs at 2 bedrooms
    - ±70 DUs at 3+ bedrooms
- ±643,000 GSF of office (new) *-excludes existing Discovery Square office buildings*
- ±310,000 GSF of hotel (new)
  - ±330 rooms
- ±42,100 GSF of hotel function area (new)
- ±18,000 GSF of restaurant ≥5,000 GSF (new)
  - ±1,800 SF Outdoor Seating Area (beyond 1st 32 seats)
- ±11,400 GSF of shopping center retail/restaurants <5,000 GSF (new)
  - ±0 SF Outdoor Seating Area (beyond 1st 20 seats)

Certain assumptions consistent with current approvals were made for purposes of the subject parking requests. These assumptions include the amount of restaurants and corresponding variables (e.g. outdoor seating). Additionally, an assumed bedroom unit breakdown was established for the multi-family dwelling units, as well as the number of hotel rooms and hotel function area serving the hotel uses.

Based on a strict application of the Zoning Ordinance, the following minimum number of code required parking spaces would be necessary to accommodate the parking demand associated with the proposed development plan with the assumed breakdown of uses by Phase:



Development Plan (Parcel 29A and 29B): **8,494 spaces**

- Non-Residential: 5,729.4 spaces
- Residential: 2,763.4 spaces

Phase I (Parcel 29B) Only: **4,406 spaces**

- Non-Residential: 3,580.1 spaces
- Residential: 825.0 spaces

Phase II (Parcel 29A) Only: **4,088 spaces**

- Non-Residential: 2,149.3 spaces
- Residential: 1,938.6 spaces

The Applicant's proposed parking reduction requests are based on the Project's proximity to a mass transit station. As described below, the requested parking ratios are as follows:

Proposed Amended Minimum Parking Ratios

- Residential Uses – Multi Family*:
  - 0 -1 Bedrooms at 0.9 space/DU (*or 30.8% parking reduction)*
  - 2 Bedrooms at 0.9 spaces/DU (*or 40.0% parking reduction)*
  - +3 Bedrooms at 0.9 spaces/DU *(or 43.8% parking reduction)*

  **The above proposed bedroom parking ratios are applied to an assumed unit mix of 65% (0-1 bedrooms), 30% (2 bedrooms), and 5% (3+ bedrooms).*
- Hotel Uses: 0.0 spaces/hotel room or 100.0% parking reduction

Approved Minimum Parking Ratios to Remain Unchanged

- Office Uses (within TSA, 0-1/4 mile from metro): no parking reduction requested or 2.1 spaces/1,000 GSF
- Hotel Function Area: 3.9 spaces/1,000 GSF or 35.0% parking reduction
- Restaurants ≥5,000 GSF: 9.0 spaces/1,000 GSF or 18.2% parking reduction
  - Outdoor Seating Area (beyond 1st 32 seats, Restaurants ≥5,000 GSF): 9.0 spaces/1,000 SF or 18.2% parking reduction

- Shopping Center Retail/Restaurants <5,000 GSF (within TSA): 3.0 spaces/1,000 GSF or 6.3% parking reduction

    - Outdoor Seating Area (beyond 1st 20 seats, Restaurants <5,000 GSF): 3.0 spaces/1,000 SF or 6.3% parking reduction

Where the overall site parking supply will serve the entire project, the overall percent parking reduction for the total Phase I + Phase II areas would result as follows:

Overall (Phase I + Phase II) = 19.6% parking reduction (or 1,662 fewer spaces)

- *Non-Residential = 12.3% parking reduction (or 706.6 fewer spaces)*
- *Residential = 34.5% parking reduction (or 954.6 fewer spaces)*

Phase I Only = 12.9% parking reduction (or 570.0 fewer spaces)

- *Non-Residential = 7.9% parking reduction (or 284.2 fewer spaces)*
- *Residential = 34.5% parking reduction (or 285.0 fewer spaces)*

Phase II Only = 26.7% parking reduction (or 1,092.0 fewer spaces)

- *Non-Residential = 19.7% parking reduction (or 422.4 fewer spaces)*
- *Residential = 34.5% parking reduction (or 669.6 fewer spaces)*

In order to permit a reduction in the number of parking spaces, an amendment to the approved parking reduction is hereby requested on behalf of the subject application. Article 11, Section 11-102.5A provides for the requested reduction in the number of parking spaces based on its reasonable walking distance to mass transit station that either exists or is programmed for completion within the same time frame as the completion of the subject development.

Please contact me (krfellin@wellsandassociates.com or 703-676-3652) with any questions and/or comments you might have and thank you again for your assistance on this important project.

Sincerely,

Kevin R. Fellin, P.E.
Senior Associate

Enclosures: a/s

Board Agenda Item
March 10, 2020

ACTION - 2

Approval of Contract Award for Tax Exempt Master Lease Agreement and Other Actions Associated with Award of the Contract to Provide Lease Purchase Financing for Acquisition of Equipment

ISSUE:
Board of Supervisors' authorization to award and execute a contract to provide lease-purchase financing for acquisition of eligible equipment under a Master Lease Agreement pursuant to the competitive negotiation procurement conducted by the Department of Procurement and Material Management.

RECOMMENDATION:
The County Executive recommends that the Board of Supervisors authorize award and execution of a contract with Banc of America Public Capital Corp substantially in the form of the attached Master Lease Agreement (Attachment 2) with such changes, insertions, and omissions as the County Executive may approve, the execution of the Master Lease Agreement by the Fairfax County Purchasing Agent to be conclusive evidence of the Board's approval of any such changes, insertions, and omissions therein.

TIMING:
Board action is requested on March 10, 2020.

BACKGROUND:
The Board of Supervisors established the County's Master Equipment Lease-Purchase Program ("Lease-Purchase Program") on June 6, 1994. Under the Lease-Purchase Program, financing entities are selected through a competitive solicitation and a Master Lease Agreement is executed with the selected entity. Since inception, the Lease Purchase Program has proven to be a valuable tool to acquire school buses, public service radios, computers, and other assets. The Fairfax County Public School (FCPS) system has used the program to stabilize and manage the replacement of aging equipment within the County's debt guidelines to relieve stress on the budget and create a stable source of funding. The County's Ten Principles of Sound Financial Management allow for up to 3 percent of operating expenditures to be used to support lease purchase agreements secured by equipment. The Lease-Purchase Program provides the County and FCPS with rapid access to capital with low rates, stream-lined legal reviews and standardized documents.

Following the 1994 Board action, the County subsequently solicited bids and awarded a contract to provide for lease financing for the acquisition of equipment. The original contract expired, and subsequent new contracts have been awarded through a competitive bidding process that conformed in all respects to the Board's authorization to establish the Lease-Purchase Program. In June 2009, the County altered the procurement strategy and requested sealed proposals using the competitive negotiation method of procurement. The use of competitive negotiation allows the County to evaluate based on established criteria and negotiate with the top-rated offerors to establish the best contract.

The current contract for the Master Lease agreement has no further renewal options. In order to replace the contract, the Department of Procurement and Material Management issued a Request for Proposal (RFP 2000002993). The solicitation notice was sent to potential offerors in accordance with County policy. The County received four proposals and the Selection Advisory Committee (SAC), appointed by the County Purchasing Agent, evaluated the proposals in accordance with the criteria established in the RFP. Upon completion of the final evaluation of the proposals, the SAC negotiated with the top ranked offerors and unanimously recommended the contract award to Banc of America Public Capital Corp. This firm provided the most competitive interest rates compared to all offerors.

The basis for the financing rates established in this agreement is the Intercontinental Exchange Swap Trade Index (“ICE Index”), which is a commonly used index by banking institutions for comparative master leasing programs nationwide. It should be emphasized that the County will not be engaging in interest rate swaps or any other derivative transactions. Rather Banc of America Public Capital Corp will use this index as the basis to determine the County's lease rates under the Master Lease. As of February 11, 2020, the lease purchase rate based on this index ranged from 1.48% to 1.75%, depending upon the lease term selected for the financing. The contract has a one-year term with four (4) one-year renewal options. The maximum annual financing available through the contract is $30,000,000.

The Fairfax County Department of Tax Administration has verified that Banc of America Public Capital Corp possesses the appropriate Fairfax County Business, Professional, & Occupational License (BPOL).

FISCAL IMPACT:
Lease financing will be determined by the length of the lease term, amount requested to be financed, and market conditions at the time of the proposed acquisition. Lease payments incurred for County equipment or vehicles will be paid by the County, and lease payments incurred for FCPS equipment or vehicles will be paid by FCPS.

Board Agenda Item
March 10, 2020

ENCLOSED DOCUMENTS:
Attachment 1 - List of Offerors for RFP 2000002993
Attachment 2 - Master Lease Agreement

STAFF:
Joseph Mondoro, Chief Financial Officer
Cathy A. Muse, Director, Department of Procurement and Material Management
Joseph LaHait, Debt Manager, Department of Management and Budget

ASSIGNED COUNSEL:
Emily H. Smith, Assistant County Attorney

Attachment 1

List of Offerors

Name	**SWAM Status**
Banc of America Public Capital Corp	Large
JP Morgan Chase Bank, N.A.	N/A
Presidio Technology Capital	Large
TD Equipment Finance, Inc.	Large

FORM OF MASTER LEASE AGREEMENT

This MASTER LEASE AGREEMENT, dated as of March __, 2020 is between Banc of America Public Capital Corp as the Lessor hereunder (the "Lessor"), and Fairfax County, a political subdivision of the Commonwealth of Virginia ("Lessee" or "County").

RECITALS

The County on behalf of its various agencies and entities desires to enter into arrangements for the lease purchase of various Equipment.

Lessor desires to provide for the financing of such Equipment by entering into this Agreement.

NOW, THEREFORE, in consideration of the funds to be paid hereunder and the covenants and agreements contained herein, it is agreed by and between the parties as follows:

ARTICLE 1.

DEFINITIONS

For purposes of this Agreement and in addition to the terms defined elsewhere in this Agreement, the following terms have the meanings given below unless the context clearly requires otherwise:

1.1. **Acceptance Certificate:** means the certificate substantially in the form of Schedule 1 of the Appendix.

1.2. **Acceptance Date:** means the date on which an Appendix is sent via overnight delivery to the Lessor. The Lessee will not send an Appendix to the Lessor less than seven calendar days prior to the Vendor Payment Date, unless an alternative date is mutually agreed upon by the Lessor and the Lessee.

1.3. **Acquisition Period:** means the period commencing upon execution of this Agreement and ending on the end of the term of this Agreement, unless extended.

1.4. **Agreement:** means this Master Lease Agreement and its appendices as the same may be amended and supplemented from time to time in accordance with its terms.

1.5. **Appendix:** means collectively the Equipment Master Lease Agreement Cover Sheet, the Financing Request Certificate, the Acceptance Certificate, the Disbursement Authorization Certificate, Representation Certificate, Schedule of Equipment, and the Payment Schedule Certificate, all as substantially in the form attached hereto.

1.6. **Authorized Representative:** when used in respect to Lessee, means the Purchasing Agent of Fairfax County, Virginia, or such other person designated in writing by Lessee to act on Lessee's behalf.

1.7. **Award:** means the Acceptance Agreement that awards this Master Lease Agreement to Lessor.

1.8. **Base Rate**: means the Current Interest Rate Swap Index multiplied by the Discount.

1.9. **Business Day:** means a Fairfax County government business day, other than a Saturday, Sunday or day upon which banks in the Commonwealth of Virginia are authorized or required to be closed.

1.10. **Current Interest Rate Swap Index (the "Index"):** As used in this Master Lease Agreement shall mean, in the case of a lease term of 3 years, the annualized interest rate on the 2-year ICE SWAP; in the case of a lease term of 4 years, the annualized interest rate on the 2-year ICE SWAP; in the case of a lease term of 5 years, the annualized interest rate on the 3-year ICE SWAP; in the case of a lease term of 7 years, the annualized interest rate on the 4-year ICE SWAP; and, in the case of a lease term of 10 years, the annualized interest rate on the 5-year ICE SWAP, in each case as published on the report date on the website of the Intercontinental Exchange, Inc. under ICE Benchmark Administration Market, USD Rates 1100 on a weekly average basis for the week preceding the date of acceptance of the Equipment.

1.11. **Disbursement Authorization Certificate:** means the certificate substantially in the form of Schedule 2 of the Appendix.

1.12. **Discount**: means 79%, which is to be applied to the Current Interest Rate Swap Index to determine the Base Rate applicable to the calculation of the Lease Payments in an Appendix.

1.13. **Equipment:** means the items of new, surplus or reconditioned personal property or such other items as may be permitted by the *Code of Virginia* leased to Lessee pursuant to this Agreement and listed on an Appendix.

1.14. **Equipment Vendor:** means the individual, company, firm, corporation, partnership, or other organization with whom the Lessee enters into an agreement for the acquisition of Equipment with lease financing provided by this Agreement.

1.15. **Financing Request Certificate:** means the certificate substantially in the form attached hereto as Attachment A1.

1.16. **Lease Payments:** means the amounts designated in a Payment Schedule Certificate.

1.17. **Lease Rate**: means the simple interest rate derived by adding the Spread to the Base Rate applicable to the calculation of the Lease Payments in an Appendix.

1.18. **Payment Schedule Certificate:** means the certificate substantially in the form of Schedule 4 of an Appendix.

1.19. **Representation Certificate:** means the certificate substantially in the form of Schedule 3 of an Appendix.

1.20. **Transaction Documents:** means this Agreement and all attachments and schedules thereto and the Award.

1.21. **Vendor Payment Date:** means the date upon which disbursement is to be made to the Equipment Vendor or Lessor for the Equipment under the Agreement.

1.22. **Schedule of Equipment:** means the schedule substantially in the form of Schedule 5 of an Appendix.

1.23. **Spread**: means the number of basis points bid by the Lessor which is to be added to the Base Rate to determine the Lease Rate applicable to the calculation of the Lease Payments in an Appendix. Spread means in the case of a lease term of 3 years, 0.3331%, in the case of a lease term of 4 years, 0,3839%, in the case of a lease term of 5 years, 0.4461%, in the case of a lease term of 7 years, 0.5018%; and, in the case of a lease term of 10 years, 0.6331%.

ARTICLE 2.

GENERAL PROVISIONS

2.1. Lessor reserves the right to reject for financing those items or types of Equipment which the Lessor determines to be non-essential, or any financing which, in Lessor's judgment, the length of the financing term exceeds the useful life of the Equipment, or such other reasonable and commercially acceptable basis as the Lessor may determine.

Nothing herein shall require Lessor to lease any Equipment until Lessor has agreed in writing. Lessor will review the Financing Request Certificate and provide an approval/disapproval within thirty (30) days, unless otherwise mutually agreed upon.

2.2. Upon approval by the Lessor of a Financing Request Certificate, Lessor agrees to lease Equipment to Lessee upon the provision by Lessee of an Appendix and Lessee agrees to lease Equipment from Lessor for the consideration indicated in such an Appendix.

2.3. No payments will be due under this Agreement either by Lessor or Lessee until the Lessor has been provided an Appendix signed by an Authorized Representative of the County. No payments will be due from Lessee to Lessor until Lessor has made payment to the Equipment Vendor.

2.4. The maximum amount to be disbursed by the Lessor for the purchase of Equipment by Lessee shall be a total of $30,000,000 for each year this Agreement is in effect.

ARTICLE 3.

ACQUISITION PERIOD

3.1. Notwithstanding the expiration of the Acquisition Period, and any extension thereof under Section 3.4, the provisions of this Agreement shall continue to apply to all outstanding obligations under this Agreement until they are extinguished.

3.2. Appendices may be executed during the Acquisition Period, and any extension thereof under Section 3.4.

3.3. The term of each Appendix entered into pursuant to this Agreement shall be for a period of three (3), four (4), five (5), seven (7), or ten (10) years based upon the number of years from the Vendor Payment Date.

3.4. The Acquisition Period under this Agreement may be extended for four additional twelve (12) month periods upon mutual written agreement between the Lessor and Lessee prior to the end of the original Acquisition Period, and subsequent renewal periods.

ARTICLE 4.

PAYMENT

4.1. **Amount and Times of Payment by Lessee:** The lease purchase amount and interest thereon based upon the Lease Rate, as indicated in Schedule 4 of each Appendix shall be paid by the County in semi-annual installment payments or, upon agreement between the Lessor and the Lessee, on a monthly, quarterly, semi-annual basis, which shall be indicated in such Appendix. Payments for partial months and accrued interest shall be calculated on a 30/360 basis.

[The Lease Rate will be established before the Acceptance Date through execution of an Appendix.**]**

Except as provided in Section 4.4, the Lessee shall be required to make Lease Payments and any other payments required hereunder. Notwithstanding any dispute between Lessee and Lessor or any other person, Lessee shall make all Lease Payments and other payments required hereunder when due and shall not assert any right of set-off or counterclaim against its obligation to make such Lease Payments or other payment required under this Agreement.

The County shall pay the Lease Payments exclusively from moneys legally available therefor in lawful money of the United States of America. A portion of each Lease Payment is paid as and represents the payment of interest as set forth in the Payment Schedule Certificate relating to the Appendix.

Except as provided in Section 4.4 herein, the obligation of the County to make Lease Payments required hereunder shall be absolute and unconditional in all events. Lessee's obligation to make Lease Payments shall not be abated as a result of accident, unforeseen circumstances, failure of the Equipment to perform as desired, damage or destruction to the Equipment, loss of possession of the Equipment or obsolescence of the Equipment.

4.2. **Amount and Times of Payment By Lessor:** Payment by Lessor must be made to Lessee's Equipment Vendor or, where the Lessee previously arranged to make payment directly to the Equipment Vendor, to the Lessee on or before the Vendor Payment Date given in an Appendix. The amount of payment will be stated in an Appendix. Late payment by Lessor due to negligence or fault of the Lessor may cause liquidated damages to be paid by Lessor to Lessee pursuant to Section 4.8 below; provided such Vendor Payment Date shall not be less than seven (7) calendar days after nor more than fourteen (14) calendar days after the Acceptance Date.

The date of postmark where payment is made by mail, the date of the express mail package where payment is made by express mail, or the date of the wire transfer where payment is made by wire shall be deemed to be the date of payment by the Lessor to the Equipment Vendor or Lessee.

Lessee shall provide all appropriate documentation evidencing an official intent to reimburse for any Appendix where proceeds will be used to reimburse the County for a prior expenditure. Such documentation shall satisfy all requirements specified in Section 1.150-2 of the Treasury Regulations.

As evidence of payment by Lessor to Lessee's Equipment Vendor, Lessor shall return to Lessee immediately upon payment a signed copy of the Disbursement Authorization Certificate.

4.3. **Maximum Payment:** Except as provided in Sections 5.3, and 7.2, the total charges paid by Lessee shall not exceed the amount of funds calculated on an Appendix.

4.4. **Subject to Appropriation:** The obligation of the Lessee to make Lease Payments and any other payment obligations due under this Agreement (including without limitation, Lessee's obligations as set forth in Sections 5.3, 5.5 and 5.6) after June 30th of the current fiscal year is subject to the availability of appropriations for this purpose by the Board of Supervisors of Fairfax County. Lessee's obligations to make payments during subsequent fiscal years are dependent upon the same action.

In the event of non-appropriation of funds by the Board of Supervisors of Fairfax County for Lease Payments or other payments for any or all of the Equipment under an Appendix, that Appendix will terminate on June 30th of the then current fiscal year. Written notice will be provided within thirty (30) days to the Lessor after action is completed by the Board of Supervisors.

In the event of a termination of an Appendix for non-appropriation, Lessor shall have the right to repossess the Equipment covered by that Appendix. The obligations of the County, including its obligation to pay the Lease Payments due in any Fiscal year of the term of an Appendix, shall not constitute an indebtedness of the County within the meaning of the Constitution and laws of the Commonwealth of Virginia.

Nothing herein shall constitute a pledge by the County of any taxes or other moneys (other than moneys lawfully appropriated from time to time for each Appendix) to the payment of any Lease Payment or other amount coming due hereunder.

4.5. **Events of Default by Lessee:** Any of the following events that may occur shall constitute an Event of Default by the Lessee under this Agreement:

a) The nonpayment by the County of any Lease Payment required hereunder, or the default by the Lessee in the performance of any of the obligations, covenants, terms and provisions contained or referred to in this Agreement, which nonpayment or default is not cured within thirty (30) days of the receipt of written notice (certified mail, return receipt requested) thereof from Lessor to Lessee; provided, however, the termination as described in Article 7 or termination due to non-appropriation of funds as described in Section 4.4, shall not constitute a default or an Event of Default hereunder and shall not give rise to any of the remedies hereinafter authorized.

b) Any warranty, representation, or statement of Lessee contained in this Agreement proves to have been false in any material respect when made or furnished.

c) Loss, theft, substantial damage, destruction, sale, or encumbrance of or to any of the Equipment, or the making of any levy, seizure or attachment thereof or thereon provided that the Lessee is not taking steps to replace, repair, or remove any encumbrances from such Equipment. (See Section 5.6.)

4.6. **Events of Default by Lessor:** Any of the following events that may occur shall constitute an Event of Default by Lessor under this Agreement:

a) **Late payment by Lessor to Lessee's Equipment Vendor, or to Lessee, unless caused directly or indirectly, by the County.**

b) Any warranty, representation, or statement of Lessor contained in this Agreement proves to have been false in any material respect when made or furnished.

4.7. **Remedies of Lessor:** Upon the occurrence of an Event of Default by Lessee, then Lessor may at its option, take any one or more of the following actions:

a) Declare the entire amount of unpaid Lease Payments under the appropriate Appendix for the current fiscal year due under this Agreement to be immediately due and payable, without further notice.
b) Repossess the related Equipment.
c) Retain prior payments and sell or lease the related Equipment through public or private transaction after giving Lessee reasonable notice with or without having the Equipment at any such sale or leasing. Lessor may purchase all or part of the Equipment under the appropriate Appendix as a result of such transactions. The proceeds of any sale or leasing will be applied to the payment of the unpaid balance of Lessee's obligations under this Agreement.

Lessee shall remain liable for any deficiency of unpaid payment for which funds have been appropriated for the current fiscal year. Any amounts in excess of Lessee's obligation under this agreement, received from the proceeds of any sale or leasing, shall be paid to Lessee.

d) Institute all remedies available to Lessor as allowed by law and in equity.

e) Terminate this Agreement.

Lessor's attempt to exercise any of the remedies herein entitles Lessee to prepay, without notice, as provided in Section 7.2 herein, notwithstanding any provisions to the contrary contained therein.

4.8. **Remedies of Lessee:** Upon the occurrence of an Event of Default by Lessor, the Lessee may, at its option, take any one or more of the following actions:

a) Should Lessor not make the entire payment to Lessee's Equipment Vendor on or before the Vendor Payment Date as described in Section 4.2, Lessee may require payment of liquidated damages at the rate of one percent (1%) per day of the amount of the equipment purchase as designated in the related Disbursement Authorization Certificate. The amount of the damages will be paid by Lessor to Lessee.

b) Institute all remedies available to Lessee as allowed by law and in equity.

c) Terminate this Agreement.

4.9. Notwithstanding the foregoing, an Event of Default under a single Appendix shall not constitute an Event of Default under any other Appendix and shall not give rise to institution of remedies under any other Appendix.

ARTICLE 5.

RESPONSIBILITIES OF LESSEE

5.1. Care and Use of Equipment: Lessee, at its own expense, shall obtain remedial and preventive maintenance to keep the Equipment in good operating condition.

5.2. **Inspection:** Subject to security regulations, Lessee will allow Lessor to enter the premises where the Equipment is located during normal business hours for the purposes of inspecting the Equipment and observing whether Lessee is in compliance with its responsibilities.

5.3. **Taxes and Licenses:** The Lessee, as a political subdivision of the Commonwealth of Virginia, is exempt from taxation and therefore Federal excise taxes and from all State sales and use taxes. In the event that the Equipment or any portion thereof shall, for any reason, be deemed subject to taxation, assessments or charges lawfully made by any governmental body, the Lessee shall, during the term of this Agreement pay the amount of all such taxes, assessments and governmental charges then due, subject to the availability of appropriations therefor. The Lessee may, at the expense and in the name of the Lessee, in good faith contest any such taxes, assessments and other charges in any reasonable manner which does not, in the opinion of independent counsel, adversely affect the right, title and interest of Lessor in and to any item of the Equipment or its rights or interest under this Lease or subject any portion of any item of Equipment to loss or forfeiture, and in the event of any such contest, may permit the taxes, assessment or other charges so contested to remain unpaid during the period of such contest or any appeal therefrom.

5.4. **Delivery of Related Documents:**

a) For each item of Equipment, Lessee shall provide:

i) A Financing Request Certificate for Lessor's review and approval.

ii) An Appendix substantially in the form attached hereto.

iii) Financing statements or other documents to evidence Lessor's security interest provided that such statements shall not impose liabilities and/or responsibilities inconsistent with this Agreement.

iv) A copy of the IRS Form 8038-G or 8038-GC; original to Internal Revenue Service.

b) For each item of Equipment, Lessee shall provide upon written request of the Lessor:

i) Lessee's maintenance contract on the Equipment, if applicable.

ii) Such other documents at the time of execution as the parties reasonably believe necessary to protect their interests in this Agreement and in the Equipment, provided that no such document may impose liabilities and/or responsibilities on the Lessor or Lessee inconsistent with this Agreement and no such document is deemed to be incorporated into, or to amend or to alter the terms of this Agreement.

c) Upon the closing date of the Agreement and thereafter as changes occur, Lessee will provide a listing of Authorized Representatives to Lessor.

d) Upon the closing date of the Agreement and on the renewal date of each year thereafter, Lessee will provide a certificate of insurance or self-insurance to Lessor.

e) Upon the closing date of the Agreement, opinions of counsel as to such matters as mutually agreed to by the parties will be provided. Upon the closing date of the Agreement, and upon execution of each amendment extending the Acquisition Period, the County will provide an opinion from a nationally recognized bond counsel to the effect that the interest will be excluded from gross income for federal income tax purposes.

Neither the County nor any officer of the County shall be required to furnish any documents or other assurances for the purposes of enabling or aiding in the public sale or offering for limited sale of securities by the Lessor, its assignees or others, including, but not limited to, certificates pertaining to arbitrage or the exemption of interest on such securities from federal, state or local taxation.

5.5. **Liability and Property Insurance:** During the term of this Agreement, the Lessee agrees to pay for and provide or to cause to be paid for or provided the following insurance coverage or self-insurance programs with respect thereto:

a) Self-insurance or insurance coverage against the risk of any direct physical loss of or damage to the Equipment. Such insurance shall be in the standard form for such coverage carried by the County.

The deductible amount shall be the standard deductible amount at the time in use by the County. The proceeds of such insurance coverage shall be applied to the repair or replacement of the Equipment or the purchase thereof as provided in Section 7.2.

b) Self-insurance or commercial general liability insurance against liability for death or bodily injury and for damage to and loss of the use of Equipment, arising out of the ownership, maintenance or use of the Equipment, which insurance coverage shall not be circumscribed by any endorsements limiting the breadth of coverage (limited only as may be provided in the standard form for such coverage). The proceeds of such insurance coverage shall be applied to satisfaction of the liability.

5.6. **Damage to or Destruction of Equipment:** If after delivery of any Equipment to Lessee all or any part of the Equipment is lost, stolen, destroyed or damaged beyond repair, Lessee shall as soon as practicable after such event either: (a) replace the same at Lessee's sole cost and expense with Equipment of equal or greater value to the Equipment immediately prior to the time of the loss occurrence, such replacement Equipment to be subject to Lessor's reasonable approval, whereupon such replacement Equipment shall be substituted in this Agreement and other related documents by appropriate endorsement or amendment; or (b) pay the applicable prepayment price as set forth in Section 7.2 hereof of the Appendix to which such Equipment belongs.

Lessee shall notify Lessor of which course of action it will take within fifteen (15) days after the loss occurrence. The net proceeds of all insurance payable with respect to the Equipment shall be available to Lessee to discharge Lessee's obligation under this Section. Upon payment of the prepayment price as set forth in Section 7.2 hereof with respect to any Appendix, this Agreement shall terminate with respect to the related Equipment and Lessee thereupon shall become entitled to such Equipment on an AS IS, WHERE IS basis and Lessor makes no warranties or representations of any type as to the Equipment, except that such Equipment shall not be subject to any lien or encumbrance created by or arising through Lessor.

5.7. **Risk of Loss:** Unless Section 6.9 of this Agreement is applicable; all risk of loss to the Equipment arising out of the ownership, possession or use of the Equipment shall be borne by Lessee, unless such loss is caused by the error, omission or negligent acts of the Lessor, its employees and/or agents.

5.8. **Budgeting:** The County Executive of Fairfax County will annually advise the Board of Supervisors of Fairfax County of the existence of this Agreement and include the amount of funds necessary to make Lease Payments for the coming fiscal year in the County Executive's Advertised Budget Plan in order that the Board of Supervisors can determine whether to appropriate sufficient funds to make such Lease Payments for the then-coming fiscal year.

ARTICLE 6.

EQUIPMENT

6.1. **Title:** Title to Equipment on an Appendix shall pass to the Lessee upon acceptance thereof and shall remain with Lessee upon payment in full. Title to Equipment on an Appendix will revert to Lessor upon termination of an Appendix or the occurrence of an Event of Default pursuant to Section 4.5.a though 4.5.c.

6.2. **Security Interest:** The Lessee grants to Lessor and Lessor retains a purchase money security interest in the Equipment. Lessee will not change or remove any insignia or lettering, which Lessor may place on the Equipment to indicate its interest therein until all Lease Payments are made. Until all Lease Payments are made or prepayment is complete, Lessee shall keep the Equipment free from any lien, encumbrance or legal process, which would conflict with this security interest.

6.3. **Filing:** Subject to the provisions of Section 5.4.a.iii, Lessee authorizes Lessor to make Lessor's security interest a matter of public record by filings of any appropriate standard documents necessary for that purpose. Lessee agrees to sign or execute such documents and cooperate to effect perfection of Lessor's security interest in any titled vehicles covered by any Appendix. Lessee will provide sixty (60) days' written notice to Lessor that Equipment is being relocated to ensure that Lessor may perfect additional filings as necessary. Lessee makes no representation, warranty or covenant as to the adequacy or sufficiency of any such documents to create, attach, or perfect any security interest in such Equipment.

6.4. **Personal Property:** The Equipment shall remain personal property of the Lessee and shall not be deemed to have become real property regardless of the manner in which it is affixed to real property.

6.5. **Alterations, Additions, Attachments:** Lessor hereby agrees to allow the Lessee to add and attach to the Equipment such additional equipment, facilities or fixtures as the Lessee may subsequently acquire (exclusive of repair, service replacement parts, which do not constitute new Equipment, etc.) notwithstanding the form of financing that the Lessee might use, which additional equipment, facilities or fixtures shall not be a part of or subject to this Agreement, unless by express written amendment.

6.6. **Removal of Alterations, Additions, and Attachments:** In the event title to the Equipment reverts to Lessor, Lessee, at its own expense will remove all alterations, additions and attachments and repair the Equipment as necessary so as to return the Equipment to the condition in which it was furnished, reasonable wear and tear excepted.

6.7. **Return of Equipment:** Upon rightful demand of the Lessor, as specified herein, for the Equipment listed in any attached Appendix, Lessee shall deliver possession of the Equipment to Lessor in the condition in which the Equipment is required to be maintained according to this Agreement. In such event, Lessee will, at its own expense, deliver the Equipment to Lessor at a location designated by Lessor. Such location, however, shall not be more than 100 miles from the Lessee's business location. Lessee will not be responsible for any shipping charges beyond the 100-mile limit.

6.8. **Quiet Enjoyment:** The Lessee shall be entitled to possess and use the Equipment during the term of this Agreement without interruption by the Lessor, provided that the Lessee has duly performed its obligation under this Agreement. Any Equipment acquired under terms of this Agreement may be operated at any time at the convenience of the Lessee.

6.9. **Liability of Lessor:** Notwithstanding Section 11.2 of this Agreement, in the event that the Lessor is required to perform work at the Lessee's location and such work is performed by Lessor or its agents, the Lessor shall (1) maintain such bodily injury and property damage liability insurance as necessary to protect itself from claims arising out of performance of this Agreement, and (2) indemnify and hold harmless the County, Fairfax County Public Schools, and the Fairfax County Park Authority, as well as their respective agencies, employees, and designated representatives, from any and all claims, suits, actions, liabilities, and costs of any kind (including attorney's fees) arising from acts or omissions of the Lessor, its agents, officers, employees, subcontractors or assigns.

ARTICLE 7.

TERMINATION OF AN APPENDIX

7.1. **Termination:** Lessor and the Lessee agree that the Agreement shall remain in force for the periods set forth in each Appendix, provided, however, the Lessee may terminate any such Appendix at the end of any fiscal year (June 30) in the event that funds for the purpose of making Lease Payments for the next fiscal year have not been appropriated or the Lessee is not otherwise able to meet its obligations hereunder. Termination of an Appendix shall not terminate this Agreement and shall not terminate any other Appendix.

7.2. **Prepayment:** Subject to a half-term blackout, Lessee shall have the right, exercisable only on at least 30 days' written notice to the Lessor, to prepay Lease Payments at 100% of the principal amount outstanding.

Lessee's right hereunder shall be exercised by:

a) Lessee advising Lessor, in writing, of its intention to prepay its obligations hereunder and the effective date of that payment ("Prepayment Date"), such date being a regularly scheduled payment date, and

b) By Lessee paying Lessor the outstanding principal balance as of the Prepayment Date together with interest from the most recent Lease Payment date to and including the Prepayment Date.

c) Upon prepayment, the Lessee will pay any sums in arrears.

7.3. **Lessee's Rights on Prepayment or Payment in Full:** Upon (1) Lessee's exercise of its right of prepayment in accordance with the preceding subsection or (2) Lessee's having satisfied all of its monetary and other obligations hereunder, Lessor shall deliver to Lessee, all documents necessary to transfer or confirm, as the case may be, legal and beneficial title, and possession free of all liens and encumbrances to Lessee and to evidence the termination of Lessor's interest therein. The Equipment will be accepted by Lessee at that time on an AS IS, WHERE IS basis and Lessor makes no warranties or representations of any type as to the Equipment.

ARTICLE 8.

ASSIGNMENT BY LESSOR

8.1. **Right of Assignment:** This Agreement shall be binding upon and inure to benefit of the Lessor and Lessee. This Agreement, Lessor's rights hereunder, and the obligations hereby described are not assignable, except as provided in Section 8.2 or transferable except by written mutual agreement of the parties hereto.

8.2. **Assignment By Lessor:** Neither the Lessor nor its assignees may, by assignment of this Agreement or otherwise, publicly sell or offer for limited sale securities based on the Lessee's obligations under this Agreement without prior written approval of the Lessee. Lessor may designate a paying agent or trust for the receipt of all payments under all Appendices under this Agreement, subject to prior written approval of the Lessee. The Lessee may require such written assurances, indemnification, legal opinions, and other measures as it may deem necessary to protect the interests of the Lessee.

The Lessor may assign the payment obligations of the Lessee pursuant to an Appendix to an affiliated or another institutional investor provided that the payments would continue to be made to the Lessor.

Lessor shall, as agent for Lessee, keep a record of all such assignments in compliance with section 149(a) of the Internal Revenue Code of 1986, as amended.

ARTICLE 9.

WARRANTIES AND REPRESENTATIONS

9.1. **Warranties and Representations of Lessee:** The Lessee represents and warrants to the Lessor and, so long as this Agreement is in effect or any part of Lessee's obligations to the Lessor remain unfulfilled, shall continue to warrant at all times, that:

a) Lessee is duly organized and validly existing and has the power and authority to enter into the Transaction Documents to which it is a party and to carry out the terms thereof.

b) This Agreement and all other Transaction Documents and the performance of Lessee's obligations thereunder have been duly and validly authorized and approved under all laws and regulations and procedures applicable to Lessee, the consent of all necessary persons or bodies has been obtained and all of the Transaction Documents executed by Lessee have been duly and validly executed and delivered by Authorized Representatives and constitute legal, valid and binding obligations of Lessee enforceable against Lessee in accordance with their respective terms.

c) The Lessee reasonably expects to own, operate and use the Equipment in connection with the exercise of its governmental functions during the term of the Agreement.

9.2. **Warranties and Representations of Lessor:** Lessor represents and warrants to Lessee and, so long as this Agreement is in effect or any part of Lessor's obligations to Lessee remain unfulfilled, shall continue to warrant at all times that:

a) Lessor has the power and authority to enter into the Transaction Documents to which it is a party and to carry out the terms thereof.

b) The Transaction Documents executed by Lessor have been duly authorized, approved, executed and delivered by its authorized representatives and constitute legal, valid and binding obligations of Lessor enforceable against Lessor in accordance with their respective terms.

ARTICLE 10.

GENERAL

10.1. **Waiver:** No delay or omission by Lessor in exercising any right in any of the Transaction Documents shall operate as a waiver of that or any other right and no single or partial exercise of any right shall preclude Lessor from any or further exercise of any right or remedy.

10.2. **Heading:** All section headings contained herein are for clarification and convenience of reference only and are not intended to limit the scope of any provisions of this Agreement.

10.3. **Severability:** In the event any portion of this Agreement shall be finally determined by any court of competent jurisdiction to be invalid or unenforceable, such provision shall be stricken and this Agreement as modified, shall continue in full force and effect.

10.4. **Governing Laws:** This Agreement shall be construed in accordance with and governed by the laws of the Commonwealth of Virginia without giving effect to any choice or conflict of law provision or rule (whether of the Commonwealth of Virginia or any other jurisdiction).

10.5. **Implementation:** This Agreement shall be implemented by its execution and the execution from time to time of appendices hereto. For purposes of construing a transaction as an integrated contract and for the purposes of the provisions of Article 8, the following shall be considered a single transaction or legal binding agreement:

a) This Agreement, which provides basic terms and conditions.

b) An executed Appendix, which provides for the description of the Equipment to be purchased, the payments from Lessee to Lessor for the purchase of such Equipment and the prepayment amounts.

10.6. **Amendment:** Neither this Agreement nor any of the Transaction Documents may be amended unless the same be in writing, signed by the parties hereto.

10.7. **Contractual Records:** All contractual books, records and other documents related to matters under this Agreement shall be made available by Lessor to Lessee and its designated agents for a period of five (5) years after final payment for purposes of audit and examination. The foregoing audit right shall not apply to records that Lessor is prohibited by law or regulations to provide, or any item subject to attorney-client privilege or any other similar privilege.

10.8. **No Waiver:** Nothing contained in this Agreement shall be deemed or be construed to be an express or implied waiver of the sovereign immunity of the Commonwealth of Virginia or a pledge of the full faith and credit of the Commonwealth.

10.9. **Disputes:** Any dispute, claim or cause of action filed by or on behalf of the Lessor shall be governed by paragraphs 68 and 69 of the General Conditions and Instructions to Bidders (which is incorporated herein by reference).

10.10. **Entire Agreement:** This Agreement and the Award, which is hereby incorporated herein by reference and attached hereto, and the Appendices as may be hereafter executed, constitute the entire agreement between the parties hereto. All prior negotiations, representations and additional or inconsistent oral or written statements are superseded, null and void.

10.11. **Counterparts:** This Agreement may be executed in several counterparts each of which shall be an original and all of which together shall constitute but one and the same instrument.

ARTICLE 11.

DISCLAIMER OF WARRANTIES

11.1. LESSOR MAKES NO WARRANTIES OR REPRESENTATIONS, EXPRESS OR IMPLIED, RELATING TO THE EQUIPMENT; AND LESSOR HAS EXPRESSLY MADE NO WARRANTY AS TO THE VALUE, DESIGN, CONDITION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE EQUIPMENT.

11.2. Lessor shall not be liable to the Lessee for any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the Equipment or by any inadequacies thereof or deficiency or defect therein, by any incident whatsoever in connection therewith or in any way related to or arising out of this Agreement. The Lessee shall be entitled to the benefit of any applicable manufacturer's warranties and rights, including rights and warranties that it may have under the agreement with the Equipment Vendor.

11.3. Lessor agrees to execute and deliver such further instrument as may be necessary, in the reasonable opinion of the Lessee, to enforce any of Lessee’s rights against the Equipment Vendor and to enable Lessee to enforce any warranties and obtain the warranties and service furnished for the Equipment by the manufacturer.

FORM OF MASTER LEASE AGREEMENT

ARTICLE 12.

SIGNATURES

12.1. IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the day and year first above written.

LESSOR	**FAIRFAX COUNTY**
_____	_____
(Signature)	(Signature)
_____	Cathy A. Muse, CPPO
Name	Name
_____	County Purchasing Agent
Title	Title
_____	_____
(Date)	(Date)

FAIRFAX COUNTY
VIRGINIA

DEPARTMENT OF PROCUREMENT & MATERIAL MANAGEMENT
12000 GOVERNMENT CENTER PARKWAY, SUITE 427
FAIRFAX, VIRGINIA 22035-0013
www.fairfaxcounty.gov/procurement/

TELEPHONE: (703) 324-3201 FAX: (703) 324-3228 TTY: 711

EQUIPMENT MASTER LEASE AGREEMENT

COVER SHEET

APPENDIX NO. ___

[redacted]

Lessee hereby leases the Equipment described in the Schedule of Equipment, pursuant to the attached Schedules and the terms and conditions of the Master Lease Agreement dated March ___, 2020 between the undersigned Lessor and Lessee.

Attachments: Acceptance Certificate (Schedule 1)
Disbursement Authorization Certificate (Schedule 2)
Representation Certificate (Schedule 3)
Payment Schedule Certificate (Schedule 4)
Schedule of Equipment (Schedule 5)

FAIRFAX COUNTY, VIRGINIA	_____
LESSEE	LESSOR
BY:_____	BY:_____
TITLE: County Purchasing Agent or Authorized Agents	TITLE: _____
DATE: _____	DATE:_____

APPENDIX NO. __

ACCEPTANCE CERTIFICATE

(Schedule 1)

Contract No. _____

Fairfax County, Virginia, acting by and through _____ hereby accepts for purposes of the Master Lease Agreement dated _____, 2020 (the "Agreement") by and between _____ and Fairfax County, Virginia, the Equipment described below, evidencing acceptance pursuant to the Agreement and for purposes of this Agreement only. Pursuant to the Agreement, the undersigned County representative hereby certifies that (i) the Equipment described below has been delivered to the County; and; (ii) except as provided in paragraph 4.4 of the Agreement, the obligation of the County to make Lease Payments required hereunder shall be absolute and unconditional in all events. Lessee's obligation to make Lease Payments shall not be abated through accident, unforeseen circumstances, failure of the Equipment to perform as desired, damage or destruction to the Equipment, loss of possession of the Equipment or obsolescence of the Equipment. Nothing herein shall affect any of the County's rights, remedies or warranties against the Equipment Vendor.

Quantity	Manufacturer/ Seller	Description	Identification or Serial No.	Cost

_____
(County Agency)

By: _____
(Signature)

_____
(Name - Type or Print)

_____
Title

Dated: _____

FAIRFAX COUNTY, VIRGINIA
LESSEE

By: _____
(Signature)

_____
(Name –Type or Print)

County Purchasing Agent or Authorized Agents
Title

Dated: _____

APPENDIX NO. ___

DISBURSEMENT AUTHORIZATION CERTIFICATE

(Schedule 2)

Contract No. _____

In accordance with the terms of the Master Lease Agreement dated as of _____, 2020 by and between _____ and Fairfax County, Virginia, Fairfax County hereby submits this Disbursement Authorization Certificate to request a disbursement under the Agreement for certain Equipment shown on Schedule 1 of this Appendix. The County represents and warrants for all purposes of this Certificate, that:

1. The amount of the disbursement pursuant to this Certificate is $_____ (the "Equipment Purchase Amount"). Such disbursement is to be made on or before_____ (the "Vendor Payment Date").

2. Payment of the disbursement requested hereby is to be made to _____the "Equipment Vendor" or the Lessee in the case of a reimbursement) at the following address:

   _____
   _____
   _____

   _____(tel. no.)

3. Attached hereto are vendor invoices.

FAIRFAX COUNTY, VIRGINIA
LESSEE

By: _____
(Signature)

_____
(Name - Type or Print)

County Purchasing Agent or Authorized Agents
(Title)

Dated: _____

APPENDIX NO. __

REPRESENTATION CERTIFICATE

(Schedule 3)

Contract No. _____

Fairfax County Government Contact for this Agreement:

Name: Yong Kim, CPPB

Address: 12000 Government Center Parkway, Suite 427, Fairfax, VA 22035

Phone: 703-324-3884; Fax 703-324-3228

Email: yong.kim@fairfaxcounty.gov

or

Email: dpmmteam1@fairfaxcounty.gov

Lessor Contact for this Agreement:

Name: _____

Address: _____

Phone: (___) ___-____

County Billing Address for Lease Payment Invoices:

Specific billing reference or Instructions, if any (i.e., P.O.#, Contract #, wiring instructions, etc.)

APPENDIX NO. __

PAYMENT SCHEDULE CERTIFICATE - PERIODIC PAYMENTS

(Schedule 4)

Contract No. Contract No. _____

Pursuant to the terms of the Agreement, the County requests that the lease purchase of the Equipment with respect to this Appendix in the amount of $ _____ be financed over a _____ year period. Based on the Acceptance Date, the Current Interest Rate Swap Index for this financing is _____. Based on the Current Interest Rate Swap Index, the interest rate for this financing is ____ %.

The initial payment for this financing is $_____, thereafter, the periodic payment will be $_____. The schedule of Lease Payments or the Equipment with respect to this Appendix is as follows:

[See attached **Debt Service Schedule**]

FAIRFAX COUNTY, VIRGINIA
LESSEE

By: _____
(Signature)

_____
(Name - Type or Print)

County Purchasing Agent or Authorized Agents
(Title)

Dated: _____

APPENDIX NO.__

EQUIPMENT MASTER LEASE AGREEMENT
SCHEDULE OF EQUIPMENT

SCHEDULE NO. 5

Contract No. _____

In accordance with the terms of the Master Lease Agreement dated _____, by and between _____and Fairfax County, Virginia, the Equipment described below shall be leased pursuant to this Appendix.

Item of Equipment*	Qty	Cost per Unit	Using Entity	Delivery Date

(*Include a detailed description of the specifications of the items of equipment and, for each serial numbered item, the serial number, and where no serial number is included, sufficient information to determine to which items of equipment Lessor's security interest attaches.)

BANC OF AMERICA PUBLIC CAPITAL CORP
LESSOR

By: _____
(Signature)

_____
(Name – Type or Print)

_____
(Title)

Date:_____

FAIRFAX COUNTY, VIRGINIA
LESSEE

By: _____
(Signature)

_____
(Name - Type or Print)

County Purchasing Agent or Authorized Agents
(Title)

Dated: _____

FAIRFAX COUNTY, VIRGINIA Date: _____
Master Equipment Leasing Program
FINANCING REQUEST CERTIFICATE (Attachment 1)

FROM: _____
(Agency Director)

TO: Joseph LaHait, County Debt Manager
Department of Management and Budget

AGENCY CONTACT:_____

CONTACT PHONE: _____ FAX #:_____

AMOUNT: Equipment Cost

Down Payment (_____)

Trade - In (_____)

Amount Financed: _____

FINANCING TERM: _____EXPECTED FUNDING DATE: _____
==========
EQUIPMENT:

- Complete Equipment Description (non- technical description)

_____
_____
_____
_____
_____

- Proposed equipment is replacement - age of equipment being replaced?

_____
_____
_____
_____
_____

- Proposed equipment is additional - why is equipment needed?

_____
_____
_____
_____

- What function does equipment perform (essential use)?

_____
_____
_____
_____
_____

Please attach a copy of project justification, cost/benefit analysis or feasibility study if one was prepared.
First year payment appropriated? Yes___ No Explain: _____

APPROVED: LESSOR: _____ _____
Signature Date
BY:_____
TITLE: _____

Board Agenda Item
March 10, 2020

ACTION - 3

Approval of a Resolution Supporting an Additional Project Being Submitted to the Northern Virginia Transportation Commission for FY 2021 to FY 2022 Commuter Choice Funding (Providence, Dranesville, and Mason Districts)

ISSUE:
Board approval is requested of a resolution (Attachment 1) supporting an application submitted by the City of Falls Church to the Northern Virginia Transportation Commission (NVTC) for FY 2021 – FY 2022 Commuter Choice Program Funds and providing the County's concurrence that this project be evaluated. Projects submitted by the County were previously endorsed by the Board on January 28, 2020.

RECOMMENDATION:
The County Executive recommends that the Board of Supervisors approve Attachment 1, in substantial form, supporting an application by the City of Falls Church for NVTC's Commuter Choice Program Funds to enhance transit service in the Route 7 corridor between Tysons and the Mark Center in Alexandria.

TIMING:
Board of Supervisors' approval is requested on March 10, 2020, to provide NVTC a resolution of support for the application, which was due on January 31, 2020. NVTC is expected to approve projects for its FY 2021-2022 Commuter Choice Program in Summer 2020.

BACKGROUND:
On November 14, 2019, NVTC approved the issuance of the FY 2021 – 2022 Commuter Choice Program Call for Projects. Funding is provided by toll revenues from I-66 Inside the Beltway to fund multimodal transportation projects. Project applications were due to NVTC on January 31, 2020, with a resolution of endorsement from each locality's governing body.

At its January 28, 2020, meeting, the Board of Supervisors adopted a resolution (Attachment 2) endorsing three projects to be submitted by Fairfax County to NVTC. The FY 2021 – 2022 I-66 Commuter Choice Program will follow the selection process prescribed in the Memorandum of Agreement between the Commonwealth Transportation Board (CTB), the Virginia Department of Transportation (VDOT), and

NVTC as of January 5, 2017, whereby eligible projects are evaluated, prioritized, selected and then submitted to the CTB for approval.

Following the actions taken by the Board, County staff was contacted by the City of Falls Church requesting support of their project.

The project will provide enhanced transit service and connectivity in the Route 7 corridor between Tysons in Fairfax County and the Mark Center in Alexandria. The route generally follows the route for the proposed BRT system that NVTC is developing with Falls Church, Fairfax County, Alexandria, and Arlington. This project will provide weekday AM and PM peak limited stop service along Route 7. Service will be bi-directional with 20-minute headways.

The need for and benefits of this service are documented in the Envision Route 7 Bus Rapid Transit Study in Phase I, Phase II, and Phase III. The requested funds will support WMATA's operating costs for the expanded transit service.

Since, a substantial part of this project is located in Fairfax County, staff recommends that the Board concur with the submission of the grant application.

FISCAL IMPACT:
There is no direct fiscal impact associated with this action.

ENCLOSED DOCUMENTS:
Attachment 1 – Resolution Supporting an Additional Project Being Submitted to the Northern Virginia Transportation Commission for FY 2021 to FY 2022 Commuter Choice Program Funds
Attachment 2 – Resolution approved on January 28, 2020, for Fairfax County projects to be submitted to the Northern Virginia Transportation Commission for FY 2021 to FY 2022 Commuter Choice Program Funds

STAFF:
Rachel Flynn, Deputy County Executive
Tom Biesiadny, Director, Fairfax County Department of Transportation (FCDOT)
Todd Wigglesworth, Chief, Coordination and Funding Division, FCDOT
Brent Riddle, Senior Transportation Planner, Coordination Section, FCDOT
Malcolm Watson, Transportation Planner, Coordination and Funding Division, FCDOT

Attachment 1

Fairfax County Board of Supervisors Resolution

At a regular meeting of the Board of Supervisors of Fairfax County, Virginia, held in the Board Auditorium in the Fairfax County Government Center in Fairfax, Virginia, on Tuesday, March 10, 2020, at which meeting a quorum was present and voting, the following resolution was adopted:

RESOLUTION

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of Fairfax County, Virginia, hereby supports the efforts of the City of Falls Church in submitting an application to the NVTC requesting FY 2021 – FY 2022 Commuter Choice Program Funds for enhanced transit service in the Route 7 corridor between Tysons in Fairfax County and the Mark Center in Alexandria, and requests that the City of Falls Church coordinate the implementation of this project with Fairfax County and the affected Fairfax County Supervisors:

Adopted this 10th day of March 2020, Fairfax, Virginia.

A Copy - Teste

_____
Jill G. Cooper
Clerk for the Board of Supervisors

RESOLUTION

At a regular meeting of the Board of Supervisors of Fairfax County, Virginia, held in the Board Auditorium in the Fairfax County Government Center of Fairfax, Virginia on Tuesday, January 28, 2020, at which a quorum was present and voting, the following resolution was adopted:

RESOLUTION

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors of Fairfax County, Virginia, hereby authorizes the Director of the Fairfax County Department of Transportation to submit to the Northern Virginia Transportation Commission a request for funding from the I-66 Inside the Beltway Commuter Choice Program for FY2021-2022 for the following projects listed in priority order:

- McLean Station Second Entrance: This project proposes a second entrance to the McLean Metrorail on the north side of the station to provide a shortened, more convenient walk and visible access from areas north of the McLean Station that are redeveloping. *Funding request: $1,000,000*

- Reston South Multimodal Improvements: *Funding Request: $8,600,000*
  - New Express Route 598: The new route will provide express transit service from Reston South Park-and-Ride Lot to the Pentagon, Pentagon City and Crystal City in Arlington.
  - Intersection Improvements at Fox Mill and Pinecrest Road: The project is for the construction of a traffic signal and pedestrian crossings at the intersection of Fox Mill Road and Pinecrest Road.
  - Bicycle and Pedestrian Improvements: The proposed projects will provide ADA and AASHTO compliant pedestrian and bicycle improvements to the Park and Ride Lot from surrounding neighborhoods

- Bus Route 599 Fare Buy Down: The project proposes to reduce the fare from the current cost of $7.50 to $4.25. Reducing the fare is projected to increase ridership on Route 599 by between 5 and 10 percent. *Funding request: $500,000*

ADOPTED this 28th day of January, 2020.

A Copy – Teste:

Jill G. Cooper
Clerk for the Board of Supervisors

Board Agenda Item
March 10, 2020

ACTION - 4

Memorandum of Agreement Between the County of Fairfax and the Annandale Volunteer Fire Department (Mason District)

ISSUE:
Board approval of the Memorandum of Agreement (Agreement) between the County of Fairfax and the Annandale Volunteer Fire Department (AVFD). The Agreement provides for conveyance of the West Annandale fire station and transfer of property at 8914 Little River Turnpike to the County. The Agreement also defines the financial commitment of the County and the AVFD, the process to design and construct a new county owned and operated fire station and describes the administrative and operational relationships between the County and the AVFD.

RECOMMENDATION:
The County Executive recommends that the Board of Supervisors approve the Agreement.

TIMING:
Board of Supervisors approval is requested on March 10, 2020. After the Agreement is approved, it is anticipated that design will begin in 2020, construction would begin in 2022 and be completed in 2024.

BACKGROUND:
The original West Annandale Fire Station (Station 23) is a two-bay fire station built in 1970 as a volunteer station. This facility has far exceeded its useful life cycle and needs to be replaced to meet current and future fire and rescue operational requirements.

The Annandale Volunteer Fire Department recognizes the need for a new station but is unable to solicit enough funds to cover the projected cost to construct their station. The Fire and Rescue Department, working closely with the AVFD and the Department of Public Works and Environmental Services (DPWES), determined that the most effective solution was to transfer ownership of the property to the County, demolish the current structure and build a new facility. The new facility will be owned and maintained by the County and provide sufficient administrative space for volunteer operations. The Agreement provides for a joint operation similar to current agreements with the Lorton Volunteer Fire Department, the Bailey's Crossroads Volunteer Fire Department, the

Great Falls Volunteer Fire Department, the McLean Volunteer Fire Department, and the Fair Oaks Volunteer Fire and Rescue Company who are tenants in County owned facilities. The volunteers will continue to provide supplemental staffing and apparatus for the station.

FISCAL IMPACT:
Funding in the amount of $15 million was approved in the 2018 Public Safety Bond Referendum to cover either a renovation/expansion or larger replacement three-bay fire station, demolition of the existing station, a temporary fire station during construction, and associated site improvements to the 1.7 acre site.

ENCLOSED DOCUMENTS:
Attachment 1 – Memorandum of Agreement Between the County of Fairfax and the Annandale Volunteer Fire Department

STAFF:
David Rohrer, Deputy County Executive
John S. Butler, Fire Chief, Fire and Rescue Department
Tiya Raju, Engineer, Department of Public Works and Environmental Services

ASSIGNED COUNSEL:
John Burton, Assistant County Attorney

AGREEMENT BETWEEN THE BOARD OF SUPERVISORS OF FAIRFAX COUNTY, VIRGINIA, AND THE ANNANDALE VOLUNTEER FIRE DEPARTMENT

THIS AGREEMENT (the "Agreement") is made by and between Fairfax County, Virginia (the "County"), by its governing body, the Board of Supervisors of the County (the "Board"), and the Annandale Volunteer Fire Department, a Virginia not-for-profit corporation (the "VFD"), regarding the fire and rescue facilities on property currently owned by the VFD located at 8914 Little River Turnpike, Fairfax Virginia, and identified as Fairfax County Tax Map Number 0584 01 0062 (the "Property").

WITNESSETH:

WHEREAS, the VFD is a non-stock, non-profit corporation duly organized and existing in good standing under the laws of the Commonwealth of Virginia, and it has full legal right, power, and authority to provide firefighting services as a volunteer fire department in the general area of the County known as Annandale and any other areas of the County as deemed necessary by the Fairfax County Fire and Rescue Department (the "Department"); and

WHEREAS, it is the established policy of the County to encourage volunteer fire and rescue services in the County and to foster the coordination of the efforts of volunteer fire departments with the operation of the Department; and

WHEREAS, the VFD has been providing fire and rescue services in the Annandale area of Fairfax County for approximately 78 years, and in 1970 the VFD constructed a fire station with related fire and rescue facilities (the "Existing Station") on the property and also with a cell tower (the "Tower") that is not owned by the Volunteers but is located on a portion of the Property leased from the Volunteers pursuant to a lease dated April 4, 2002 between the VFD and APC Realty and Equipment Company, LLC; and

WHEREAS, by Deed of Easement and Assignment of Lease ("Easement") , dated May 10, 2016, and recorded in the land records of Fairfax County ("Land Records") in Deed Book 24584, Page 1030, VFD granted to Global Signal Acquisitions IV LLC ("Global Signal") a seventy-five (75) year deed of easement for the Tower and assigned all of its right title and interest in three separate leases, a copy of which is attached hereto as Exhibit A ; and

WHEREAS, the Easement was amended by the First Amendment to Deed of Easement and Assignment of Lease ("Amended Easement"), dated February 3, 2020, and recorded in the Land Records in Deed Book 26080, Page 1833, to allow for the relocation of the area subject to the Easement as may be necessary for the construction of a new fire station and to modify certain provisions of the Easement so the County can assume ownership of the Property, a copy of which is attached hereto as Exhibit B; and

WHEREAS, the VFD continues to own and maintain the Existing Station, which houses not only the VFD but also units of the Department and in which the VFD and units of the Department share certain space; and

WHEREAS, in addition to providing firefighting services and maintenance of the Existing Station, the VFD purchases firefighting and emergency rescue apparatus ("Apparatus") for its use and the use of the Department; and

WHEREAS, it is the desire of the VFD and the County (the "Parties") that the VFD convey the Property to the County, subject to the terms and conditions herein, and that the County, in consultation with the VFD, maintain the Existing Station, and, at a future date to be mutually agreed by the Parties, construct a new fire station (the "Future Station") on the Property which the County would own and maintain and which would house units of the Department and the VFD and from which the VFD would continue to operate, provide fire and rescue services in the Annandale and Fairfax areas of Fairfax County, and purchase Apparatus for its use and the use of the Department; and

WHEREAS, it is the purpose of this Agreement to set out terms and conditions for a conveyance of the Property, a procedure for the maintenance of the Existing Station, and an arrangement under which the VFD would operate out of the Existing Station and Future Station.

NOW, THEREFORE, for and in consideration of the sum of Ten Dollars ($10.00), cash in hand paid, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

Section 1. Conveyance of the Property. Immediately upon full execution of this Agreement, the VFD will convey all its right, title, and interest in the Property to the County by Deed of Gift or Quitclaim Deed, except as specifically set forth in this Agreement. Such Deed shall include a restriction that the Property be used solely for the operation of a fire station.

Section 2. Condition of the Property. The VFD makes no representation or warranty as to the condition of the Existing Station or the Property, both of which shall be conveyed "as is".

Section 3. Maintenance of the Existing Station. After conveyance of the Property to the County by the VFD, the Existing Station and the Property shall be maintained in a condition by and at the expense of the County that meets the minimum standards for such a facility. The County shall be responsible for undertaking the necessary minimum health and safety maintenance of the Existing Station required before the construction of the Future Station.

Section 4. Future Station. The County shall design, finance, construct on its own Property, own and maintain a Future Station that meets all applicable federal, state, and County requirements for such a facility, including the Fairfax County Fire Station Design Manual, and that is adequate for the purpose of providing fire and rescue services to the Annandale area by personnel of the Department and of the VFD. In addition to facilities for Department personnel and equipment, the Future Station shall include space to accommodate the VFD's operational and administrative members, including office space, living quarters, parking, and storage. Sections 26 below set out in more detail the space needs of the VFD and the understanding between the Parties as to their shared use of the Future Station. Subject to funding by the Fairfax

County Board of Supervises, the Future Station shall be constructed within ten (10) years of this Agreement. If the Future Station is not constructed within this period, the County shall convey the Property to VFD by deed of gift.

Section 5. Design of the Future Station. The design of the Future Station shall be prepared by an architectural firm which is selected by the County in participation with the VFD as provided in Section 9, below. The design shall include space for the VFD's operational and administrative needs as defined in Section 26 below.

Section 6. Construction of the Future Station. After the Department, in participation with the VFD, has selected a design for the Future Station, the County shall put the design and specifications out to bid as provided for in the Fairfax County Purchasing Resolution.

Section 7. Financing of the Future Station. The design and construction of the Future Station and the temporary relocation of the VFD and the Department activities shall be undertaken at the County's sole cost.

Section 8. Interim Arrangements. During construction of the Future Station the County at its sole expense shall in participation with the VFD provide an interim site ("Interim Site") for a temporary fire station to house both the Department and the VFD units. The Interim Site shall have space for VFD operations, including bunk space, locker space, office space, storage space, and adequate parking.

Section 9. Volunteer Participation. The VFD shall appoint two representatives who shall participate in the design and construction of the Future Station. The VFD representatives shall be deemed agents of a governmental agency subject to the State and Local Government Conflict of Interests laws and regulations. The VFD shall be a full partner in all facets of the design and construction process, including the design reviews, construction planning and progress meetings, and the Parties will work together diligently and in good faith in fulfilling their respective obligations and duties under this Agreement.

Section 10. Dispute Resolution. The Deputy County Executive of Public Safety shall be the arbiter of any dispute between the Parties. However, the Parties acknowledge that they will endeavor to resolve any such disputes quickly and in an amicable manner.

Section 11. Operation and Maintenance of the Future Station. The County shall be responsible for operating and maintaining the Future Station. Use of the Future Station by the VFD will be in accordance with Department policies, practices, and procedures for the operation and maintenance of facilities jointly occupied by the Department and the VFD. Those areas designated solely as volunteer space will be under the administrative control of the VFD. The Department and the County shall endeavor to ensure the VFD's full use and enjoyment of the facilities.

Section 12. Other Use of the Subject Property. Any use of the Future Station for purposes other than for fire and rescue services in operational areas of the Property shall be consistent with Virginia law, Department policies, VFD standard operating procedures, and

station policies. Operational areas include areas of the Future Station where fire and rescue vehicles or equipment, Department personnel, or personnel of the VFD are housed or based. Uses in support of the community are permitted subject to the above limitations. Any use of the Future Station for purposes other than for fire and rescue services in operational areas of the Property shall be consistent with Virginia law, Department policies, VFD standard operating procedures, and station policies. Operational areas include areas of the Future Station where fire and rescue vehicles or equipment, Department personnel, or personnel of the VFD are housed or based. Uses in support of the community are permitted subject to the above limitations.

Section 13. Standards and Requirements. The VFD shall meet and maintain the standards and requirements for a volunteer fire department established by Title 27 of the Code of Virginia, as of the date of this Agreement, and by Chapter 62 of the Fairfax County Code and other applicable County ordinances that may, from time to time, be adopted or amended and that are applicable to volunteer fire departments within the County. If the VFD ceases to meet the requirements of this Section, or otherwise ceases providing fire and rescue services to the Annandale area, it can be decertified, that is, no longer be authorized to operate as a volunteer fire department, provided the VFD is first given written notice by the County of its failure to meet the requirements or to provide services and does not correct the failure within ninety (90) days.

Section 14. Operations of the VFD. As long as it remains in operation, the VFD shall continue to provide fire and rescue services under the direction of an integrated volunteer/career officer structure in accordance with the standard operating procedures of the Department. The administrative functions of the VFD shall continue to be governed by the policies and procedures of the VFD and by its Constitution and Bylaws.

Section 15. Liability of the County. No activity assumed or undertaken by the County pursuant to this Agreement shall make the County or any of its officers or employees responsible for any action, decision, policy, or practice of the VFD or for any action, decision, policy or practice of any officer, member, or employee of the VFD.

Section 16. Liability of the VFD. No activity assumed or undertaken by the VFD pursuant to this Agreement shall make the VFD responsible for any action, decision, policy or practice of the County or for any action, decision, policy or practice of any officer or employee of the County.

Section 17. Duration of Agreement; Termination and Notice. This Agreement shall exist and continue in force provided the following conditions continue to be met: (a) the VFD maintains the Existing Station in its current condition and state of repair until the point of conveyance, as provided in Section 1 of this Agreement; (b) the VFD exists as a properly constituted volunteer fire department; (c) the VFD meets the standards and requirements for volunteer fire departments set forth in Title 27 of the Code of Virginia and in County ordinances as provided by Section 14 of this Agreement. The County at its sole option may elect to terminate this Agreement if any one of these conditions is not met at any time. The County shall provide written notice to the VFD of its intention to so terminate this Agreement, and for a period of 90 days following the receipt of such notice the VFD shall have an opportunity to cure

any deficiencies. If the VFD cures those deficiencies within that 90-day cure period, then this Agreement shall not be terminated. Furthermore, if the deficiencies reasonably cannot be cured within the 90-day period, but the VFD has commenced and is continuing a diligent effort to cure the deficiencies, then without otherwise waiving its right to terminate, the County may extend the time within which the VFD may effect a cure of the deficiencies. In the event of decertification, the VFD shall not remove or dispose of any equipment or apparatus owned by the County.

Section 18. Administration of Agreement. Except as otherwise specifically provided by this Agreement, this Agreement shall be administered and enforced on behalf of the County by the County Executive or by the designated agent or agents of the County Executive. Except as otherwise specifically provided by this Agreement, this Agreement shall be administered and enforced on behalf of the VFD by the President of the VFD or by the designated agent or agents of the President of the VFD.

Section 19. Notice. All notices, requests, or other communications hereunder shall be in writing and may be transmitted by hand delivery with receipt therefore, or by certified or registered mail, return receipt requested and first-class postage prepaid, or by Federal Express or similar reputable overnight courier service, as follows:

To the County:	County Executive 12000 Government Center Parkway, Suite 552 Fairfax, Virginia 22035
With a copy to:	Fire Chief Fire and Rescue Department 12099 Government Center Parkway, Suite 5315 Fairfax, Virginia 22035
To the VFD:	Annandale Volunteer Fire Department PO Box 806 Annandale, VA 22003 Attention: President
With a copy to:	Jeremy Root Blankingship & Keith P.C. 4020 University Drive, Suite 300 Fairfax, Virginia 22030

Either Party may furnish to the other notice of a change of its address in accordance with this Section. Notice shall be deemed effective when delivered if hand-delivered or delivered by overnight courier, and three (3) business days after posting if mailed by certified or registered mail.

Section 20. Headings. The headings of the sections of this Agreement are intended merely as informative catchwords to indicate the contents of each section. Those headings shall not be construed to modify or amend the text of any section.

Section 21. Virginia Law. Virginia law shall govern this Agreement without regard to its choice of laws statutes.

Section 22. Effective Date. This Agreement shall become effective when it has been executed by the authorized representative of each Party.

Section 23. Original Copies. This Agreement shall be prepared and endorsed in one or more duplicate originals. Each Party shall have an original copy of this Agreement, and each original shall represent a valid and enforceable agreement.

Section 24. Insurance. After the conveyance of the Property to the County, the County shall maintain commercial property insurance on the Existing Station and, at such time as it may be constructed, the Future Station at full replacement value. The County shall continue to maintain insurance for County-owned and VFD-owned apparatus and portable equipment installed or stored in such apparatus. The VFD shall maintain general liability insurance of $1,000,000 per occurrence/aggregate to cover its operation. The VFD will have Fairfax County added as additional insured on this policy and provide a certificate of insurance to that effect. Except as provided for apparatus and portable equipment in this section, the VFD shall be responsible for its own property, will maintain appropriate insurance coverage for such property and the County shall have no obligation to insure and shall not be responsible in any way for personal property of the VFD.

Section 25. VFD Requirements for the Future Station. The Parties agree that the Future Station shall include, at a minimum, the following:

A. Volunteer Office Spaces, equipped with telephone, cable TV, and Internet connections as set forth below, for the exclusive use of the VFD and under the administrative control of the VFD as follows:

   i. One (1) office (200 square feet), with work space to accommodate two desks and a small round table, to be used for the VFD members. The office is to have a supply closet.
   ii. At least One (1) minimum, 4'x6' Storage closet for VFD owned equipment that can be closed and secured to be located in the apparatus/bay area.

B. Sufficient bunk space to accommodate not only Department personnel but also four members of the VFD at any one time.

C. Sufficient Gear and personal locker space to accommodate not only Department personnel but also four members of the VFD at any one time.

D. Three apparatus bays to accommodate Department and VFD-owned equipment and apparatus.

E. The county's guest services wireless network will be provided for VFD members to use with personally-owned computers for Internet access with coverage including, at least, Volunteer Office Spaces, the kitchen and dining area, the dayroom and meeting and training spaces. The VFD may procure its own Internet Service Provider (ISP) with wireless coverage, however, that wireless network must not interfere with the CAD wireless network at the station. The VFD will be responsible for the cost of providing any personal computers.

F. The following dedicated telephone lines shall be provided for VFD use:

   i. One general telephone line available from all telephones in Volunteer Office Spaces in addition to access to County-dedicated lines.
   ii. One fax line on the county's digital faxing solution RightFax.

G. A message sign for use by the VFD and the Department for public service and similar announcements and a clearly visible ADA compliant sign which says, in equal sized, centered lettering:

Fairfax County Fire and Rescue Station #23
Annandale Volunteer Fire Department

H. Both the County seal and the Annandale VFD seal, along with the Department names,shall be displayed on the Building in equal size:

Fairfax County Fire & Rescue Department
and
The Annandale Volunteer Fire Department

Section 27. VFD Requirements for the Future Apparatus. All apparatus whether County or AVFD owned should reflect both names, Fairfax County Fire & Rescue Department and The Annandale Volunteer Fire Department.

BOARD OF SUPERVISORS OF FAIRFAX COUNTY, VIRGINIA

By: _____ _____
Bryan Hill, County Executive Date
Fairfax County, Virginia

COMMONWEALTH OF VIRGINIA
COUNTY OF FAIRFAX, to-wit:

Subscribed and sworn to before me a Notary Public in the Commonwealth and County aforesaid this _____ day of _____ , 2020.

_____
Notary Public

My Commission Expires: _____

Registration Number: _____

ANNANDALE VOLUNTEER FIRE DEPARTMENT

By: _____ 2-7-2020

Roger Waller, President
Annandale Volunteer Fire Department

Date

COMMONWEALTH OF VIRGINIA
COUNTY OF FAIRFAX, to-wit:

Subscribed and sworn to before me a Notary Public in the Commonwealth and County aforesaid this 7th day of February, 2020.

_____
Notary Public

TRACY ANN DOAN
COMMONWEALTH OF VIRGINIA
#7804078
COMMISSION EXPIRES
05/31/2022
NOTARY PUBLIC

My Commission Expires: May 31, 2022

Registration Number: 7804078

Fairfax County Circuit Court
DMZ Cover Sheet Application v2.2

Consideration	86000.00		Consideration/Actual Value %	100	
Actual/Assessed	0	Tax Exemption		Amount Not Taxed	
Code Section					
DEM Number			Tax Map Number	058-4- -01- -0062-	
Original Book	3080		Original Page	7	
Title Company	OLD REPUBLIC TITLE			Title Case	
Property Descr.	8914LITTLE RIVER TPKE			Mutilple Lots?	NO
Return To Party Name:	OLD REPUBLIC TITLE COMMERCIAL DEPARTMENT		Address:	530 S. MAIN ST. SUITE 1031, AKRON, OHIO 44311	
Certified	NO	Copies	0	Page Range	

Instruments
EASEMENT, ASSIGNMENT

Grantor(s)
ANNANDALE VOLUNTEER FIRE DEPARTMENT, INC_I_N

Grantee(s)
GLOBAL SIGNAL ACQUISITIONS IV LLC_I_N

Exhibit A

Prepared out of State. ATTN: LISA YABER
Return to: WHEN RECORDED RETURN TO:
OLD REPUBLIC TITLE
ATTN: POST CLOSING
530 SOUTH MAIN STREET
SUITE 1031
AKRON, OH 44311
OR 01-15060468
Tax Map #: 0584 01 0062

SPACE ABOVE THIS LINE RESERVED FOR RECORDER'S USE

DEED OF EASEMENT AND ASSIGNMENT OF LEASE

Facilities:	881105
Street Address:	8914 Little River Tpke
City:	Fairfax
County:	Fairfax
Commonwealth:	Virginia

Consideration: $16,000.-

between

GLOBAL SIGNAL ACQUISITIONS IV LLC,
a Delaware limited liability company ("Grantee"; to be indexed as grantee)

and

ANNANDALE VOLUNTEER FIRE DEPARTMENT, INC.,
a Virginia corporation ("Grantor"; to be indexed as grantor)

P1 Annandale Vol. Fire Dept.
BU 881105
PPAB 3009411v2

DEED OF EASEMENT AND ASSIGNMENT OF LEASE

THIS DEED OF EASEMENT AND ASSIGNMENT OF LEASE (this "Deed of Easement") is made effective this 10th day of MAY, 2016, by and between **ANNANDALE VOLUNTEER FIRE DEPARTMENT, INC.**, a Virginia corporation ("Grantor"; to be indexed as grantor), and **GLOBAL SIGNAL ACQUISITIONS IV LLC**, a Delaware limited liability company ("Grantee"; to be indexed as grantee).

1. **Description of Grantor's Property**. Grantor is the owner of that certain land and premises in Fairfax, County of Fairfax, Commonwealth of Virginia, by grant or conveyance described in the Fairfax County Clerk's Office ("Clerk's Office") in Book 3080, Page 7. The description of said property is attached hereto as Exhibit "A" (hereinafter "Grantor's Property").

2. **Description of Easement**. For $10.00 and other good and valuable consideration, the receipt and sufficiency of which the parties hereby acknowledge, Grantor grants and conveys unto Grantee, its successors and assigns, an exclusive easement for use of a portion of Grantor's Property, that portion being shown as the "Tower Easement" and the "Equipment Easement" in the survey attached hereto as Exhibit "B" and described as the "Tower Easement" and as the "Equipment Easement" by metes and bounds in Exhibit "C" attached hereto (hereinafter the Tower Easement and Equipment Easement shall be collectively referred to as the "Easement Area" unless stated to the contrary). The Easement Area shall also include (a) a nonexclusive right-of-way over and across Grantor's Property for ingress and egress, seven (7) days per week, twenty-four (24) hours per day, on foot or motor vehicle, including trucks, to and from the nearest public right-of-way and the Easement Area, together with the right to install, replace and maintain utility wires, poles, cables, conduits and pipes on, over, under, through and across Grantor's Property for the provision of services to the exclusive Easement Area (the "Access Easement") (hereinafter the term "Easement Area" shall be deemed to also include the Access Easement unless stated to the contrary); (b) an exclusive right-of-way for the installation, replacement, and maintenance of utility wires, poles, cables, conduits and pipes (the "Utility Easement"), in those locations more particularly shown as "Utility Easement 1" and "Utility Easement 2" in the survey attached hereto as Exhibit "B" and described as "Utility Easement 1" and "Utility Easement 2" by metes and bounds in Exhibit "C" (hereinafter the term "Easement Area" shall be deemed to also include the Access Easement and Utility Easement unless stated to the contrary); and (c) any portion of Grantor's Property on which communications facilities exist on the date of this Deed of Easement (even if not described in the Lease Agreements as that term is defined in Section 3 of this Deed of Easement). In the event Grantee or any public utility is unable or unwilling to use the easement described in subsection (a) above, Grantor hereby agrees to grant an additional right-of-way, in form satisfactory to Grantee, to Grantee or at Grantee's request, directly to a public utility, at no cost and in a location acceptable to Grantee.

3. **Assignment of Lease Agreements**. The parties hereby acknowledge (a) that certain PCS Site Agreement dated April 4, 2002, by and between APC Realty and Equipment Company, LLC, as lessee, and Grantor, as lessor, a memorandum of which is recorded in the Clerk's Office in Book 12869, Page 235 (as amended, the "APC Realty Lease"). The APC Realty Lease was amended by that Amendment to PCS Site Agreement dated June 18, 2003, and by that Second Amendment to PCS Site Agreement dated March 5, 2010, a memorandum of which is recorded

in Book 21193, Page 886 in the Clerk's Office (the parties acknowledge that Memorandum of Lease recorded in the Clerk's Office in Book 14662, Page 982, however the parties will follow the dates and terms provided for in the Memorandum of Lease recorded in the Clerk's Office in Book 12869, Page 235); (b) that certain Site Lease with Option dated September 10, 2003, by and between Omnipoint Communications Cap Operations LLC, as lessee, and Grantor as lessor ("Omnipoint Lease"); and (c) that Purchase and Sale of Lease and Successor Lease dated July 31, 2007 (the "WCP Agreement"), by and between Wireless Capital Partners, LLC, a Delaware limited liability company ("WCP"), and Grantor, as lessor, memorandums of which are recorded in the Clerk's Office in Book 19960, Page 962, Book 19960, Page 966, and Book 19960, Page 970, providing evidence of the WCP Agreement and the assignment to WCP of the lessor's interest in the APC Realty Lease, the Omnipoint Lease, and a lease between lessor and Nextel Communications of the Mid-Atlantic, Inc., respectively (each of the APC Realty Lease, the Omnipoint Lease and the WCP Agreement is referenced herein as a "Lease Agreement" and collectively as the "Lease Agreements", and each reference shall include any amendments, assignments, addendums, and extensions to said Lease Agreements). The APC Realty Lease and the Omnipoint Lease are each attached hereto as Exhibit "D". The lessees under the Omnipoint Lease and the APC Realty Lease, along with WCP, are hereinafter referred to individually as a "Lessee" and collectively as the "Lessees". Grantor warrants that Grantor has delivered to Grantee true and correct copies of the Lease Agreements. To Grantor's best knowledge, no party to the Lease Agreements has breached or is in default of their respective obligations under the Lease Agreements and no party has requested or discussed a modification of the Lease Agreements (including a reduction in rent) or termination now or in the future. Grantor hereby assigns to Grantee Grantor's right, title and interest in the Lease Agreements, including but not limited to (a) all rents, security deposits and other monies due or to become due to Grantor pursuant to the Lease Agreements; (b) the right to amend any and all terms of the Lease Agreements; (c) the right to extend the length of the term of the Lease Agreements; and (d) the right to increase the size of the area subject to the Lease Agreements so long as any such expansion is within the Easement Area. Grantee assumes the obligations and liabilities of Grantor, as lessor under the Lease Agreements accruing after the date of this Deed of Easement, but only to the extent that such obligations and liabilities are not the responsibility of Grantor pursuant to the terms of this Deed of Easement.

4. **Grantor's Obligations with Respect to the Lease Agreements**. From and after the date hereof and continuing until this Deed of Easement is terminated (if ever), Grantor shall not, other than to the extent required herein or requested in writing by Grantee, exercise or enjoy any of the rights or remedies of the lessor under the Lease Agreements. Grantor shall notify Grantee in writing within five (5) calendar days of Grantor's receipt of any payment in respect of rent, income, charges, interest, penalties, fees and other revenue payable by the Lessees, and Grantor shall forward such payment to Grantee within said five (5) day period. In the event that Grantor fails to forward to Grantee any payment as provided hereunder, Grantee shall have the right to collect such payment from Grantor together with interest on such payment at the greater of the (i) the rate provided by statute where the Easement Area is located or (ii) 12% per annum (calculated from the date five (5) days after Grantor receives such payment until Grantor pays such sums due to Grantee) and shall have a lien against Grantor's Property with respect thereto. Grantor shall, however, continue to pay, perform, and otherwise discharge all obligations and liabilities of the lessor under the Lease Agreements with respect to Grantor's Property, whether

arising prior to, on, or after the date hereof. Without limiting the generality of the foregoing, Grantor shall: (a) fully, faithfully and timely perform all covenants to be performed by the Grantor under the Lease Agreements; (b) promptly pay all mortgages, loans, liens, judgments and all real estate, personal income and other taxes that may become due with respect to Grantor's Property; (c) promptly execute, without any additional consideration, all letters of authorizations, permits, applications or other documents required for Grantee to fully enjoy this Deed of Easement or the Lease Agreements; (d) not suffer or allow any breach, default or event of default by the Grantor to occur under the Lease Agreements; and (e) not take any action for the purpose of, or with the effect of, inducing or causing the Lessees not to exercise a right to renew or extend the Lease Agreements. Failure to comply, in whole or in part with this Section shall constitute a default by Grantor of the terms hereof and entitle Grantee to the remedies provided in Section 14 of this Deed of Easement.

5. Permitted Uses. The Easement Area shall be used for constructing, maintaining and operating communications facilities and energy generation facilities for energy to be used on and off the Easement Area, including without limitation, tower structures, antenna support structures, cabinets, meter boards, buildings, antennas, cables, equipment and uses incidental thereto including those necessary for Grantee's compliance with its obligations under the Lease Agreements (the "Permitted Use"). No facilities or structures installed or constructed on the Easement Area by Grantee shall constitute a fixture, but shall remain the personal property of Grantee. Grantor acknowledges that Grantor has no right to object to or approve any improvements to be constructed on the Easement Area. If requested by Grantee, Grantor will execute, at Grantee's sole cost and expense, all documents required by any governmental authority in connection with any development of, or construction on, the Easement Area, including documents necessary to petition the appropriate public bodies for certificates, permits, licenses and other approvals deemed necessary by Grantee in Grantee's absolute discretion to utilize the Easement Area for the Permitted Use. Grantor agrees to be named applicant if requested by Grantee. In furtherance of the foregoing, Grantor hereby appoints Grantee as Grantor's attorney-in-fact to execute all land use applications, permits, licenses and other approvals on Grantor's behalf. Grantor shall be entitled to no further consideration with respect to any of the foregoing matters. Grantor shall take no action that would adversely affect the status of the Easement Area with respect to the Permitted Use.

6. 75 Year Term Easement. This Deed of Easement and Grantee's rights and privileges hereunder shall be for a term of seventy-five (75) years from the date first above written unless terminated sooner as may be provided for in this Deed of Easement.

7. Grantee's Right to Terminate. Grantee shall have the unilateral right, but not the obligation, to terminate this Deed of Easement for any reason. Upon termination of this Deed of Easement, (i) if the Lease Agreements are then in effect, the rights and obligations as lessor under the Lease Agreements shall revert to Grantor and (ii) the parties shall have no further obligations to each other; provided, however, that if Grantee installed any buildings, structures or equipment upon the Easement Area, Grantee shall, within a reasonable time, remove all of its building(s), tower and above ground property and restore the surface of the Easement Area to its original condition prior to any such installment, reasonable wear and tear excepted. Any buildings, structures or equipment installed or constructed upon the Easement Area by Lessees, or those holding by, through and under Lessees, shall be subject to the terms and conditions of

the Lease Agreements. Said termination shall be effective upon Grantee providing written notice of termination to Grantor.

8. **Hazardous Materials**.

(a) For purposes of this Deed of Easement, the term "Hazardous Materials" means any substance which is (i) designated, defined, classified or regulated as a hazardous substance, hazardous material, hazardous waste, pollutant or contaminant under any Environmental Law, as currently in effect or as hereafter amended or enacted, (ii) a petroleum hydrocarbon, including crude oil or any fraction thereof and all petroleum products, (iii) PCBs, (iv) lead, (v) asbestos, (vi) flammable explosives, (vii) infectious materials, or (viii) radioactive materials. "Environmental Law(s)" means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. Sections 9601, et seq., the Resource Conservation and Recovery Act of 1976, 42 U.S.C. Sections 6901, et seq., the Toxic Substances Control Act, 15 U.S.C. Sections 2601, et seq., the Hazardous Materials Transportation Act, 49 U.S.C. 5101, et seq., and the Clean Water Act, 33 U.S.C. Sections 1251, et seq., as said laws have been supplemented or amended to date, the regulations promulgated pursuant to said laws and any other federal, state or local law, statute, rule, regulation or ordinance which regulates or proscribes the use, storage, disposal, presence, clean-up, transportation or release or threatened release into the environment of Hazardous Materials.

(b) Grantee shall not (either with or without negligence) cause or permit the use, storage, generation, escape, disposal or release of any Hazardous Materials in any manner not sanctioned by law. In all events, Grantee shall indemnify and hold Grantor harmless from any and all claims, damages, fines, judgments, penalties, costs, liabilities or losses (including, without limitation, any and all sums paid for settlement of claims, attorneys' fees, and consultants' and experts' fees) arising from the presence or release of any Hazardous Materials on the Easement Area if caused by Grantee or persons acting under Grantee.

(c) Grantor shall not (either with or without negligence) cause or permit the use, storage, generation, escape, disposal or release of any Hazardous Materials in any manner not sanctioned by law. In all events, Grantor shall indemnify and hold Grantee harmless from any and all claims, damages, fines, judgments, penalties, costs, liabilities or losses (including, without limitation, any and all sums paid for settlement of claims, attorneys' fees, and consultants' and experts' fees) arising from the presence or release of any Hazardous Materials on Grantor's Property unless caused by Grantee or persons acting under Grantee. Grantor shall execute such affidavits, representations and the like from time to time as Grantee may reasonably request concerning Grantor's best knowledge and belief as to the presence of Hazardous Materials on Grantor's Property.

(d) To Grantor's knowledge, neither the Easement Area nor Grantor's Property is in violation of or subject to any existing, pending, or threatened investigation or

inquiry by any governmental authority or subject to any remedial obligations under any applicable laws pertaining to Hazardous Materials.

9. Insurance. At all times, Grantee, at its sole expense, shall obtain and keep in force insurance which may be required by any federal, state or local statute or ordinance of any governmental body having jurisdiction in connection with the operation of Grantee's business upon the Easement Area.

10. Maintenance. Grantor shall maintain the Grantor's Property in a good and safe condition except to the extent maintenance is the obligation of the Lessees under the Lease Agreements.

11. Removal of Obstructions. Grantee has the right to remove obstructions, including but not limited to vegetation, which may encroach upon, interfere with or present a hazard to Grantee's or Lessees' use of the Easement Area. Grantee shall be responsible for disposing of any materials related to the removal of obstructions.

12. Taxes. Grantor acknowledges and agrees that a portion of the Purchase Price is for and in consideration of the continuing obligation of Grantor to pay, on or before the due date all present and future real property taxes, transfer taxes, penalties, interest, roll-back or additional taxes, sales and use taxes and all other fees and assessments, regardless of the taxing method that are attributable to Grantor's Property. Grantee agrees to reimburse Grantor the real property taxes attributable to the Easement Area, provided they are not already paid pursuant to the Lease Agreement. Grantor shall provide a copy of all tax bills and proof of payment of said tax bills to Grantee. In the event that Grantor fails to pay all taxes on Grantor's Property prior to such taxes becoming delinquent, Grantee may, at its option, pay such taxes (the "Delinquent Taxes") and Grantee shall have the right to collect the Delinquent Taxes from Grantor together with interest on the Delinquent Taxes at the greater of the (i) the rate provided by statute where the Easement Area is located or (ii) 12% per annum (calculated from the date Grantee pays the Delinquent Taxes until Grantor repays such sums due to Grantee) and shall have a lien against Grantor's Property with respect thereto. Failure of Grantor to comply, in whole or in part with this Section shall constitute a default by Grantor of the terms hereof and entitle Grantee to the remedies provided in Section 14 of this Deed of Easement.

13. Waiver of Subrogation. The parties hereby waive any and all rights of action for negligence against the other which may hereafter arise on account of damage to the Easement Area or any other portion of Grantor's Property, including improvements and personal property located thereon, resulting from any fire or other casualty of the kind covered by property insurance policies with extended coverage regardless of whether or not, or in what amount, such insurance is now or hereafter carried by the parties.

14. Default. The following shall constitute events of default by Grantor: (a) Grantor's failure to comply with any portion of this Deed of Easement; (b) failure by Grantor to forward to Grantee any payment as required in Section 4; (c) failure by Grantor to pay taxes as required in Section 12 of this Deed of Easement; (d) failure to timely pay any mortgages, loans, liens or judgments on the Grantor's Property; (e) a default of the Lease Agreements, the cure of which is solely or partially within the control of Grantor; and/or (f) any agreement, act or omission of Grantor resulting in, or likely to result in, the termination or expiration of the Lease Agreements

or any other lease over the Easement Area or any portion thereof (each a "Default"). Grantee shall give Grantor written notice of a Default. After receipt of such written notice, Grantor shall have ten (10) days in which to cure any monetary Default and fifteen (15) days in which to cure any non-monetary Default. Grantor shall have a reasonable extended period as may be required beyond the fifteen (15) day cure period to cure any non-monetary Default if the nature of the cure is such that it requires additional time to cure, and Grantor commences the cure within the fifteen (15) day period and thereafter continuously and diligently pursues the cure to completion. In the event that Grantor is in default beyond the applicable period set forth above, Grantee may, at its option (i) terminate this Deed of Easement and be relieved from all further obligations under this Deed of Easement; (ii) perform the obligation(s) of Grantor in which case any expenditures made by Grantee in so doing shall be deemed paid for the account of Grantor and Grantor agrees to reimburse Grantee for said expenditures upon demand; (iii) take any actions that are consistent with Grantee's rights; (iv) sue for injunctive relief, specific performance, and damages; or (v) set-off such amounts expended against any amounts due to Grantor. In the event that any sums expended by Grantee pursuant to this Deed of Easement are not reimbursed by Grantor within thirty (30) days of demand as provided hereunder, Grantee shall have the right to collect such amounts from Grantor together with interest on such amounts at the greater of the (i) the rate provided by statute where the Easement Area is located or (ii) 12% per annum (calculated from date such amounts are expended until Grantor pays such sums due to Grantee) and shall have a lien against Grantor's Property with respect thereto. Grantor grants Grantee a lien against Grantor's Property to secure its obligations to repay Grantee for any sums expended by Grantee pursuant to this Section 14.

15. Limitation on Damages. In no event shall Grantee be liable to Grantor for consequential, indirect, speculative or punitive damages in connection with or arising from this Deed of Easement, the Permitted Use or the Easement Area.

16. Recording. Grantor acknowledges that Grantee intends to record this Deed of Easement, or a memorandum of this Deed of Easement, with the appropriate recording officer upon execution of this Deed of Easement. Grantor acknowledges that Grantee may record a subsequent memorandum of this Deed of Easement within two years of the date of this Deed of Easement if, in Grantee's sole discretion, Grantee desires to record a more accurate description of the Easement Area. Grantor agrees to fully cooperate in any subsequent recordings without additional consideration.

17. Hold Harmless. Grantor hereby indemnifies, holds harmless, and agrees to defend Grantee against all damages asserted against or incurred by Grantee by reason of, or resulting from: (a) the breach by Grantor of, any representation, warranty, or covenant of Grantor contained herein or (b) any negligent act or omission of Grantor, excepting however such damages as may be due to or caused by the acts of Grantee or its agents. Grantee hereby indemnifies, holds harmless, and agrees to defend Grantor against all damages asserted against or incurred by Grantor by reason of, or resulting from: (a) the breach by Grantee of any representation, warranty, or covenant of Grantee contained herein or (b) any negligent act or omission of Grantee, excepting however such damages as may be due to or caused by the acts of Grantor or its agents.

18. Grantor's Covenant of Title. Grantor covenants: (a) Grantor is seized of fee simple title to the Grantor's Property of which the Easement Area is a part and has the right and authority to grant this Deed of Easement; (b) that this Deed of Easement is and shall be free and clear of all liens, claims, encumbrances and rights of third parties of any kind whatsoever; (c) subject to the terms and conditions of this Deed of Easement, Grantee shall have quiet possession, use and enjoyment of the Easement Area; (d) there are no aspects of title that might interfere with or be adverse to Grantee's interests in and intended use of the Easement Area; and (e) that Grantor shall execute such further assurances thereof as may be required.

19. Non-Interference. From and after the date hereof and continuing until this Deed of Easement is terminated (if ever), Grantor shall not permit (a) the construction, installation or operation of any communications facilities that emit radio frequencies on Grantor's Property other than communications facilities constructed, installed and/or operated on the Easement Area pursuant to this Deed of Easement or the Lease Agreements or (b) any condition on Grantor's Property which interferes with the Permitted Use. Each of the covenants made by Grantor in this Section 19 is a covenant running with the land for the benefit of the Easement Area and shall be binding upon Grantor and each successive owner of any portion of Grantor's Property and upon each person having any interest therein derived through any owner thereof.

20. Eminent Domain. If the whole or any part of the Easement Area shall be taken by right of eminent domain or any similar authority of law, the entire award for the value of the Easement Area and improvements so taken shall belong to Grantee.

21. Grantor's Property. Grantor shall not do or permit anything that will interfere with or negate any special use permit or approval pertaining to the Easement Area or cause any communications or energy facilities on the Easement Area to be in nonconformance with applicable local, state, or federal laws. Grantor covenants and agrees that it shall not subdivide the Grantor's Property if any such subdivision will adversely affect the Easement Area's compliance (including any improvements located thereon) with applicable laws, rules, ordinances and/or zoning, or otherwise adversely affects Grantee's ability to utilize Grantor's Property for the Permitted Use. Grantor may initiate or consent to changes in the zoning of Grantor's Property so long as said zoning changes do not prevent or limit Grantee from using the Easement Area for the Permitted Use.

22. Entire Agreement. Grantor and Grantee agree that this Deed of Easement contains all of the agreements, promises and understandings between Grantor and Grantee. No verbal or oral agreements, promises or understandings shall be binding upon either Grantor or Grantee in any dispute, controversy or proceeding at law. Any addition, variation or modification to this Deed of Easement shall be void and ineffective unless made in writing and signed by the parties hereto.

23. Construction of Document. Grantor and Grantee acknowledge that this document shall not be construed in favor of or against the drafter and that this document shall not be construed as an offer until such time as it is executed by one of the parties and then tendered to the other party.

24. Applicable Law. This Deed of Easement and the performance thereof shall be governed, interpreted, construed and regulated by the laws of the Commonwealth of Virginia.

The parties agree that the venue for any litigation regarding this Deed of Easement shall be the county in which the Easement Area is located.

25. Notices. All notices hereunder shall be in writing and shall be given by (a) established express delivery service which maintains delivery records, (b) hand delivery, or (c) certified or registered mail, postage prepaid, return receipt requested. Notices may also be given by facsimile transmission, provided that the notice is concurrently given by one of the above methods. Notices are effective upon receipt, or upon attempted delivery if delivery is refused or if delivery is impossible because of failure to provide reasonable means for accomplishing delivery. The notices shall be sent to the parties at the following addresses:

If to Grantor:

Annandale Volunteer Fire Department Inc.
P.O. 806
Annandale, VA 22003

If to Grantee:

Global Signal Acquisitions IV LLC
General Counsel
Attn: Legal – Real Estate Dept.
2000 Corporate Drive
Canonsburg, PA 15317

26. Assignment. The parties hereto expressly intend that the easements granted herein shall be easements in gross, and as such, are transferable, assignable, inheritable, divisible and apportionable. Grantee has the right, within its sole discretion, to sell, assign, lease, convey, license or encumber any of its interest in the Easement Area without consent. In addition, Grantee has the right, within its sole discretion, to grant sub-easements over any portion of the Easement Area without consent. In connection with the foregoing, Grantor irrevocably constitutes and appoints Grantee as its true and lawful attorney-in-fact, with full power of substitution and resubstitution to negotiate and consummate subleases, licenses, sublicense or any other agreements for the use or occupancy of the Easement Area. Grantor ratifies and acknowledges the right of Grantee to enter into such agreements and Grantor will be bound by such agreements throughout and after any termination of this Deed of Easement and acknowledges that all such agreements entered into by Grantee shall survive any termination of this Deed of Easement. Any such sale, assignment, lease, license, conveyance, sub-easement or encumbrance shall be binding upon the successors, assigns, heirs and legal representatives of the respective parties hereto. An assignment of this Deed of Easement shall be effective upon Grantee sending written notice thereof to Grantor at Grantor's mailing address stated above and shall relieve Grantee from any further liability or obligation accruing hereunder on or after the date of the assignment.

27. Partial Invalidity. If any term of this Deed of Easement is found to be void or invalid, then such invalidity shall not affect the remaining terms of this Deed of Easement, which shall continue in full force and effect.

28. Mortgages. This Deed of Easement shall be subordinate to any mortgage given by Grantor which currently encumbers Grantor's Property including the Easement Area, provided that any mortgagee holding such a mortgage shall recognize the validity of this Deed of Easement in the event of foreclosure of Grantor's interest and Grantee's rights under this Deed of Easement. In the event that the Easement Area is or shall be encumbered by such a mortgage, Grantor shall obtain and furnish to Grantee a non-disturbance agreement for each such mortgage, in recordable form.

29. Successors and Assigns. The terms of this Deed of Easement shall constitute a covenant running with the Grantor's Property for the benefit of Grantee and its successors and assigns and shall extend to and bind the heirs, personal representatives, successors and assigns of the parties hereto and upon each person having any interest therein derived through any owner thereof. Any sale, mortgage, lease or other conveyance of Grantor's Property shall be under and subject to this Deed of Easement and Grantee's rights hereunder.

30. Construction of Easement. The captions preceding the Sections of this Deed of Easement are intended only for convenience of reference and in no way define, limit or describe the scope of this Deed of Easement or the intent of any provision hereof. Whenever the singular is used, the same shall include the plural and vice versa and words of any gender shall include the other gender. As used herein, "including" shall mean "including, without limitation." This document may be executed in multiple counterparts, each of which shall be deemed a fully executed original.

31. Non-Interference with Lease Agreement. Grantor acknowledges and agrees that Grantee shall have fully vested rights immediately upon the full execution of this Deed of Easement; provided, however, that this Deed of Easement shall be subject to all legal rights, title and interest of the Lessee under any Lease Agreement and the Easement Area. In the event of any conflict or interference between this Deed of Easement and any legal rights, title and interests of the Lessee in and to any Lease Agreement or the Easement Area, the terms of the applicable Lease Agreement shall control. Notwithstanding anything to the contrary contained in this Section 31, if any provisions of this Deed of Easement which, but for this Section 31, would cause Grantee, as successor lessor in the Omnipoint Lease or the APC Realty Lease, or as successor to WCP in the WCP Agreement, to be in breach of any of the Lease Agreements or to acquire rights under any of the Lease Agreements or any part of the Easement Area in violation of the Lease Agreements, then (1) such provisions shall not take effect with respect to such Lease Agreement until the earlier to occur of (a) the scheduled expiration of the Lease Agreement, including any renewals or extensions thereof, or (b) termination of the Lease Agreement; (2) to the fullest extent permissible under the Lease Agreement without causing Grantee, as successor lessor in the Omnipoint Lease or the APC Realty Lease, or as successor to WCP in the WCP Agreement, to violate any of the Lessees' rights, title or interests under the Lease Agreement, (x) Grantee shall serve as Grantor's manager and operator of the Lease Agreement until such time that the terms of this Deed of Easement no longer interfere with or otherwise cause Grantee to be in breach of the Lease Agreement, (y) Grantee shall have and retain all beneficial rights under the Lease Agreement and/or the Easement Area, including, but not limited to, the right to receive all rent, license fees, or other revenue under the Lease Agreement or to be derived from the Easement Area, and (z) Grantor shall provide written instructions to all subtenants, licensees and/or payors to pay all amounts due Grantor in

connection with the Easement Area directly to Grantee; and (3) any provisions of this Deed of Easement which are found to conflict or interfere with Lessee's rights, title or interests under the Lease Agreement shall not affect Grantee's vested rights under this Deed of Easement with respect to any other Lease Agreement. In furtherance of the foregoing, Grantor hereby irrevocably appoints Grantee as Grantor's agent and attorney-in-fact, with full power of substitution and resubstitution (but only for such time as Grantee is acting as manager and/or operator of the Easement Area), to review, negotiate and execute on Grantor's behalf all documents and instruments relating to the Lease Agreements and to otherwise act on Grantor's behalf in connection with the Lease Agreements.

32. Option for Additional Land.

(a) As further consideration of the purchase price paid by Grantee in connection with this Deed of Easement, Grantee shall have the irrevocable option during the term of this Deed of Easement ("Option") to purchase an easement over a maximum of 250 square feet of real property adjacent to the Easement Area at a location to be mutually agreed upon by Grantor and Grantee ("Additional Easement Area") on the same terms and conditions set forth in this Deed of Easement. Grantee may conduct any reasonable due diligence activities on the Additional Easement Area at any time after full execution of this Deed of Easement. Grantee may exercise the Option by providing written notice to Grantor at any time; provided, however, that following Grantee's delivery of notice to Grantor, Grantee may at any time prior to full execution of the Additional Easement Area Documents (as defined below) withdraw its election to exercise this Option if Grantee discovers or obtains any information of any nature regarding the Additional Easement Area which Grantee determines to be unfavorable in its sole discretion. Within 30 days after Grantee's exercise of the Option, Grantor agrees to execute and deliver any additional easement, amendment to this Deed of Easement, and other documents necessary to grant and record Grantee's interest in the Additional Easement Area ("Additional Easement Area Documents"). In addition, within 30 days after Grantee's exercise of the Option, Grantor shall obtain and deliver any documentation necessary to remove, subordinate or satisfy any mortgages, deeds of trust, liens or encumbrances affecting the Additional Easement Area to Grantee's satisfaction.

(b) In lieu of a lump sum purchase price or other fixed annual or monthly payment for the Additional Easement Area, the consideration for the Additional Easement Area shall be as follows: In the event Grantee subleases, licenses or grants a similar right of use or occupancy in the Additional Easement Area to an unaffiliated third party (each a "Subtenant"), Grantee agrees to pay to Grantor sixty percent (60%) of the rental, license or similar payments actually received by Grantee from such Subtenant (excluding any reimbursement of taxes, construction costs, installation costs, revenue share reimbursement or other expenses incurred by Grantee) (the "Sublease Fee") within thirty (30) days after receipt of said payments by Grantee. Grantee shall have no obligation for payment to Grantor of such share of rental, license or similar payments if not actually received by Grantee. Non-payment of such rental, license or other similar payment by a Subtenant shall not be an event

of default under this Deed of Easement. Grantee shall have sole discretion as to whether, and on what terms, to sublease, license or otherwise allow occupancy of the Additional Easement Area and there shall be no express or implied obligation for Grantee to do so. Grantor acknowledges that Grantor shall have no recourse against Grantee as a result of the failure of payment or other obligation by a Subtenant.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, Grantor and Grantee, having read the foregoing and intending to be legally bound hereby, have executed this Deed of Easement as of the day and year first written above.

GRANTOR:

Annandale Volunteer Fire Department, Inc.,
a Virginia corporation

By: Gary N Moore (SEAL)
Print Name: GARY N MOORE
Title: PRESIDENT

STATE / COMMONWEALTH OF Virginia

COUNTY OF Fairfax

I, Brenda Denise Waller, a Notary Public, do hereby certify that Gary N. Moore personally appeared before me this day and acknowledged that he/she is the President of Annandale Volunteer Fire Department, Inc., a Virginia corporation, and that by authority duly given, and as the act of Annandale Volunteer Fire Department, Inc., a Virginia corporation, the foregoing Deed of Easement and Assignment of Lease was signed in its name by her/him as its President.

Given under my hand this 30th day of April, 2016.

B. [signature]
Notary Public

Registration Number: 344677

My Commission expires: 31 August 2020

[SEAL OR STAMP]

P1 Annandale Vol. Fire Dept.
BU 881105
PPAB 3009411v2

IN WITNESS WHEREOF, Grantor and Grantee, having read the foregoing and intending to be legally bound hereby, have executed this Deed of Easement as of the day and year first written above.

GRANTEE:

Global Signal Acquisitions IV LLC,
a Delaware limited liability company

By: _____ (SEAL)
Print Name: _____
Title: Helen Smith
Real Estate Transaction Manager

STATE / COMMONWEALTH OF Texas

COUNTY OF Harris

I, Caren Shaughnessy, a Notary Public, do hereby certify that Helen Smith personally appeared before me this day and acknowledged that he/she is the RET Mgr. of Global Signal Acquisitions IV LLC, a Delaware limited liability, and that by authority duly given, and as the act of Global Signal Acquisitions IV LLC, a Delaware limited liability, the foregoing Deed of Easement and Assignment of Lease was signed in its name by her/him as its RET Mgr.

Given under my hand this 10 day of May, 2016.

_____
Notary Public

Registration Number: _____

My Commission expires: _____

[SEAL OR STAMP]

CAREN SHAUGHNESSY
Notary Public, State of Texas
Comm. Expires 03-19-2018
Notary ID 12975285-5

P1 Annandale Vol. Fire Dept.
BU 881105
PPAB 3009411v2

12

EXHIBIT A

GRANTOR'S PROPERTY

SITUATED IN THE COUNTY OF FAIRFAX, STATE OF VIRGINIA:

PARENT PARCEL:
BEGINNING AT A POINT IN THE NORTHERLY RIGHT-OF-WAY LINE OF LITTLE RIVER TURNPIKE, STATE ROUTE 236, SAID POINT BEING THE SOUTHWEST CORNER OF THE ARGYLE INVESTMENT CORP. PROPERTY, AS RECORDED IN DEED BOOK 2329, AT PAGE 349, AMONG THE LAND RECORDS OF FAIRFAX COUNTY, VIRGINIA; THENCE DEPARTING SAID POINT AND RUNNING ALONG THE NORTHERLY RIGHT-OF-WAY LINE OF STATE ROUTE 236 N 78° 22' 10" W- 61.97 FEET AND N 77° 44' 40" W - 146.75 FEET TO A POINT A CORNER COMMON TO MOLLIE M. MILLER AND THE BETHLEHEM LUTHERAN CHURCH PROPERTY; THENCE DEPARTING STATE ROUTE 236 AND RUNNING WITH THE LINES COMMON TO MOLLIE M. MILLER AND THE BETHLEHEM LUTHERAN CHURCH PROPERTY N 18° 21' 30" E - 358.37 FEET AND S 77° 52' 30" E - 208.70 FEET TO A POINT IN THE WESTERLY LINE OF THE AFOREMENTIONED ARGYLE INVESTMENT CORP. PROPERTY; THENCE RUNNING WITH A PORTION OF SAID WESTERLY BOUNDARY S 18° 21' 30" W - 358.17 FEET TO THE POINT OF BEGINNING, AS MORE PARTICULARLY DESCRIBED ON THE PLAT PREPARED BY COLDWELL, SHREVE & KEYES, C. L. S., DATED AUGUST, 1965.

TAX I.D. NUMBER: 0584-01-0062

BEING THE SAME PROPERTY CONVEYED TO ANNANDALE VOLUNTEER FIRE DEPARTMENT, INC., A VIRGINIA CORPORATION, GRANTEE, FROM ELDON J. MERRITT AND FLOYD B. MOYE, TRUSTEES, GRANTOR, BY DEED RECORDED 09/09/1968, AS BOOK 3080, PAGE 7 OF THE
FAIRFAX COUNTY RECORDS.

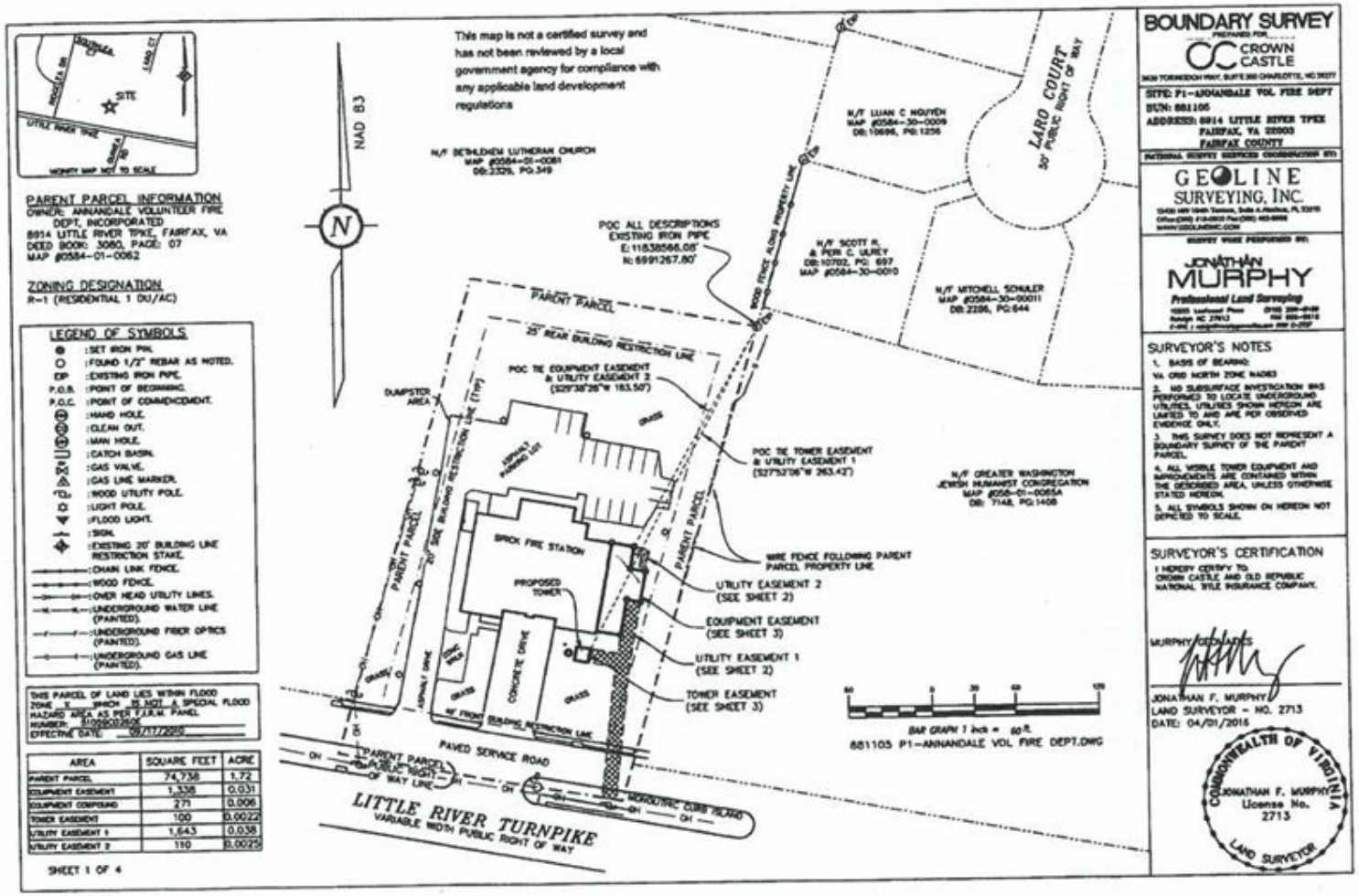
P1 Annandale Vol. Fire Dept.
BU 881105
PPAB 3009411v2

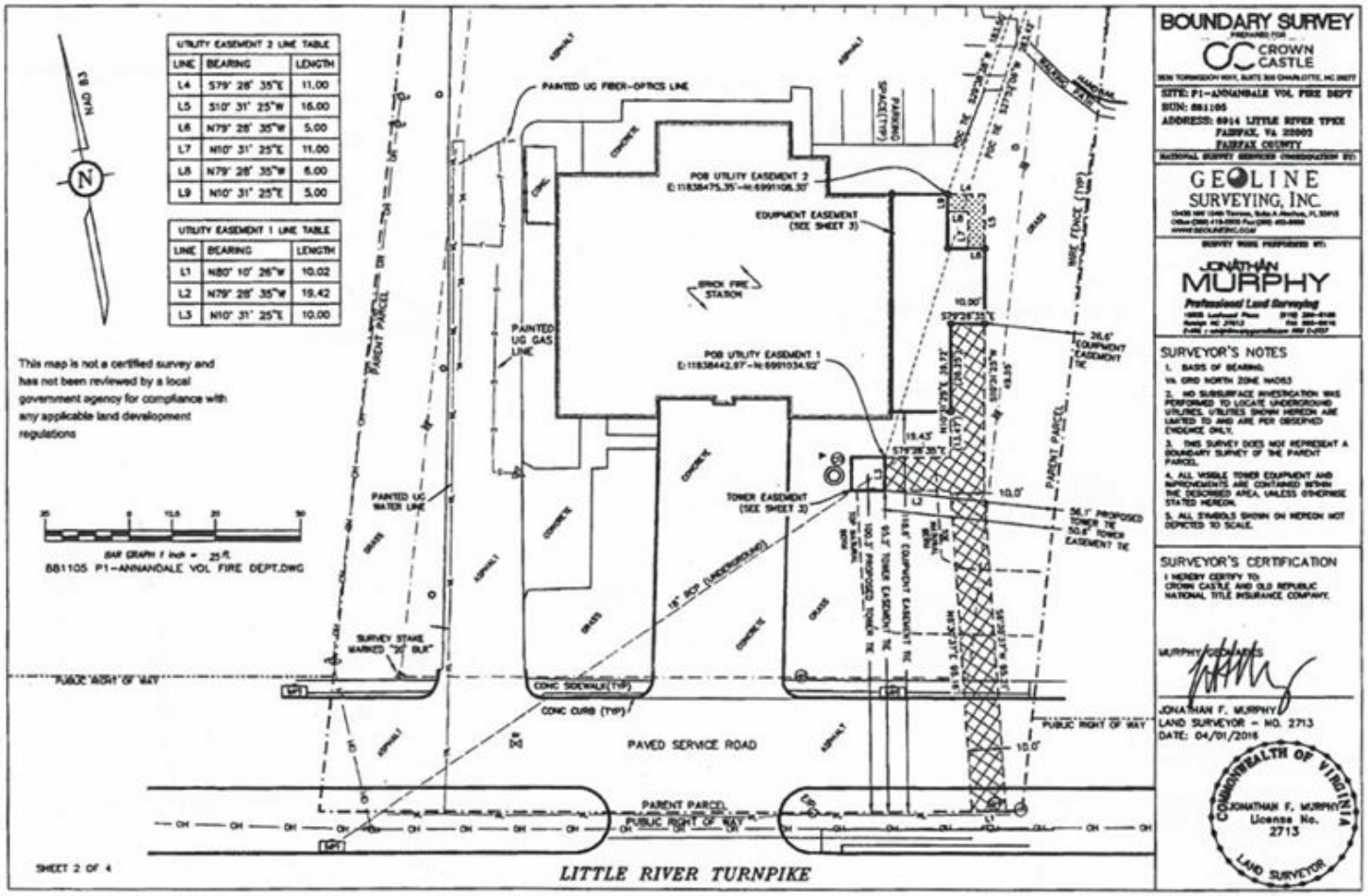
EXHIBIT B

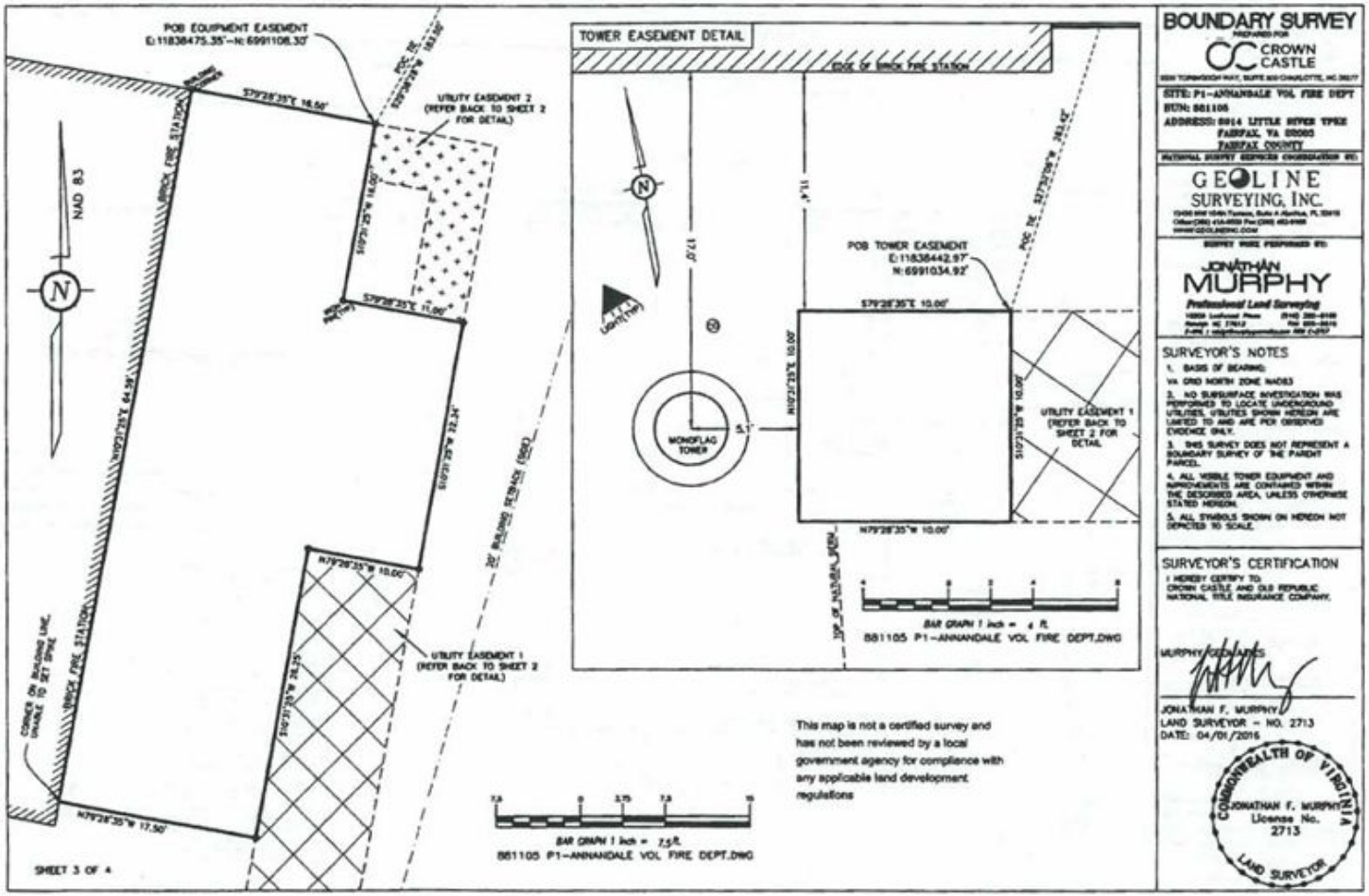
SITE PLAN

The Easement Area shall include any portion of Grantor's Property on which communications facilities exist on the date of this Deed of Easement together with the portion of the Grantor's Property leased by Grantor pursuant to the Lease Agreement and the portion of the Property described as follows:

[ATTACHED HERETO]


BOUNDARY SURVEY
PREPARED FOR
CROWN CASTLE
SITE: P1-ANNANDALE VOL FIRE DEPT
BUN: 881105
ADDRESS: 8914 LITTLE RIVER TPKE
FAIRFAX, VA 22003
FAIRFAX COUNTY
GEOLINE SURVEYING, INC.
JONATHAN MURPHY
Professional Land Surveying
SURVEYOR'S NOTES
1. BASIS OF BEARING:
VA GRID NORTH ZONE NAD83
2. NO SUBSURFACE INVESTIGATION WAS PERFORMED TO LOCATE UNDERGROUND UTILITIES. UTILITIES SHOWN HEREON ARE LIMITED TO AND ARE PER OBSERVED EVIDENCE ONLY.
3. THIS SURVEY DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARENT PARCEL.
4. ALL VISIBLE TOWER EQUIPMENT AND IMPROVEMENTS ARE CONTAINED WITHIN THE DESCRIBED AREA, UNLESS OTHERWISE STATED HEREON.
5. ALL SYMBOLS SHOWN ON HEREON NOT DEPICTED TO SCALE.
SURVEYOR'S CERTIFICATION
I HEREBY CERTIFY TO:
CROWN CASTLE AND OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY.
MURPHY GEOLINES
JONATHAN F. MURPHY
LAND SURVEYOR - NO. 2713
DATE: 04/01/2016
COMMONWEALTH OF VIRGINIA
JONATHAN F. MURPHY
License No. 2713
LAND SURVEYOR
This map is not a certified survey and has not been reviewed by a local government agency for compliance with any applicable land development regulations
NAD 83
N
SITE
LITTLE RIVER TPKE
LARO COURT
50' PUBLIC RIGHT OF WAY
N/F BETHLEHEM LUTHERAN CHURCH
MAP #0584-01-0081
DB:2329, PG:349
N/F LUAN C NGUYEN
MAP #0584-30-0009
DB:10696, PG:1256
N/F SCOTT R. & PERI C. ULREY
DB:10702, PG: 697
MAP #0584-30-0010
N/F MITCHELL SCHULER
MAP #0584-30-00011
DB:2286, PG:644
N/F GREATER WASHINGTON JEWISH HUMANIST CONGREGATION
MAP #058-01-0065A
DB: 7148, PG:1408
POC ALL DESCRIPTIONS
EXISTING IRON PIPE
E:11838566.08'
N:6991267.80'
WOOD FENCE ALONG PROPERTY LINE
PARENT PARCEL
25' REAR BUILDING RESTRICTION LINE
POC TIE EQUIPMENT EASEMENT & UTILITY EASEMENT 2
(S29°38'28"W 183.50')
POC TIE TOWER EASEMENT & UTILITY EASEMENT 1
(S27°52'06"W 263.42')
DUMPSTER AREA
20' SIDE BUILDING RESTRICTION LINE (TYP)
ASPHALT PARKING LOT
BRICK FIRE STATION
PROPOSED TOWER
CONCRETE DRIVE
GRASS
WIRE FENCE FOLLOWING PARENT PARCEL PROPERTY LINE
UTILITY EASEMENT 2 (SEE SHEET 2)
EQUIPMENT EASEMENT (SEE SHEET 3)
UTILITY EASEMENT 1 (SEE SHEET 2)
TOWER EASEMENT (SEE SHEET 3)
40' FRONT BUILDING RESTRICTION LINE
PAVED SERVICE ROAD
PARENT PARCEL PUBLIC RIGHT OF WAY LINE
MONOLITHIC CURB ISLAND
LITTLE RIVER TURNPIKE
VARIABLE WIDTH PUBLIC RIGHT OF WAY
BAR GRAPH 1 inch = 60 ft.
881105 P1-ANNANDALE VOL FIRE DEPT.DWG
PARENT PARCEL INFORMATION
OWNER: ANNANDALE VOLUNTEER FIRE DEPT, INCORPORATED
8914 LITTLE RIVER TPKE, FAIRFAX, VA
DEED BOOK: 3080, PAGE: 07
MAP #0584-01-0062
ZONING DESIGNATION
R-1 (RESIDENTIAL 1 DU/AC)
LEGEND OF SYMBOLS
:SET IRON PIN.
:FOUND 1/2" REBAR AS NOTED.
:EXISTING IRON PIPE.
P.O.B. :POINT OF BEGINNING.
P.O.C. :POINT OF COMMENCEMENT.
:HAND HOLE.
:CLEAN OUT.
:MAN HOLE.
:CATCH BASIN.
:GAS VALVE.
:GAS LINE MARKER.
:WOOD UTILITY POLE.
:LIGHT POLE.
:FLOOD LIGHT.
:SIGN.
:EXISTING 20' BUILDING LINE RESTRICTION STAKE.
:CHAIN LINK FENCE.
:WOOD FENCE.
:OVER HEAD UTILITY LINES.
:UNDERGROUND WATER LINE (PAINTED).
:UNDERGROUND FIBER OPTICS (PAINTED).
:UNDERGROUND GAS LINE (PAINTED).
THIS PARCEL OF LAND LIES WITHIN FLOOD ZONE X WHICH IS NOT A SPECIAL FLOOD HAZARD AREA AS PER F.I.R.M. PANEL NUMBER: 51059C0326G
EFFECTIVE DATE: 09/17/2010
AREA | SQUARE FEET | ACRE
PARENT PARCEL | 74,738 | 1.72
EQUIPMENT EASEMENT | 1,338 | 0.031
EQUIPMENT COMPOUND | 271 | 0.006
TOWER EASEMENT | 100 | 0.0022
UTILITY EASEMENT 1 | 1,643 | 0.038
UTILITY EASEMENT 2 | 110 | 0.0025
SHEET 1 OF 4


BOUNDARY SURVEY
CROWN CASTLE
SITE: P1-ANNANDALE VOL FIRE DEPT
SUN: 881105
ADDRESS: 8914 LITTLE RIVER TPKE
FAIRFAX, VA 22003
FAIRFAX COUNTY
GEOLINE SURVEYING, INC.
JONATHAN MURPHY
Professional Land Surveying
UTILITY EASEMENT 2 LINE TABLE
LINE | BEARING | LENGTH
L4 | S79° 28' 35"E | 11.00
L5 | S10° 31' 25"W | 16.00
L6 | N79° 28' 35"W | 5.00
L7 | N10° 31' 25"E | 11.00
L8 | N79° 28' 35"W | 5.00
L9 | N10° 31' 25"E | 5.00
UTILITY EASEMENT 1 LINE TABLE
LINE | BEARING | LENGTH
L1 | N80° 10' 26"W | 10.02
L2 | N79° 28' 35"W | 19.42
L3 | N10° 31' 25"E | 10.00
This map is not a certified survey and has not been reviewed by a local government agency for compliance with any applicable land development regulations
BAR GRAPH 1 inch = 25 ft.
881105 P1-ANNANDALE VOL FIRE DEPT.DWG
PAINTED UG FIBER-OPTICS LINE
POB UTILITY EASEMENT 2
EQUIPMENT EASEMENT (SEE SHEET 3)
BRICK FIRE STATION
PAINTED UG GAS LINE
POB UTILITY EASEMENT 1
TOWER EASEMENT (SEE SHEET 3)
PAINTED UG WATER LINE
SURVEY STAKE MARKED "P1" BLK"
PUBLIC RIGHT OF WAY
CONC SIDEWALK (TYP)
CONC CURB (TYP)
PAVED SERVICE ROAD
PARENT PARCEL
PUBLIC RIGHT OF WAY
LITTLE RIVER TURNPIKE
SURVEYOR'S NOTES
1. BASIS OF BEARING:
VA GRID NORTH ZONE NAD83
2. NO SUBSURFACE INVESTIGATION WAS PERFORMED TO LOCATE UNDERGROUND UTILITIES. UTILITIES SHOWN HEREON ARE LIMITED TO AND ARE ONLY OBSERVED EVIDENCE ONLY.
3. THIS SURVEY DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARENT PARCEL.
4. ALL VISIBLE TOWER EQUIPMENT AND IMPROVEMENTS ARE CONTAINED WITHIN THE DESCRIBED AREA, UNLESS OTHERWISE STATED HEREON.
5. ALL SYMBOLS SHOWN ON HEREON NOT DEPICTED TO SCALE.
SURVEYOR'S CERTIFICATION
I HEREBY CERTIFY TO: CROWN CASTLE AND OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY.
JONATHAN F. MURPHY
LAND SURVEYOR - NO. 2713
DATE: 04/01/2016
COMMONWEALTH OF VIRGINIA
JONATHAN F. MURPHY
License No. 2713
LAND SURVEYOR
SHEET 2 OF 4



BOUNDARY SURVEY

PREPARED FOR
CROWN CASTLE

SITE: P1-ANNANDALE VOL FIRE DEPT
BUN: 881105
ADDRESS: 8014 LITTLE RIVER TPKE
FAIRFAX, VA 22003
FAIRFAX COUNTY

GEOLINE SURVEYING, INC.

SURVEY WORK PERFORMED BY:
JONATHAN MURPHY
Professional Land Surveying

SURVEYOR'S NOTES

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VA GRID NORTH ZONE NAD83
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SURVEYOR'S CERTIFICATION

I HEREBY CERTIFY TO:
CROWN CASTLE AND OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY.

MURPHY

JONATHAN F. MURPHY
LAND SURVEYOR - NO. 2713
DATE: 04/01/2015

COMMONWEALTH OF VIRGINIA
JONATHAN F. MURPHY
License No.
2713
LAND SURVEYOR

LEGAL DESCRIPTION: TOWER EASEMENT (CREATED BY THIS OFFICE)

A PORTION OF ALL THAT CERTAIN PARCEL OF LAND LYING IN THE COUNTY OF FAIRFAX, COMMONWEALTH OF VIRGINIA, DESCRIBED IN DEED BOOK 3080 PAGE 07, FURTHER DESCRIBED AS:

COMMENCING FROM AN EXISTING IRON PIPE FOUND ON THE NORTHEASTERN MOST PROPERTY CORNER OF SAID PARCEL (MAP #0584-01-0062) AND HAVING VIRGINIA STATE PLANE COORDINATES (NORTH ZONE) E:11838568.08' -AND- N:6991267.80';

THENCE, S 27° 52' 06" W FOR A DISTANCE OF 263.42 FEET TO THE POINT OF BEGINNING, HAVING VIRGINIA STATE PLANE COORDINATES (NORTH ZONE) E:11838442.97' -AND- N:6991034.92';

THENCE, S 10° 31' 25" W FOR A DISTANCE OF 10.00 FEET TO A POINT;

THENCE, N 79° 28' 35" W FOR A DISTANCE OF 10.00 FEET TO A POINT;

THENCE, N 10° 31' 25" E FOR A DISTANCE OF 10.00 FEET TO A POINT;

THENCE, S 79° 28' 35" E FOR A DISTANCE OF 10.00 FEET TO THE POINT OF BEGINNING CONTAINING 100 SQFT -AND- 0.0022 ACRES.

LEGAL DESCRIPTION: EQUIPMENT EASEMENT (CREATED BY THIS OFFICE)

A PORTION OF ALL THAT CERTAIN PARCEL OF LAND LYING IN THE COUNTY OF FAIRFAX, COMMONWEALTH OF VIRGINIA, DESCRIBED IN DEED BOOK 3080 PAGE 07, FURTHER DESCRIBED AS:

COMMENCING FROM AN EXISTING IRON PIPE FOUND ON THE NORTHEASTERN MOST PROPERTY CORNER OF SAID PARCEL (MAP #0584-01-0062) AND HAVING VIRGINIA STATE PLANE COORDINATES (NORTH ZONE) E:11838568.08' -AND- N:6991267.80';

THENCE, S 29° 38' 28" W FOR A DISTANCE OF 183.50 FEET TO THE POINT OF BEGINNING, HAVING VIRGINIA STATE PLANE COORDINATES (NORTH ZONE) E:11838475.35' -AND- N:6991108.30';

THENCE, S 10° 31' 25" W FOR A DISTANCE OF 16.00 FEET TO A POINT;

THENCE, S 79° 28' 35" E FOR A DISTANCE OF 11.00 FEET TO A POINT;

THENCE, S 10° 31' 25" W FOR A DISTANCE OF 22.34 FEET TO A POINT;

THENCE, N 79° 28' 35" W FOR A DISTANCE OF 10.00 FEET TO A POINT;

THENCE, S 10° 31' 25" W FOR A DISTANCE OF 26.25 FEET TO A POINT;

THENCE, N 79° 28' 35" W FOR A DISTANCE OF 17.50 FEET TO A POINT;

THENCE, N 10° 31' 25" E FOR A DISTANCE OF 64.59 FEET TO A POINT;

THENCE, S 79° 28' 35" E FOR A DISTANCE OF 16.50 FEET TO THE POINT OF BEGINNING CONTAINING 1,338 SQFT -AND- 0.031 ACRES.

LEGAL DESCRIPTION: UTILITY EASEMENT 1 (CREATED BY THIS OFFICE)

A PORTION OF ALL THAT CERTAIN PARCEL OF LAND LYING IN THE COUNTY OF FAIRFAX, COMMONWEALTH OF VIRGINIA, DESCRIBED IN DEED BOOK 3080 PAGE 07, FURTHER DESCRIBED AS:

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THENCE DEPARTING SAID TOWER EASEMENT, S 79° 28' 35" E FOR A DISTANCE OF 19.43 FEET TO A POINT;

THENCE, N 10° 31' 25" E FOR A DISTANCE OF 13.47 FEET TO A POINT ON A 1,338 SQUARE FOOT EQUIPMENT EASEMENT, AND CONTINUING ALONG SAID EQUIPMENT EASEMENT FOR 26.25 FEET, FOR A TOTAL DISTANCE OF 39.72 FEET TO A POINT;

THENCE ALONG SAID EQUIPMENT EASEMENT, S 79° 28' 35" E FOR A DISTANCE OF 10.00 FEET TO A POINT;

THENCE DEPARTING SAID EQUIPMENT EASEMENT, S 10° 31' 25" W FOR A DISTANCE OF 49.56 FEET TO A POINT;

THENCE, S 06° 30' 37" W FOR A DISTANCE OF 95.21 FEET TO A POINT ON THE NORTHERN PUBLIC RIGHT OF WAY OF LITTLE RIVER TURNPIKE;

THENCE ALONG SAID RIGHT OF WAY, N 80° 10' 26" W FOR A DISTANCE OF 10.02 FEET TO A POINT;

THENCE DEPARTING SAID RIGHT OF WAY, N 06° 30' 37" E FOR A DISTANCE OF 93.16 FEET TO A POINT;

THENCE, N 79° 28' 35" W FOR A DISTANCE OF 19.42 FEET TO A POINT ON AFOREMENTIONED TOWER EASEMENT;

THENCE ALONG SAID TOWER EASEMENT, N 10° 31' 25" E FOR A DISTANCE OF 10.00 FEET TO THE POINT OF BEGINNING, CONTAINING 1,643 SQFT -AND- 0.038 ACRES.

LEGAL DESCRIPTION: UTILITY EASEMENT 2 (CREATED BY THIS OFFICE)

A PORTION OF ALL THAT CERTAIN PARCEL OF LAND LYING IN THE COUNTY OF FAIRFAX, COMMONWEALTH OF VIRGINIA, DESCRIBED IN DEED BOOK 3080 PAGE 07, FURTHER DESCRIBED AS:

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THENCE DEPARTING SAID EQUIPMENT EASEMENT, S 79° 28' 35" E FOR A DISTANCE OF 11.00 FEET TO A POINT;

THENCE, S 10° 31' 25" W FOR A DISTANCE OF 16.00 FEET TO A POINT ON SAID EQUIPMENT EASEMENT;

THENCE ALONG SAID EQUIPMENT EASEMENT, N 79° 28' 35" W FOR A DISTANCE OF 5.00 FEET TO A POINT;

THENCE DEPARTING SAID EQUIPMENT EASEMENT, N 10° 31' 25" E FOR A DISTANCE OF 11.00 FEET TO A POINT;

THENCE, N 79° 28' 35" W FOR A DISTANCE OF 6.00 FEET TO A POINT ON SAID EQUIPMENT EASEMENT;

THENCE ALONG SAID EQUIPMENT EASEMENT, N 10° 31' 25" E FOR A DISTANCE OF 5.00 FEET TO THE POINT OF BEGINNING CONTAINING 110 SQFT -AND- 0.0025 ACRES.

BOUNDARY SURVEY

PREPARED FOR:
CROWN CASTLE
2000 CORPORATE DRIVE, SUITE 300 CHARLOTTE, NC 28277

SITE: FS-ARMANDALE VOL FIRE DEPT
BUN: 881106
ADDRESS: 8814 LITTLE RIVER TPKE
FAIRFAX, VA 22003
FAIRFAX COUNTY

NATIONAL GEODETIC SURVEY GEODETIC COORDINATION STA:

GEOLINE SURVEYING, INC.
13436 NW 10th Terrace, Suite A Alachua, FL 32615
Office:(386) 418-0900 Fax:(386) 462-8900
www.GEOLINEINC.com

SURVEY WORK PERFORMED BY:

JONATHAN MURPHY
Professional Land Surveying
13436 Northwest Place (352) 380-6189
Raleigh NC 27613 Fax 380-6218
E-MAIL: jmurphy@geolineinc.com #80 C-2757

SURVEYOR'S NOTES

1. BASIS OF BEARING:
VA GRID NORTH ZONE NAD83
2. NO SUBSURFACE INVESTIGATION WAS PERFORMED TO LOCATE UNDERGROUND UTILITIES. UTILITIES SHOWN HEREON ARE LIMITED TO AND ARE PER OBSERVED EVIDENCE ONLY.
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SURVEYOR'S CERTIFICATION

I HEREBY CERTIFY TO CROWN CASTLE AND OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY,

MURPHY/GEOLINE

JONATHAN F. MURPHY
LAND SURVEYOR - NO. 2713
DATE: 04/01/2018

COMMONWEALTH OF VIRGINIA
JONATHAN F. MURPHY
License No.
2713
LAND SURVEYOR

SHEET 4 OF 4

EXHIBIT C
EASEMENT AREA AND ACCESS EASEMENT
Page 1 of 3

TOWER EASEMENT

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EXHIBIT C
EASEMENT AREA AND ACCESS EASEMENT
Page 2 of 3

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UTILITY EASEMENT 1

A PORTION OF ALL THAT CERTAIN PARCEL OF LAND LYING IN THE COUNTY OF FAIRFAX, COMMONWEALTH OF VIRGINIA, DESCRIBED IN DEED BOOK 3080 PAGE 07, FURTHER DESCRIBED AS:

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EXHIBIT C
EASEMENT AREA AND ACCESS EASEMENT
Page 3 of 3

UTILITY EASEMENT 2

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P1 Annandale Vol. Fire Dept.
BU 881105
PPAB 3009411v2

EXHIBIT D

LEASE AGREEMENTS

[ATTACHED HERETO]

PCS SITE AGREEMENT

April 01

Annandale Volunteer Fire Department, Inc.

Site I. D. WA33XC766

1. Premises and Use. Owner leases to APC Realty and Equipment Company, LLC., a Delaware limited liability company ("APC"), the site described below:
[Check appropriate box(es)]
X Land consisting of approximately 325 square feet upon which APC will construct its X equipment base station and X antenna structure;
☐ Building interior space consisting of approximately _____ square feet;
☐ Building exterior space for attachment of antennas;
X Building exterior space for placement of base station equipment;
☐ Tower antenna space between the ____ feet and ____ feet level on the Tower;
X Space required for cable runs to connect PCS equipment and antennas,

in the location(s) ("Site") shown on Exhibit A, together with a non-exclusive easement for reasonable access thereto and to the appropriate, in the discretion of APC, source of electric and telephone facilities. The Site will be used by APC for the purpose of installing, removing, replacing, modifying, maintaining and operating, at its expense, a personal communications service system facility ("PCS"), including, without limitation, antenna equipment, cable wiring, back-up power sources (including generators and fuel storage tanks), related fixtures and, if applicable to the Site, an antenna structure. APC will use the Site in a manner which will not unreasonably disturb the occupancy of Owner's other tenants. APC will have access to the Site 24 hours per day, 7 days per week.

2. Term. The term of this Agreement (the "Initial Term") is 5 years, commencing on the date ("Commencement Date") both APC and Owner have executed this Agreement. This Agreement will be automatically renewed for four additional terms (each a "Renewal Term") of 5 years each, unless APC provides Owner notice of intention not to renew not less than 90 days prior to the expiration of the Initial Term or any Renewal Term.

3. Rent. Until the date which is the earlier of 60 days after the issuance of all required permits and regulatory approvals, or APC's commencement of construction, rent will be a one-time aggregate payment of $100.00, the receipt of which Owner acknowledges. Thereafter, rent will be paid in equal monthly installments of $1,800 (until increased as set forth herein), partial months to be prorated, in advance. Rent for each Renewal Term will be the annual rent in effect for the final year of the Initial Term or prior Renewal Term, as the case may be, increased by fifteen percent (15%).

4. Title and Quiet Possession. Owner represents and agrees (a) that it is the Owner of the Site; (b) that it has the right to enter into this Agreement; (c) that the person signing this Agreement has the authority to sign; (d) that APC is entitled to access to the Site at all times and to the quiet possession of the Site throughout the Initial Term and each Renewal Term so long as APC is not in default beyond the expiration of any cure period; and (e) that Owner shall not have unsupervised access to the Site or to the PCS equipment.

5. Assignment/Subletting. Tenant shall have the right to sublease or assign its rights under this Agreement without notice to or consent of Owner.

6. Notices. All notices must be in writing and are effective only when deposited in the U.S. mail, certified and postage prepaid, or when sent via overnight delivery. Notices to APC are to be sent to:
Sprint PCS Lease Management
Washington/Baltimore Region
6905 Rockledge Drive, Suite 100
Mailstop: MDBTHA0101
Bethesda, MD 20817
Attention: Lease Management
with a copy to:
Sprint Law Department,
6391 Sprint Parkway,
Mailstop KSOPHT0101-Z2020,
Overland Park, Kansas 66251-2020,
Attention: Sprint PCS Real Estate Attorney."
Notices to Owner must be sent to the address shown underneath Owner's signature.

7. Improvements. APC may, at its expense, make such improvements on the Site as it deems necessary from time to time for the operation of the PCS system. Owner agrees to cooperate with APC with respect to obtaining any required zoning approvals for the Site and such improvements. Upon termination or expiration of this Agreement, APC may remove its equipment and improvements and will restore the Site to substantially the condition existing on the Commencement Date, except for ordinary wear and tear and casualty loss.

8. Compliance with Laws. Owner represents that Owner's property (including the Site), and all improvements located thereon, are in substantial compliance with building, life/safety, disability and other laws, codes and regulations of applicable governmental authorities. APC will substantially comply with all applicable laws relating to its possession and use of the Site.

9. Interference. APC will resolve technical interference problems with other equipment located at the Site on the Commencement Date or any equipment that becomes attached to the Site at any future date when APC desires to add additional equipment to the Site. Likewise, Owner will not permit or suffer the installation of any future equipment which (a) results in technical interference problems with APC's then existing equipment or (b) encroaches onto the Site.

10. Utilities. Owner represents that utilities adequate for APC's use of the Site are available. APC will pay for all utilities used by it at the Site. Owner will cooperate with APC in APC's efforts to obtain utilities from any location provided by Owner or the servicing utility, including signing any easement or other instrument reasonably required by the utility company.

11. Termination. APC may terminate this Agreement at any time by notice to Owner without further liability if APC does not obtain all permits or other approvals (collectively, "approval") required from any governmental authority or any easements required from any third party to operate the PCS system, or if any such approval is canceled, expires or is withdrawn, or terminated, or if Owner fails to have proper ownership of the Site or authority to enter into this Agreement, or if APC, for any other reason, in its sole discretion, determines that it will be unable to use the Site. Upon termination, all prepaid rent will be retained by Owner unless such termination is due to Owner's failure of proper ownership or authority, or such termination is a result of Owner's default.

12. Default. If either party is in default under this Agreement for a period of (a) 15 days following receipt of notice from the non-defaulting party with respect to a default which may be cured solely by the payment of money, or (b) 30 days following receipt of notice from the non-defaulting party with respect to a default which may not be cured solely by the payment of money, then, in either event, the non-defaulting party may pursue any remedies available to it against the defaulting party under applicable law, including, but not limited to, the right to terminate this Agreement. If the non-monetary default may not reasonably be cured within a 30-day period, this Agreement may not be terminated if the defaulting party commences action to cure the default within such 30-day period and proceeds with due diligence to fully cure the default.

13. Indemnity. Owner and APC each indemnifies the other against and holds the other harmless from any and all costs (including reasonable attorneys' fees) and claims of liability or loss which arise out of the ownership, use and/or occupancy of the Site by the indemnifying party. This indemnity does not apply to any claims arising from the sole negligence or intentional misconduct of the indemnified party. The indemnity obligations under this Paragraph will survive termination of this Agreement.

14. Hazardous Substances. Owner represents that it has no knowledge of any substance, chemical or waste (collectively, "substance") on the Site that is identified as hazardous, toxic or dangerous in any applicable federal, state or local law or regulation. APC will not introduce or use any such substance on the Site in violation of any applicable law.

15. Subordination and Non-Disturbance. This Agreement is subordinate to any mortgage or deed of trust now of record against the Site. However, promptly after the Agreement is fully executed, Owner will use diligent efforts to obtain a non-disturbance agreement reasonably acceptable to APC from the holder of any such mortgage or deed of trust.

16. Taxes. APC will be responsible for payment of all personal property taxes assessed directly upon and arising solely from its use of the communications facility on the Site. APC will pay to Owner any increase in real property taxes attributable solely to any improvements to the Site made by APC within 60 days after receipt of satisfactory documentation indicating calculation of APC's share of such real estate taxes and payment of the real estate taxes by Owner. Owner will pay when due all other real estate taxes and assessments attributable to the property of Owner of which the Site is a part.

17. Insurance. APC will procure and maintain commercial general liability insurance, with limits of not less than $1,000,000 combined single limit per occurrence for bodily injury and property damage liability, with a certificate of insurance to be furnished to Owner within 30 days of written request. Each policy will provide that cancellation will not occur without at least 15 days prior written notice to Owner. Each party hereby waives its right of recovery against the other for any loss or damage covered by any insurance policies maintained by the waiving party. Each party will cause each insurance policy obtained by it to provide that the insurance company waives all rights of recovery against the other party in connection with any damage covered by such policy.

18. Maintenance. APC will be responsible for repairing and maintaining the PCS system and any other improvements installed by APC at the Site in a proper operating and reasonably safe condition; provided, however if any such repair or maintenance is required due to the acts of Owner, its agents or employees, Owner shall reimburse APC for the reasonable costs incurred by APC to restore the damaged areas to the condition which existed immediately prior thereto. Owner will maintain and repair all other portions of the property of which the Site is a part in a proper operating and reasonably safe condition.

19. Miscellaneous. (a) This Agreement applies to and binds the heirs, successors, executors, administrators and assigns of the parties to this Agreement; (b) this Agreement is governed by the laws of the state in which the Site is located; (c) If requested by APC, Owner agrees promptly to execute and deliver to APC a recordable Memorandum of this Agreement in the form of Exhibit B; (d) this Agreement (including the Exhibits) constitutes the entire agreement between the parties and supersedes all prior written and verbal agreements, representations, promises or understandings between the parties. Any amendments to this Agreement must be in writing and executed by both parties; (e) If any provision of this Agreement is invalid or unenforceable with respect to any party, the remainder of this Agreement or the application of such provision to persons other than those as to whom it is held invalid or unenforceable, will not be affected and each provision of this Agreement will be valid and enforceable to the fullest extent permitted by law; and (f) the prevailing party in any action or proceeding in court or mutually agreed upon arbitration proceeding to enforce the terms of this Agreement is entitled to receive its reasonable attorneys' fees and other reasonable enforcement costs and expenses from the non-prevailing party.

20. Non-Binding Until Fully Executed. This Agreement is for discussion purposes only and does not constitute a formal offer by either party. This Agreement is not and shall not be binding on either party until and unless it is fully executed by both parties.

The following Exhibits are attached to and made a part of this Agreement: Exhibits A, B and C.

Attach A - Site Description, B - Lease Exhibit and C – Modification Rider to PCS Site Agreement

OWNER:

By: _____

Name: Raju Khemani

Its: President

S.S./Tax No.: 54-0791001

Address: P.O. Box 806, Annandale, Virginia 22003

See Exhibit A1 for continuation of Owner signatures.

Date: 2/4/02

APC Realty and Equipment Company, LLC,
a Delaware limited liability company

By: _____

Name: Don Mueller

Its: Director, Site Development

Date: 2/4/02

DON MUELLER
DIRECTOR-SITE DEVELOPMENT
NORTHEAST REGION

EXHIBIT A April 01

Site Name: Annandale Volunteer Fire Department, Inc. **PCS Site Agreement** Site I. D. WA53XC946

Site Description

Site situated in the City of Annandale, County of Fairfax, State of Virginia commonly described as follows:

Legal Description:

Beginning at a point in the northerly right-of-way line of Little River Turnpike, State Route 236, said point being the southwest corner of the Argyle Investment Corp. Property, as recorded in Deed Book 2329, at page 349, among the land records of Fairfax County, Virginia; thence departing said point and running along the northerly right-of-way line of State Route 236 N 78 degrees 22' 10" W – 61.97 feet and N 77 degrees 44' 40" W – 146.75 feet to a point a corner common to Mollie M. Miller and the Bethlehem Lutheran Church Property; thence departing State Route 236 and running with the lines common to Mollie M. Miller and the Bethlehem Church Property N 18 degrees 21' 30" E – 358.37 feet and S 77 degrees 52' 30" E – 208.70 feet to a point in the westerly line of the aforementioned Argyle Investment Corp. Property, thence running with a portion of said westerly boundary S 18 degrees 21' 30" W – 358.17 feet to the point of beginning, containing 74,378 square feet or 1.70748 acres of land, as more particularly described on the plat prepared by Coldwell, Shreve & Keyes, C.L.S., dated August, 1965.

And being the same property conveyed to the parties of the first part by the deed recorded in
Deed Book: 3080
Page: 0007,
Among the land records of Fairfax County, Virginia

Sketch of Site:

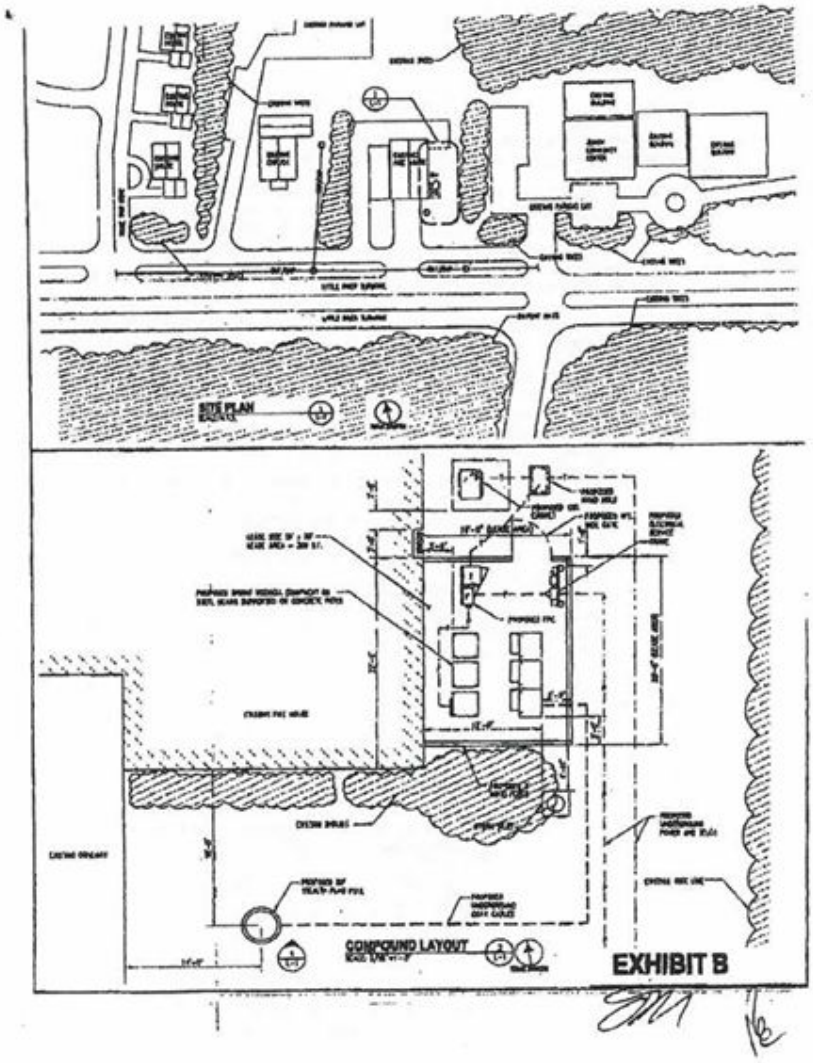
Please refer to Exhibit B

Owner Initials _____

APC Initials _____

Note: Owner and APC may, at APC's option, replace this Exhibit with an exhibit setting forth the legal description of the property on which the Site is located and/or an as-built drawing depicting the Site.

***[Use this Exhibit A for PCS Site Agreement, Memorandum of PCS Site Agreement, Option Agreement and Memorandum of Option Agreement.]**


SITE PLAN
COMPOUND LAYOUT
EXHIBIT B

Site Name: Annandale Volunteer Fire Department, Inc.

Site I.D.: WA33XC945

Exhibit C

Modification Rider to PCS Site Agreement

This modification Rider is made and entered into by and between: Annandale Volunteer Fire Department, Inc. ("Owner") and APC Realty and Equipment Company, a Delaware limited partnership ("APC").

1. This Modification Rider is incorporated into the integral part of the PCS Site Agreement to which it is attached. The terms used herein which are defined or specified in the Agreement shall have the meaning indicated in the Agreement where the context permits. If there are any inconsistencies between the provisions of this Modification Rider and the provisions of the Agreement, the provisions of this Modification Rider shall control.
2. Any other user of the tower (flag pole) shall be required to obtain a separate ground lease from the landlord.
3. APC Realty and Equipment Company shall install lighting so that the flag will be illuminated at all times.
4. APCC Realty and Equipment Company shall provide a oversized, all-weather U.S. and Virginia state flag and shall replace them from time to time as Annandale Volunteer Fire Department deems necessary (as per U.S. Flag code (36 US Code 10)), so long as APC is entered into this agreement with Annandale Volunteer Fire Department.
5. APC Realty and Equipment Company will pay a one time, non-refundable payment to the Annandale Volunteer Fire Department in the amount of $1,800.00 at the time this lease is fully executed.
6. Tennant shall not sublease to any other carrier without the prior written consent of the Owner, and such consent shall not be unreasonably withheld.
7. Paragraph one "and fuel storage tanks" has been deleted from the PCS Site Agreement.
8. Paragraph nineteen section (c) shall read as follows; If requested by APC, Owner agrees to execute and deliver to APC a recordable Memorandum of this Agreement within 96 hours of receipt of such notice.
9. All notices to the Owner shall be sent to: Annandale Volunteer Fire Department, Inc., P.O. Box 609, Annandale, Virginia 22003, Attention: President. All lease payments shall be sent to Annandale Volunteer Fire Department, P.O. Box 806, Annandale, Virginia 22003, Attention: Treasurer.

IN WINESS WHEREOF, the parties hereto have signed this Modification Rider to PCS Site Agreement on the dates hereafter written.

"Owner" Annandale Volunteer Fire Department, Inc.

Date: 2/4/02

By: _____
Raju Khemani, President

"APC" APC Realty and Equipment Co., LLC, a Delaware Limited Liability Company

Date:

By: _____
Don Mueller
Director, Site Development, Northeast Region

DON MUELLER
DIRECTOR-SITE DEVELOPMENT
NORTHEAST REGION

20020013283.001 BK 12869 0235 04/19/2002 14:06:22

Web Cover Sheet Version 1.0 Page 1 of 1

Fairfax County Land Records
Cover Sheet

Instrument
AGREEMENT

Grantor(s)
ANNANDALE VOLUNTEER FIRE DEPT INC _F_N, AFC REALTY AND EQUIPMENT CO LLC _F_N

Grantee(s)
ANNANDALE VOLUNTEER FIRE DEPT INC _F_N, AFC REALTY AND EQUIPMENT CO LLC _F_N

Consideration			Consideration %	100	
Tax Exemption			Amount Not Taxed		
DBM Number			Tax Map Number		
Original Book			Original Page		
Title Company				Title Case	
Property Descr.					
Certified	No	Copies	0	Page Range	

https://cpan.co.fairfax.va.us/coversheet/cover_request.cfm 4/19/02

BK 24584 1058

BK 12869 0236

Site Name: Annandale Volunteer Fire Department Site I.D. : WA33XC946

Memorandum of Agreement

This memorandum evidences that a lease was made and entered into by written Lease Agreement dated April 4, 2002, between, Annandale Volunteer Fire Department, Inc. "Owner" and APC Realty and Equipment Company, LLC., a Delaware limited liability company having an address at One International Boulevard, Suite 800, Mahwah, NJ 07495, Attention: Lease Management.

Such Agreement provides in part that Owner leases to APC a certain site (the "Premises") located at 8914 Little River Turnpike, property of Owner which site is described in Exhibit A attached hereto, with grant of a license for unrestricted rights of access and electric and telephone utility service thereto for an Initial Term of 5 years, commencing April 4, 2002 and terminating on April 4, 2007, which term shall be automatically renewed for four additional five (5) year Renewal Term.

IN WITNESS WHEREOF, the parties have executed this Memorandum as of the day and year first above written.

"OWNER"

Name

By: Raju Khemani 2/4/02

Name: Raju Khemani

Title: President

Address: 8914 Little River Turnpike
Annandale, Virginia 22003

"APC"

APC Realty and Equipment Co., LLC, a
Delaware Limited Liability Company

By:

Name: Don Mueller

Northeast Region

Address: 1 International Drive, Suite 800

Mahwah, NJ 07495
Attn: Lease Management

DON MUELLER
DIRECTOR-SITE DEVELOPMENT
NORTHEAST REGION

Attach Exhibit A – Lease Exhibit

BK 12869 0237

OWNER NOTARY BLOCK:

State of Virginia

COUNTY OF

The foregoing instrument was acknowledged before me this 4th day of February, 2002, by [illegible], as President of, on behalf of Amendola Vic FD, and he/she acknowledged said instrument by him/her executed to be his/her free act and deed in said capacity and the free act and deed of said Town of Provincetown, by and through its Water Department.

(AFFIX NOTARIAL SEAL)

William D. Cline
(OFFICIAL NOTARY SIGNATURE)
NOTARY PUBLIC—STATE OF VIRGINIA

My commission expires: MAY 31, 2002

William D. CLINE
(PRINTED, TYPED OR STAMPED NAME OF NOTARY)
COMMISSION NUMBER: _____

APC Realty and Equipment Co., LLC . NOTARY BLOCK:

STATE OF New Jersey
COUNTY OF Bergen

The foregoing instrument was acknowledged before me this 4 day of April, 2002 by Don Mueller, Director, Site Development – Northeast Region of APC Realty and Equipment Co., a Delaware limited liability co.,LLC, who executed the foregoing instrument on behalf of such limited partnership, and he acknowledged said instrument by him executed to be his free act and deed in said capacity and the free act and deed of said Sprint Spectrum L.P.

(AFFIX NOTARIAL SEAL)

Nancy E. Haner
(OFFICIAL NOTARY SIGNATURE)
NOTARY PUBLIC—STATE OF NJ

My commission expires:

(PRINTED, TYPED OR STAMPED NAME OF NOTARY)

NANCY E. HANER
NOTARY PUBLIC, STATE OF NEW JERSEY
No. 2223672
COMMISSION EXPIRES MAR. 25, 2004

850187039 v07- nuttonld - tr1f3061.doc - 80563/107

BK 12869 0238

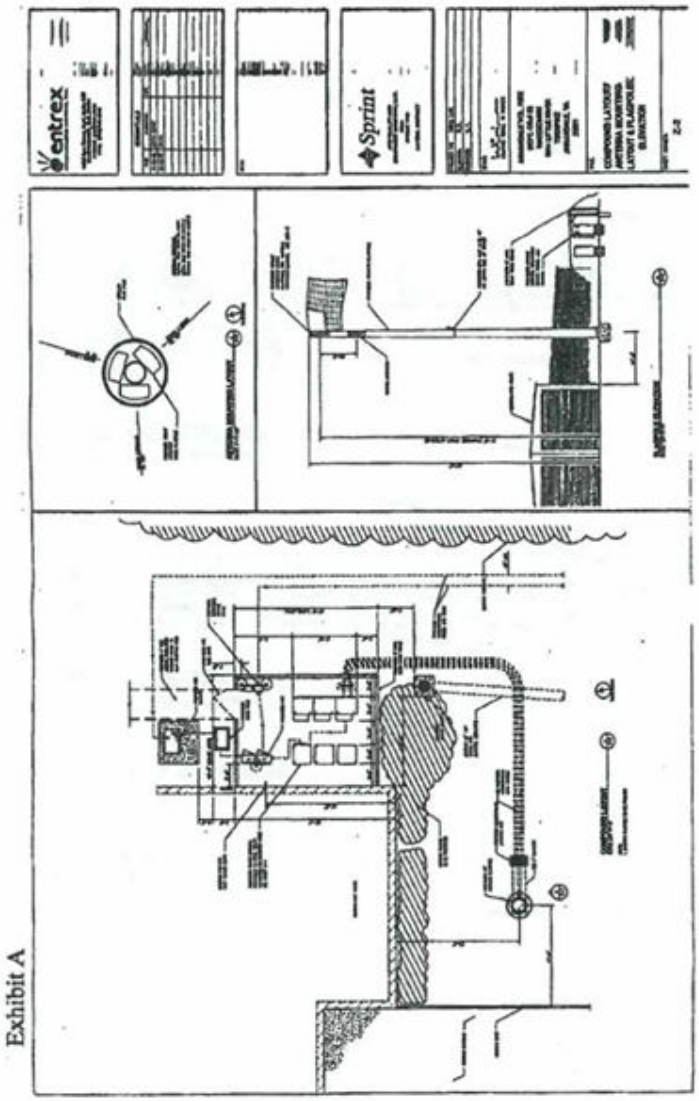


Exhibit A

04/19/2002

Version 5 April 99

Site Name: Annandale Volunteer Fire Department, Inc. Site I.D. : WA33XC846H

Memorandum of Agreement

This memorandum evidences that a lease was made and entered into by written Lease Agreement dated 4/21, 2002 between Annandale Volunteer Fire Department, Inc.- the Owner", having an address at P.O. Box 808, Annandale, Virginia, 22003 Attention: President and APC Realty and Equipment Co. LLC, a Delaware limited liability company having an address at One International Boulevard, Suite 800, Mahwah, NJ 07495, Attention: Lease Management.

Such Agreement provides in part that Owner leases to APC a certain site (the "Premises") located at 8914 Little River Turnpike, Annandale, Virginia 22031, property of Owner which site is described in Exhibit A attached hereto, with grant of a license for unrestricted rights of access and electric and telephone utility service thereto for an Initial Term of five (5) years, commencing 4/21/02 and terminating on 4/21/07, which term shall be automatically renewed for an additional five (5) year Renewal Term.

IN WITNESS WHEREOF, the parties have executed this Memorandum as of the day and year first above written.

"OWNER"

Name
Annandale Volunteer Fire Department, Inc.

By: Raju Khemani

Name: Raju Khemani

Title: President

Address: P.O. Box 808
Annandale, VA 22003

"APC"

APC Realty and Equipment Co., LLC, a Delaware Limited Liability Company

By:

Name: Don Mueller

Title: Director, Site Development, Northeast Region

Address: 1 International Drive, Suite 800
Mahwah, NJ 07495

The assessed value of leased area is $2572.60

Grantor: ANNANDALE VOLUNT
DateTime: 06/27/2003 15:46:11
Book/Page: 14662/0992
Recorded in FAIRFAX COUNTY CIRCUIT COURT
TESTE: JOHN T. FREY

Grantee: APC REALTY & EQU
Instrument: 2003021900.001
# of Pages: 4

Return to:
SPRINT PCS
1 INTERNATIONAL BLVD. SUITE 800
MAHWAH, NEW JERSEY 07945

Attach Exhibit A - Legal description

OWNER NOTARY BLOCK:

SITE I.D.: WA33XC946H

STATE OF VIRGINIA

COUNTY OF FAIRFAX.

The foregoing instrument was acknowledged before me this 16th day of Nov., 2001,
☑ by Raj Khemani, ☐ by _____, as President
of Annandale Vol Fire Dept non-profit corporation, on behalf of the corporation,
by _____, partner (or agent) on behalf of _____ a partnership.

(AFFIX NOTARIAL SEAL)

(OFFICIAL NOTARY SIGNATURE)
NOTARY PUBLIC—STATE OF

OFFICIAL SEAL
NOTARY PUBLIC
COMMONWEALTH OF VIRGINIA
REGINALD BLACKWOOD
COUNTY OF FAIRFAX
My Commission Expires April 30, 2002

My commission expires:

(PRINTED, TYPED OR STAMPED NAME OF NOTARY)
COMMISSION NUMBER: _____

APC REALTY AND EQUIPMENT COMPANY NOTARY BLOCK:

WA33XC946H

STATE OF: New Jersey
COUNTY OF: Bergen

The foregoing instrument was acknowledged before me this 18 day of June, 2003, by Don Mueller, Director, Site Development – Northeast Region of APC Realty and Equipment Co., a Delaware limited liability co., LLC, who executed the foregoing instrument on behalf of such limited partnership, and he acknowledged said instrument by him executed to be his free act and deed in said capacity and the free act and deed of said APC Realty and Equipment Co..

(AFFIX NOTARIAL SEAL)

(OFFICIAL NOTARY SIGNATURE)
NOTARY PUBLIC—STATE OF NJ

My commission expires:

(PRINTED, TYPED OR STAMPED NAME OF NOTARY)

NANCY E. HANER
NOTARY PUBLIC, STATE OF NEW JERSEY
No. 2223672
COMMISSION EXPIRES MAR. 25 2004

Return to:
SPRINT PCS
1 INTERNATIONAL BLVD. SUITE 800
MAHWAH, NEW JERSEY 07945

April 01

EXHIBIT A

PCS Site Agreement

Site Name Annandale Volunteer Fire Dept.

Site I. D. WA33XC946H

Site Description

Site situated in the City of Annandale, County of Fairfax , State of Virginia commonly described as follows:

Legal Description:

BEGINNING at a point in the northerly right-of-way line of Little River Turnpike, State Route 236, said point being the southwest corner of the Argyle Investment Corp. Property, as recorded in Deed Book 2329, at page 349, among the land records of Fairfax County, Virginia; thence departing said point and running along the northerly right-of-way line of State Route 236 N 78° 22' 10" W - 61.97 feet and N 77° 44' 40" W - 146.75 feet to a point a corner common to Hollie M. Miller and the Bethlehem Lutheran Church Property; thence departing State Route 236 and running with the lines common to Hollie M. Miller and the Bethbhem Lutheran Church Property N 18° 21' 30" E - 358.37 feet and S 77° 52' 30" E - 208.70 feet to a point in the westerly line of the aforementioned Argyle Investment Corp. Property; thence running with a portion of said westerly boundary S 18° 21' 10" W - 358.17 feet to the point of beginning, containing 74,378 square feet or 1.70748 acres of land, as more particularly described on the plat prepared by Coldwell, Shreve & Keyes, C. L. S., dated August, 1965.

AND BEING the same property conveyed to the parties of the first part by deed recorded in Deed Book 2659 at page 619, among the land records of Fairfax County, Virginia.

3

Owner Initials _____

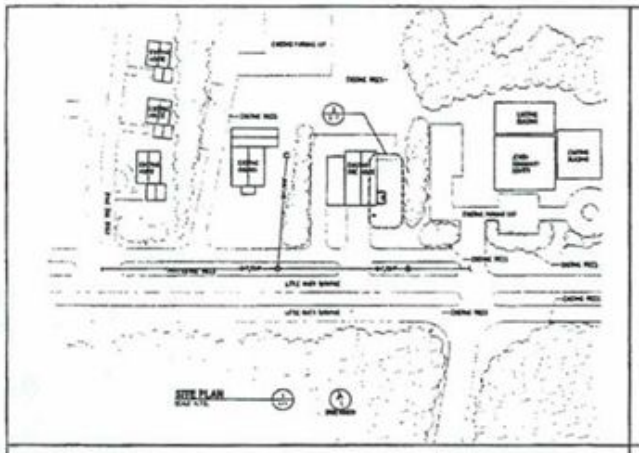
APC Initials _____

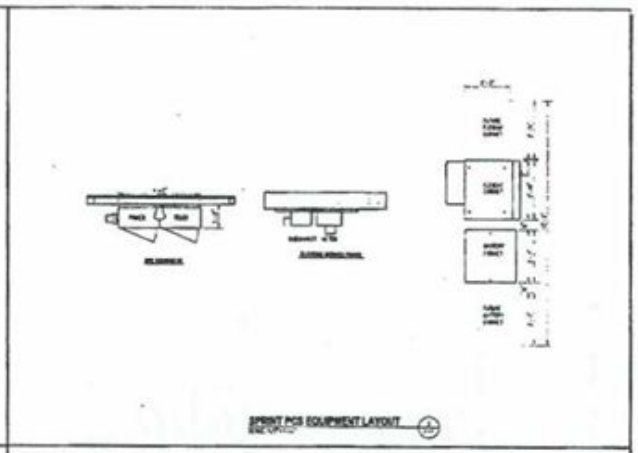
Note: Owner and APC may, at APC's option, replace this Exhibit with an exhibit setting forth the legal description of the property on which the Site is located and/or an as-built drawing depicting the Site.

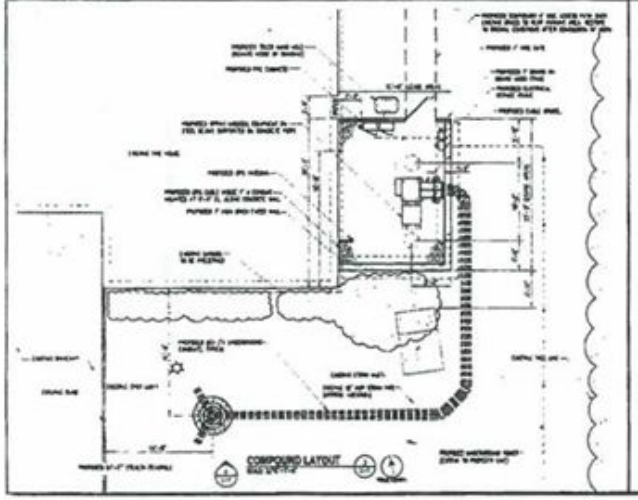
*[Use this Exhibit A for PCS Site Agreement, Memorandum of PCS Site Agreement, Option Agreement and Memorandum of Option Agreement.]

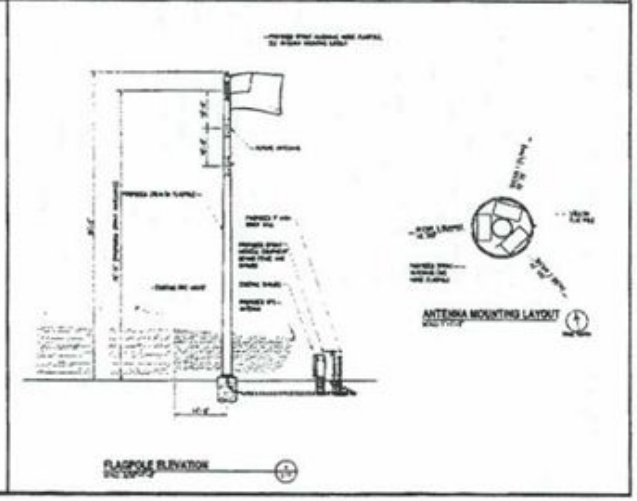
Return to:

SPRINT PCS
1 INTERNATIONAL BLVD. SUITE 800
MAHWAH, NEW JERSEY 07945









entrex

Sprint

ARLINGDALE VOLUNTEER FIRE DEPARTMENT
WASHINGTON
8914 LITTLE RIVER TURNPIKE
FAIRFAX, VA
22031

LEASE EXHIBIT

L-1

Site Name: Annandale Volunteer Fire Dept. Inc. Site Number: WA33XC946H

AMENDMENT TO PCS SITE AGREEMENT
BETWEEN ANNANDALE VOLUNTEER FIRE DEPARTMENT, INC., AS OWNER
AND APC REALTY AND EQUIPMENT COMPANY, L.L.C., AS TENANT

THIS AMENDMENT TO PCS SITE AGREEMENT ("Amendment") is made and entered into as of the 18 day of June, 2003 ("Effective Date"), by and between Annandale Volunteer Fire Department, Inc. ("Owner") on the one hand; and APC Realty and Equipment Company, L.L.C., ("APC"), a Delaware limited partnership, on the other hand.

RECITALS

A. APC and Owner entered into that certain PCS Site Agreement dated the 4th day of April, 2002, ("Agreement"), pursuant to which APC leases from Owner the "Premises" located in the City of Annandale, County of Fairfax, State of Virginia, as defined in the Agreement;

B. The parties, in their mutual interest, wish to amend the Agreement.

NOW, THEREFORE, in consideration of the sum of Ten Dollars ($10) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. The language contained in Exhibit C, paragraph 3 of the Agreement is hereby deleted in its entirety, and is replaced with the following: "APC Realty and Equipment Company shall install a motorized device at the site capable of lowering and raising the flag on the flagpole, and shall pay Owner a monthly fee of $200.00 ("Flag Protocol Fee") to offset the cost of raising, lowering and storing the flag in accordance with flag protocol."

Except as amended hereby, the Agreement remains unchanged and in full force and effect. Owner and APC hereby ratify and affirm the Agreement, as amended hereby, as valid and subsisting. Each reference in the Agreement to itself shall be deemed also to refer to this Amendment. This Amendment may be signed in counterparts, each of which shall be deemed an original and together shall constitute one and the same agreement. Owner and APC represent and warrant to each other that each is fully authorized to enter into this Amendment and the person executing this Amendment on behalf of such such party has full authority to do so and that any and all required corporate or partnership action has been taken.

IN WITNESS WHEREOF, intending to be fully bound, Owner and APC have caused this Amendment to be executed as of the day and year first written above.

Annandale Volunteer Fire Department, Inc.

By: Raju Khemani
Name: Raju Khemani
Title: President
Date: 6/18/03

APC Realty and Equipment Company, L.L.C. ("APC"), a Delaware Limited Liability Company

By: Don Mueller
Name: Don Mueller
Title: Director Site Development
Date: 6/18/03

PREPARED OUT-OF-STATE BY:

David F. Webber
Singleton Cooksey LLP
6363 Woodway, Suite 610
Houston, Texas 77057
(713) 532-6200

AFTER RECORDING, RETURN (MAIL) TO:

RECORD AND RETURN TO:
CENTRAL PROPERTY SEARCH
9 LAWN AVENUE SUITE 200
NORRISTOWN, PA 19403
#458380-R

TAX ID# 0584-01-0062
MAP

Cross Reference:
Book 12859, Page 235 in the Land Records of Fairfax County, Virginia

MEMORANDUM OF SECOND AMENDMENT TO PCS SITE AGREEMENT

THIS MEMORANDUM OF SECOND AMENDMENT TO PCS SITE AGREEMENT ("Memorandum") is made effective as of the Effective Date (as defined herein) by and between MW CELL REIT I LLC, a Delaware limited liability company, having a mailing address of 11900 W. Olympic Boulevard, Suite 400, Los Angeles, California 90064 ("MW Cell") and STC THREE LLC, a Delaware limited liability company ("Tenant"), successor in interest to Sprint Spectrum, L.P., a Delaware limited partnership, with its principal offices located at 2000 Corporate Drive, Canonsburg, Pennsylvania 15317.

WITNESSETH:

WHEREAS, Annandale Volunteer Fire Department, Inc., a Virginia corporation, as original lessor (the "AVFD") and APC Realty and Equipment Company, LLC, as original lessee ("APC"), as the original tenant, entered into that certain PCS Site Agreement dated April 4, 2002, as amended by that certain Amendment to PCS Site Agreement dated June 18, 2003 (collectively, the "Agreement"), whereby AVFD conveyed a lease to APC for a portion of land consisting of approximately 325 square feet in Annandale, Fairfax County, Virginia, together with access and utility easements thereto (the "Site"), as more particularly described in the Agreement and that certain Memorandum of Agreement recorded April 19, 2002 in Book 12859, Page 235 among the Land Records of Fairfax County, Virginia; and

WHEREAS, AVFD, subsequent to the date of the Agreement, entered into an agreement with Wireless Capital Partners, LLC ("WCP") in the form of a loan or Purchase and Sale Agreement pursuant to which AVFD assigned to WCP all rights contained in the Agreement and WCP subsequently transferred its interest in the Agreement to MW Cell; and

Site Name: P1 – Annandale Vol. Fire Dept.
BU#: 881105

Grantor: MW CELL REIT 1 L
DateTime: 05/19/2010 09:56:21
Book/Page: 21193/0886
Recorded in FAIRFAX CIRCUIT COURT
Grantee: STC THREE LLC
Instrument: 2010026720.020
# of Pages: 8
TESTE: JOHN T. FREY

WHEREAS, STC Three LLC is currently the Tenant under the Agreement as successor in interest to Sprint Spectrum, L.P., which was the successor in interest to APC; and

WHEREAS, the Site may be used for the purpose of constructing, maintaining and operating a communications facility, including tower structures, equipment shelters, cabinets, meter boards, utilities, antennas, equipment, any related improvements and structures and uses incidental thereto; and

WHEREAS, the Agreement had an initial term that commenced on April 4, 2002 and terminated on April 3, 2007 ("Initial Term"). The Agreement provides for four (4) automatic renewal terms of five (5) years each (each a "Renewal Term"), with the final Renewal Term terminating on April 3, 2027 (the "Original Term"); and

WHEREAS, the parties entered into a Second Amendment to PCS Site Agreement dated as of the day hereof (the "Amendment"), in order to, among other things, extend the term of the Agreement, all upon the terms and conditions more fully set forth therein.

NOW THEREFORE, for the mutual covenants and premises herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby mutually acknowledged, the undersigned parties, intending to be bound, agreed in the Amendment as follows:

1. Defined Terms. Capitalized terms not otherwise defined herein shall have the meanings set forth in the Amendment and/or the Agreement, as applicable.

2. Renewal Term. The Agreement was modified in the Amendment in order to provide that the Agreement will be automatically extended for five (5) Renewal Terms, with the first (1st) Renewal Term through the fourth (4th) Renewal Term continuing for five (5) years each, and the fifth (5th) Renewal Term continuing for five (5) years, four (4) months and twenty-eight (28) days [the final Renewal Term will expire, if the Agreement is not terminated sooner, August 31, 2032], upon the terms and conditions set forth in the Agreement.

3. No Other Amendments. Except as expressly modified by the Amendment, the Agreement remains unchanged and in full force and effect.

4. Counterparts. This Memorandum may be executed in counterparts, all of which together shall constitute one agreement binding on all the parties hereto, notwithstanding that all such parties are not signatories to the original or same counterpart.

IN WITNESS WHEREOF, MW Cell and Tenant have executed this Memorandum of Second Amendment to PCS Site Agreement to be duly executed on the respective dates indicated below to be effective as of the latter of such dates (the "Effective Date").

MW CELL:

MW CELL REIT 1 LLC,
a Delaware limited liability company

By: _____
Name: Joni LeSage
Title: Authorized Person
Date: 2/12/10

STATE OF CALIFORNIA :
: ss
COUNTY OF LOS ANGELES :

The foregoing instrument was acknowledged before me this 12Th day of February, 2010, by Joni LeSage, as the Authorized Person of MW CELL REIT 1 LLC, a Delaware limited liability company on behalf of said company. She is personally known to me or has produced a CA Driver's License as identification.

Jennifer Matkins
Signature of Notary Public

Jennifer Matkins
Printed Name of Notary Public:

My Commission Expires: July 20, 2012 [Seal]

JENNIFER MATKINS
COMM. 1807071
NOTARY PUBLIC CALIFORNIA
LOS ANGELES COUNTY
My Comm Expires July 20, 2012

Site Name: P1 – Annandale Vol. Fire Dept.
BU#: 881105

TENANT:

STC THREE LLC,
a Delaware limited liability company

By: **GLOBAL SIGNAL ACQUISITIONS II LLC,**
a Delaware limited liability company,
its Attorney-in-Fact (See Exhibit 17

By: _____
Name: Lisa A. Sedgwick
Title: RET Manager
Date: 03.05.2010

THE STATE OF TEXAS :
: ss
COUNTY OF HARRIS :

On this 5th day of March 2010, before me personally appeared Lisa A. Sedgwick RET Manager of GLOBAL SIGNAL ACQUISITIONS II LLC, a Delaware limited liability company, the Attorney-in-Fact of STC THREE LLC, a Delaware limited liability company, that executed the foregoing instrument, and acknowledged said instrument to be the free and voluntary act and deed of said entities for the uses and purposes therein mentioned.

_____
Signature of Notary Public

J. V. BUDET
Printed Name of Notary Public:

My Commission Expires: JUNE 3, 2012 [Seal]

J. V. BUDET
Notary Public, State of Texas
My Commission Expires
June 03, 2012

Site Name: P1 – Annandale Vol. Fire Dept.
BU#: 881105

Exhibit I

AFFIDAVIT REGARDING LIMITED POWER OF ATTORNEY
TO EXECUTE AND RECORD DOCUMENTS

STC THREE LLC, a Delaware limited liability company ("Grantor"), has appointed **GLOBAL SIGNAL ACQUISITIONS II LLC**, a Delaware limited liability company ("Grantee"), of 2000 Corporate Drive, Canonsburg, Pennsylvania 15317, as its attorney in fact to act for it in its name and for its benefit solely as set forth herein.

1. **Scope:** Grantor has appointed Grantee as its attorney in fact to execute, seal, acknowledge and deliver any documents as may be reasonably necessary related to Grantor's leasehold interest in certain parcels leased by Grantor (including the sublease of portions thereof) within the States of Virginia and Maryland under that certain "Master Lease and Sublease" dated May 26, 2005, among AMERICAN PCS COMMUNICATIONS, LLC, a Delaware limited liability company ("Sprint Collocator"), Global Signal, Inc., Grantor and Grantee (the "Master Lease"), provided and to the extent that the actions memorialized in such document were authorized by the Limited Power of Attorney granted by Grantor to Grantee in the Master Lease.

2. **Duration:** This Limited Power of Attorney is effective and will continue until the earliest of the following to occur: (i) it is revoked in writing by Grantor; (ii) expiration or termination of the Master Lease; (iii) expiration or termination of the sublease or (iv) May 25, 2037; provided in the case of (i) or (ii) above, that revocation of this Limited Power of Attorney is not effective as to a third party until the third party learns of the revocation. This Affidavit Regarding Limited Power of Attorney may be accepted and relied upon by any Person to whom it is presented until such time that it is terminated in accordance with this Section 2. A revocation of the powers granted shall not affect any Person's acceptance or reliance of this Affidavit Regarding Limited Power of Attorney prior to such revocation.

3. **No Additional Rights:** This Affidavit Regarding Limited Power of Attorney is intended to restate, confirm and reaffirm the rights afforded to Grantee as set forth in the Master Lease. Nothing in this Affidavit Regarding Limited Power of Attorney shall modify, expand or limit any of the rights or obligations of the parties that are set forth in the Master Lease.

Signed this 23 day of March, 2010.

STC THREE LLC,
a Delaware limited liability company

By: _____
Name: John W. Chapman
Title: Assistant Secretary

STATE OF KANSAS)
) ss.
COUNTY OF JOHNSON)

This instrument was acknowledged before me this 23 day of March, 2010, by John W. Chapman, Assistant Secretary, on behalf of STC THREE LLC, a Delaware limited liability company.

NOTARY PUBLIC STATE OF KANSAS | JONNA CLEM My Appt. Exp. May 7, 2012

_____
Notary Public

My Commission Expires:
5-7-2012

No. _____

SITE LEASE WITH OPTION

THIS SITE LEASE WITH OPTION (this "Lease") is by and between Annandale Volunteer Fire Department, Inc., with offices at 7128 Columbia Pike, Annandale, VA 22003 ("Landlord") and Omnipoint Communications Cap Operations, LLC, a Delaware limited liability company, with offices at 12050 Baltimore Avenue, Beltsville, MD 20705 ("Tenant").

1. Option to Lease.

(a) In consideration of the payment of two hundred and no/100 dollars ($200.00) (the "Option Fee") by Tenant to Landlord, Landlord hereby grants to Tenant an option to lease the use of a portion of the real property described in the attached Exhibit A (the "Property"), on the terms and conditions set forth herein (the "Option"). The Option shall be for an initial term of twelve (12) months, commencing on the Effective Date (as defined below) (the "Option Period"). The Option Period may be extended by Tenant for an additional twelve (12) months upon written notice to Landlord and payment of the sum of two hundred and no/100 dollars ($200.00) ("Additional Option Fee") at any time prior to the end of the Option Period.

1yr option = worst-case commencement

(b) During the Option Period and any extension thereof, and during the term of this Lease, Landlord agrees to cooperate with Tenant in obtaining, at Tenant's expense, all licenses and permits or authorizations required for Tenant's use of the Premises (as defined below) from all applicable government and/or regulatory entities (including, without limitation, zoning and land use authorities, and the Federal Communication Commission ("FCC") ("Governmental Approvals"), including appointing Tenant as agent for all land use and zoning permit applications, and Landlord agrees to cooperate with and to allow Tenant, at no cost to Landlord, to obtain a title report, zoning approvals and variances, land-use permits, and Landlord expressly grants to Tenant a right of access to the Property to perform surveys, soils tests, and other engineering procedures or environmental investigations on the Property necessary to determine that Tenant's use of the Premises will be compatible with Tenant's engineering specifications, system design, operations and Governmental Approvals. Notwithstanding the foregoing, Tenant may not change the zoning classification of the Property without first obtaining Landlord's written consent. During the Option Period and any extension thereof, Landlord agrees that it will not interfere with Tenant's efforts to secure other licenses and permits or authorizations that relate to other property. During the Option Period and any extension thereof, Tenant may exercise the Option by so notifying Landlord in writing, at Landlord's address in accordance with Section 12 hereof.

(c) If Tenant exercises the Option, then, subject to the following terms and conditions, Landlord hereby leases to Tenant the use of that portion of the Property sufficient for placement of the Antenna Facilities (as defined below), together with all necessary space and easements for access and utilities, as generally described and depicted in the attached Exhibit B (collectively referred to hereinafter as the "Premises"). The Premises, located at 8914 Little River Turnpike, Fairfax, Fairfax County, VA, comprises approximately 250 square feet.

2. Term. The initial term of this Lease shall be five (5) years commencing on the date of the exercise of the Option (the "Commencement Date"), and terminating at midnight on the last day of the initial term (the "Initial Term").

3. Permitted Use. The Premises may be used by Tenant for the transmission and reception of radio communication signals and for the construction, installation, operation, maintenance, repair, removal or replacement of related facilities, tower and base, antennas, microwave dishes, equipment shelters and/or cabinets and related activities.

4. Rent. Tenant shall pay Landlord, as rent, six hundred fifty and no/100 dollars ($650.00) per month ("Rent"). The Rent shall be subject to an annual increase of three (3) percent, such increase to take effect on each anniversary date of the Commencement Date. Rent shall be payable within twenty (20) days following the Commencement Date prorated for the remainder of the month in which the Commencement Date falls and thereafter Rent will be payable monthly in advance by the fifth day of each month to Annandale Volunteer Fire Department, Inc., at Landlord's address specified in Section 12 below. If this Lease is terminated at a time other than on the last day of a month, Rent shall be prorated as of the date of termination for any reason (other than a default by Tenant) and all prepaid Rent shall be immediately refunded to Tenant.

5. Renewal. Tenant shall have the right to extend this Lease for five (5) additional, five-year terms (each a "Renewal Term"). Each Renewal Term shall be on the same terms and conditions as set forth herein. This Lease shall automatically renew for each successive Renewal Term unless Tenant notifies Landlord, in writing, of Tenant's intention not to renew this Lease, at least sixty (60) days prior to the expiration of the Initial Term or any Renewal Term. If Tenant shall remain in possession of the Premises at the expiration of this Lease or any Renewal Term without a written agreement, such tenancy shall be deemed a month-to-month tenancy under the same terms and conditions of this Lease.

6. Interference. Tenant shall not use the Premises in any way which interferes with the use of the Property by Landlord, or lessees or licensees of Landlord with rights in the Property prior in time to Tenant's (subject to Tenant's rights under this Lease, including, without limitation, non-interference). Similarly, Landlord shall not use, nor shall Landlord permit its lessees, licensees, employees, invitees or agents to use, any portion of the Property in any way which interferes with the

operations of Tenant. Such interference shall be deemed a material breach by the interfering party, who shall, upon written notice from the other, be responsible for terminating said interference. In the event any such interference does not cease promptly, the parties acknowledge that continuing interference may cause irreparable injury and, therefore, the injured party shall have the right, in addition to any other rights that it may have at law or in equity, to bring a court action to enjoin such interference or to terminate this Lease immediately upon written notice.

7. Improvements; Utilities; Access.

(a) Tenant shall have the right, at its expense, to erect and maintain on the Premises improvements, personal property and facilities necessary to operate its communications system, including, without limitation, radio transmitting and receiving antennas, microwave dishes, tower and base, equipment shelters and/or cabinets and related cables and utility lines and a location based system, including, without limitation, antenna(s), coaxial cable, base units and other associated equipment (collectively, the "Antenna Facilities"), as such location based system may be required by any county, state or federal agency/department. Tenant shall have the right to alter, replace, expand, enhance and upgrade the Antenna Facilities at any time during the term of this Lease. Tenant shall cause all construction to occur lien-free and in compliance with all applicable laws and ordinances. Landlord acknowledges that it shall not interfere with any aspects of construction, including, without limitation, attempting to direct construction personnel as to the location of or method of installation of the Antenna Facilities and the Easements (as defined below) ("Construction Interference"). Landlord further acknowledges that it will be responsible for any costs and damages (including, fines and penalties) that are directly attributable to Landlord's Construction Interference. The Antenna Facilities shall remain the exclusive property of Tenant. Tenant shall have the right to remove the Antenna Facilities at any time during and upon the expiration or termination of this Lease.

(b) Tenant, at its expense, may use any and all appropriate means of restricting access to the Antenna Facilities, including, without limitation, the construction of a fence.

(c) Tenant shall, at Tenant's expense, keep and maintain the Antenna Facilities now or hereafter located on the Property in commercially reasonable condition and repair during the term of this Lease, normal wear and tear and casualty excepted. Upon termination or expiration of this Lease, the Premises shall be returned to Landlord in good, usable condition, normal wear and tear and casualty excepted.

(d) Tenant shall have the right to install utilities, at Tenant's expense, and to improve the present utilities on the Property (including, but not limited to, the installation of emergency power generators). Landlord agrees to use reasonable efforts in assisting Tenant to acquire necessary utility service. Tenant shall, wherever practicable, install separate meters for utilities used on the Property by Tenant. Landlord shall diligently correct any variation, interruption or failure of utility service.

(e) As partial consideration for Rent paid under this Lease, Landlord hereby grants Tenant and the servicing electric and telephone utility companies an easement in, under and across the Property for ingress, egress, utilities and access (including access for the purposes described in Section 1) to the Premises adequate to install and maintain utilities, which include, but are not limited to, the installation of power and telephone service cable, and to service the Premises and the Antenna Facilities at all times during the Initial Term of this Lease and any Renewal Term (collectively, the "Easements"). The Easements provided hereunder shall have the same term as this Lease.

(f) Tenant shall have 24-hours-a-day, 7-days-a-week access to the Premises ("Access") at all times during the Initial Term of this Lease and any Renewal Term.

8. Termination. Except as otherwise provided herein, this Lease may be terminated, without any penalty or further liability as follows:

(a) upon thirty (30) days' written notice by Landlord if Tenant fails to cure a default for payment of amounts due under this Lease within that thirty (30) day period;

in writing to Re

(b) immediately if Tenant notifies Landlord of unacceptable results of any title report, environmental or soil tests prior to Tenant's installation of the Antenna Facilities on the Premises, or if Tenant is unable to obtain, maintain, or otherwise forfeits or cancels any license (including, without limitation, an FCC license), permit or any Governmental Approval necessary to the installation and/or operation of the Antenna Facilities or Tenant's business;

(c) upon ninety (90) days' written notice by Tenant if the Property or the Antenna Facilities are, or become unacceptable under Tenant's design or engineering specifications for its Antenna Facilities or the communications system to which the Antenna Facilities belong;

(d) immediately upon written notice by Tenant if the Premises or the Antenna Facilities are destroyed or damaged so as in Tenant's reasonable judgment to substantially and adversely affect the effective use of the Antenna Facilities. In such event, all rights and obligations of the parties shall cease as of the date of the damage or destruction, and Tenant shall be entitled to the

reimbursement of any Rent prepaid by Tenant. If Tenant elects to continue this Lease, then all Rent shall abate until the Premises and/or the Antenna Facilities are restored to the condition existing immediately prior to such damage or destruction; or

(c) at the time title to the Property transfers to a condemning authority, pursuant to a taking of all or a portion of the Property sufficient in Tenant's determination to render the Premises unsuitable for Tenant's use. Landlord and Tenant shall each be entitled to pursue their own separate awards with respect to such taking. Sale of all or part of the Property to a purchaser with the power of eminent domain in the face of the exercise of the power shall be treated as a taking by condemnation.

9. Default and Right to Cure. Notwithstanding anything contained herein to the contrary and without waiving any other rights granted to it at law or in equity, each party shall have the right, but not the obligation, to terminate this Lease on written notice pursuant to Section 12 hereof, to take effect immediately, if the other party (i) fails to perform any covenant for a period of thirty (30) days after receipt of written notice thereof to cure or (ii) commits a material breach of this Lease and fails to diligently pursue such cure to its completion after sixty (60) days' written notice to the defaulting party.

10. Taxes. Landlord shall pay when due all real property taxes for the Property, including the Premises. In the event that Landlord fails to pay any such real property taxes or other fees and assessments, Tenant shall have the right, but not the obligation, to pay such owed amounts and deduct them from Rent amounts due under this Lease. Notwithstanding the foregoing, Tenant shall pay any personal property tax, real property tax or any other tax or fee which are directly attributable to the presence or installation of the Tenant's Antenna Facilities, only for so long as this Lease has not expired of its own terms or is not terminated by either party. Landlord hereby grants to Tenant the right to challenge, whether in a Court, Administrative Proceeding, or other venue, on behalf of Landlord and/or Tenant, any personal property or real property tax assessments that may affect Tenant. If Landlord receives notice of any personal property or real property tax assessment against the Landlord, which may affect Tenant and is directly attributable to Tenant's installation, Landlord shall provide timely notice of the assessment to Tenant sufficient to allow Tenant to consent to or challenge such assessment. Further, Landlord shall provide to Tenant any and all documentation associated with the assessment and shall execute any and all documents reasonably necessary to effectuate the intent of this Section 10.

11. Insurance and Subrogation and Indemnification.

(a) Tenant shall provide Commercial General Liability Insurance in an aggregate amount of One Million and no/100 dollars ($1,000,000.00). Tenant may satisfy this requirement by obtaining the appropriate endorsement to any master policy of liability insurance Tenant may maintain.

(b) Landlord and Tenant hereby mutually release each other (and their successors or assigns) from liability and waive all right of recovery against the other for any loss or damage covered by their respective first party property insurance policies for all perils insured thereunder. In the event of such insured loss, neither party's insurance company shall have a subrogated claim against the other. To the extent loss or damage is not covered by their first party property insurance policies, Landlord and Tenant each agree to indemnify and hold harmless the other party from and against any and all claims, damages, cost and expenses, including reasonable attorney fees, to the extent caused by or arising out of: (a) the negligent acts or omissions or willful misconduct in the operations or activities on the Property by the indemnifying party or the employees, agents, contractors, licensees, tenants and/or sublessees of the indemnifying party, or (b) a breach of any obligation of the indemnifying party under this Lease. Notwithstanding the foregoing, this indemnification shall not extend to indirect, special, incidental or consequential damages, including, without limitation, loss of profits, income or business opportunities to the indemnified party or anyone claiming through the indemnified party. The indemnifying party's obligations under this section are contingent upon (i) its receiving prompt written notice of any event giving rise to an obligation to indemnifying the other party and (ii) the indemnified party's granting it the right to control the defense and settlement of the same. Notwithstanding anything to the contrary in this Lease, the parties hereby confirm that the provisions of this section shall survive the expiration or termination of this Lease. Tenant shall not be responsible to Landlord, or any third-party, for any claims, costs or damages (including, fines and penalties) attributable to any pre-existing violations of applicable codes, statutes or other regulations governing the Property, including the Premises.

12. Notices. All notices, requests, demands and other communications shall be in writing and are effective three (3) days after deposit in the U.S. mail, certified and postage paid, or upon receipt if personally delivered or sent by next-business-day delivery via a nationally recognized overnight courier to the addresses set forth below. Landlord or Tenant may from time to time designate any other address for this purpose by providing written notice to the other party.

If to Tenant, to:	With copies to:	
Omnipoint Communications Cap Operations, LLC 12050 Baltimore Avenue Beltsville, MD 20705 Attn: Lease Administration Manager	T-Mobile USA, Inc. 12920 SE 38th Street Bellevue, WA 98006 Attn: PCS Lease Administrator With a copy to: Attn: Legal Dept.	Omnipoint Communications, Inc. 360 Newark-Pompton Turnpike Wayne, NJ 07470 Attn: Lease Administrator

If to Landlord, to: With a copy to:

Annandale Volunteer Fire Department, Inc.
~~3128 Gobernia Pike~~ P.O. Box 806
Annandale, VA 22003

13. Quiet Enjoyment, Title and Authority. Landlord covenants and warrants to Tenant that (i) Landlord has full right, power and authority to execute this Lease; (ii) it has good and unencumbered title to the Property free and clear of any liens or mortgages, except those disclosed to Tenant and which will not interfere with Tenant's rights to or use of the Premises; and (iii) execution and performance of this Lease will not violate any laws, ordinances, covenants, or the provisions of any mortgage, lease, or other agreement binding on Landlord. Landlord covenants that at all times during the term of this Lease, Tenant's quiet enjoyment of the Premises or any part thereof shall not be disturbed so long as Tenant is not in default beyond any applicable grace or cure period.

14. Environmental Laws. Landlord represents that it has no knowledge of any substance, chemical or waste (collectively, "Hazardous Substance") on the Property that is identified as hazardous, toxic or dangerous in any applicable federal, state or local law or regulation. Landlord and Tenant shall not introduce or use any Hazardous Substance on the Property in violation of any applicable law. Landlord shall be responsible for, and shall promptly conduct any investigation and remediation as required by any applicable environmental laws, all spills or other releases of any Hazardous Substance not caused solely by Tenant, that have occurred or which may occur on the Property. Each party agrees to defend, indemnify and hold harmless the other from and against any and all administrative and judicial actions and rulings, claims, causes of action, demands and liability (collectively, "Claims") including, but not limited to, damages, costs, expenses, assessments, penalties, fines, losses, judgments and reasonable attorney fees that the indemnitee may suffer or incur due to the existence or discovery of any Hazardous Substances on the Property or the migration of any Hazardous Substance to other properties or the release of any Hazardous Substance into the environment (collectively, "Actions"), that relate to or arise from the indemnitor's activities on the Property. Landlord agrees to defend, indemnify and hold Tenant harmless from Claims resulting from Actions on the Property not caused by Landlord or Tenant prior to and during the Initial Term and any Renewal Term of this Lease. The indemnifications in this section specifically include, without limitation, costs incurred in connection with any investigation of site conditions or any cleanup, remedial, removal or restoration work required by any governmental authority. This Section 14 shall survive the termination or expiration of this Lease.

15. Assignment and Subleasing. (a) Tenant may assign this Lease and the Easements (as defined above) granted herein upon written notice to Landlord. Upon such assignment, Tenant shall be relieved of all liabilities and obligations hereunder and Landlord shall look solely to the assignee for performance under this Lease and all obligations hereunder. Tenant may sublease the Premises, upon written notice to Landlord.

(b) Additionally, Tenant may, upon notice to Landlord, mortgage or grant a security interest in this Lease and the Antenna Facilities, and may assign this Lease and the Antenna Facilities to any mortgagees or holders of security interests, including their successors or assigns (collectively "Mortgagees"), provided such Mortgagees agree to be bound by the terms and provisions of this Lease. In such event, Landlord shall execute such consent to leasehold financing as may reasonably be required by Mortgagees. Landlord agrees to notify Tenant and Tenant's Mortgagees simultaneously of any default by Tenant and to give Mortgagees the same right to cure any default as Tenant or to remove any property of Tenant or Mortgagees located on the Premises, except that the cure period for any Mortgagees shall not be less than thirty (30) days after receipt of the default notice, as provided in Section 9 of this Lease. All such notices to Mortgagees shall be sent to Mortgagees at the address specified by Tenant. Failure by Landlord to give Mortgagees such notice shall not diminish Landlord's rights against Tenant, but shall preserve all rights of Mortgagees to cure any default and to remove any property of Tenant or Mortgagees located on the Premises as provided in Section 17 of this Lease.

16. Successors and Assigns. This Lease and the Easements granted herein shall run with the land, and shall be binding upon and inure to the benefit of the parties, their respective successors, personal representatives and assigns.

17. Waiver of Landlord's Lien. Landlord hereby waives any and all lien rights it may have, statutory or otherwise, concerning the Antenna Facilities or any portion thereof, which shall be deemed personal property for the purposes of this Lease, whether or not the same is deemed real or personal property under applicable laws, and Landlord gives Tenant and Mortgagees the right to remove all or any portion of the same from time to time, whether before or after a default under this Lease, in Tenant's and/or Mortgagee's sole discretion and without Landlord's consent.

18. Miscellaneous.

(a) The prevailing party in any litigation arising hereunder shall be entitled to its reasonable attorneys' fees and court costs, including appeals, if any.

(b) Each party agrees to furnish to the other, within twenty (20) days after request, such truthful estoppel information as the other may reasonably request.

(c) This Lease constitutes the entire agreement and understanding of the parties, and supersedes all offers, negotiations and other agreements. There are no representations or understandings of any kind not set forth herein. Any amendments to this Lease must be in writing and executed by both parties.

(d) Each party agrees to cooperate with the other in executing any documents (including a Memorandum of Lease in substantially the form attached hereto as Exhibit C) necessary to protect its rights or use of the Premises. The Memorandum of Lease may be recorded in place of this Lease by either party. In the event the Property is encumbered by a mortgage or deed of trust, Landlord agrees, upon request of Tenant, to obtain and furnish to Tenant a non-disturbance and attornment agreement for each such mortgage or deed of trust, in a form reasonably acceptable to Tenant. Tenant may obtain title insurance on its interest in the Premises. Landlord agrees to execute such documents as the title company may require in connection therewith.

(e) This Lease shall be construed in accordance with the laws of the state in which the Property is located.

(f) If any term of this Lease is found to be void or invalid, such finding shall not affect the remaining terms of this Lease, which shall continue in full force and effect. The parties agree that if any provisions are deemed not enforceable, they shall be deemed modified to the extent necessary to make them enforceable. Any questions of particular interpretation shall not be interpreted against the draftsman, but rather in accordance with the fair meaning thereof. No provision of this Lease will be deemed waived by either party unless expressly waived in writing signed by the waiving party. No waiver shall be implied by delay or any other act or omission of either party. No waiver by either party of any provision of this Lease shall be deemed a waiver of such provision with respect to any subsequent matter relating to such provision.

(g) The persons who have executed this Lease represent and warrant that they are duly authorized to execute this Lease in their individual or representative capacity as indicated.

(h) This Lease may be executed in any number of counterpart copies, each of which shall be deemed an original, but all of which together shall constitute a single instrument.

(i) All Exhibits referred to herein and any Addenda are incorporated herein for all purposes. The parties understand and acknowledge that Exhibit A (the legal description of the Property) and Exhibit B (the Premises location within the Property), may be attached to this Lease and the Memorandum of Lease, in preliminary form. Accordingly, the parties agree that upon the preparation of final, more complete exhibits, Exhibits A, and/or B, as the case may be, which may have been attached hereto in preliminary form, may be replaced by Tenant with such final, more complete exhibit(s). The terms of all Exhibits are incorporated herein for all purposes.

(j) If Landlord is represented by any broker or any other leasing agent, Landlord is responsible for all commission fee or other payment to such agent, and agrees to indemnify and hold Tenant harmless from all claims by such broker or anyone claiming through such broker. If Tenant is represented by any broker or any other leasing agent, Tenant is responsible for all commission fee or other payment to such agent, and agrees to indemnify and hold Landlord harmless from all claims by such broker or anyone claiming through such broker.

The effective date of this Lease is the date of execution by the last party to sign (the "Effective Date").

[Signature Page Follows]

LANDLORD: Annandale Volunteer Fire Department, Inc.

By: Raju Khemani

Printed Name: RAJU KHEMANI

Its: President

Date: 6/27/03

TENANT: Omnipoint Communications Cap Operations, LLC

By: SIGNATURE

Printed Name: NAME: NEVILLE G. RAY

Its: TITLE: VICE PRESIDENT, NETWORK & OPERATIONS NORTHEAST REGION

Date: 9-10-03

Approved as to form

[Notary block for Landlord]

STATE OF Virginia)
) ss.
COUNTY OF Fairfax)

This instrument was acknowledged before me on June 24th, by Raju Khemani, President [title] of AUFD, Inc. [name of entity], a non-profit corp [type of entity], on behalf of said AUFD, Inc. [name of entity].

Dated: 06-24-03

Notary Public
Print Name Reginald Blackwood
My commission expires 4-30-2007

REGINALD BLACKWOOD
COMMONWEALTH OF VIRGINIA
NOTARY PUBLIC

(Use this space for notary stamp/seal)

[Notary block for Tenant]

STATE OF New Jersey)
) ss.
COUNTY OF Morris)

I certify that I know or have satisfactory evidence that N.R. Rao is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he was authorized to execute the instrument and acknowledged it as the VP of Omnipoint Communications Cap Operations, LLC, a Delaware limited liability company, to be the free and voluntary act of such party for the uses and purposes mentioned in the instrument.

Dated: 9-10-03

Notary Public Roberta S. Bornstein
Print Name ROBERTA S. BORNSTEIN
Notary Public of NJ
My Commission Expires 7/12/05
My commission expires

(Use this space for notary stamp/seal)

Site Number: WAC162
Site Name: Wakefield
Market: Baltimore/Washington

Version 10-0-01

EXHIBIT A
Legal Description

The Property is legally described as follows:

From the Land Records of Fairfax County, VA, at Book 03080 Page 00007:

BEGINNING at a point in the northerly right-of-way line of Little River Turnpike, State Route 236, said point being the southwest corner of the Argyle Investment Corp. Property, as recorded in Deed Book 2329, at page 349, among the Land records of Fairfax County, Virginia; thence departing said point and running along the northerly right-of-way line of State Route 236 N 78° 23' 10" W - 61.97 feet and N 77° 44' 40" W - 146.75 feet to a point a corner common to Mollie M. Miller and the Bethlehem Lutheran Church Property; thence departing State Route 236 and running with the lines common to Mollie M. Miller and the Bethlehem Lutheran Church Property N 18° 21' 30" E - 358.17 feet and S 77° 57' 30" E - 208.70 feet to a point in the westerly line of the aforementioned Argyle Investment Corp. Property; thence running with a portion of said westerly boundary S 18° 21' 30" W - 358.17 feet to the point of beginning, containing 74,378 square feet or 1.70748 acres of land, as more particularly described on the plat prepared by Coldwell, Shreve & Hayes, C. L. S., dated August, 1965.

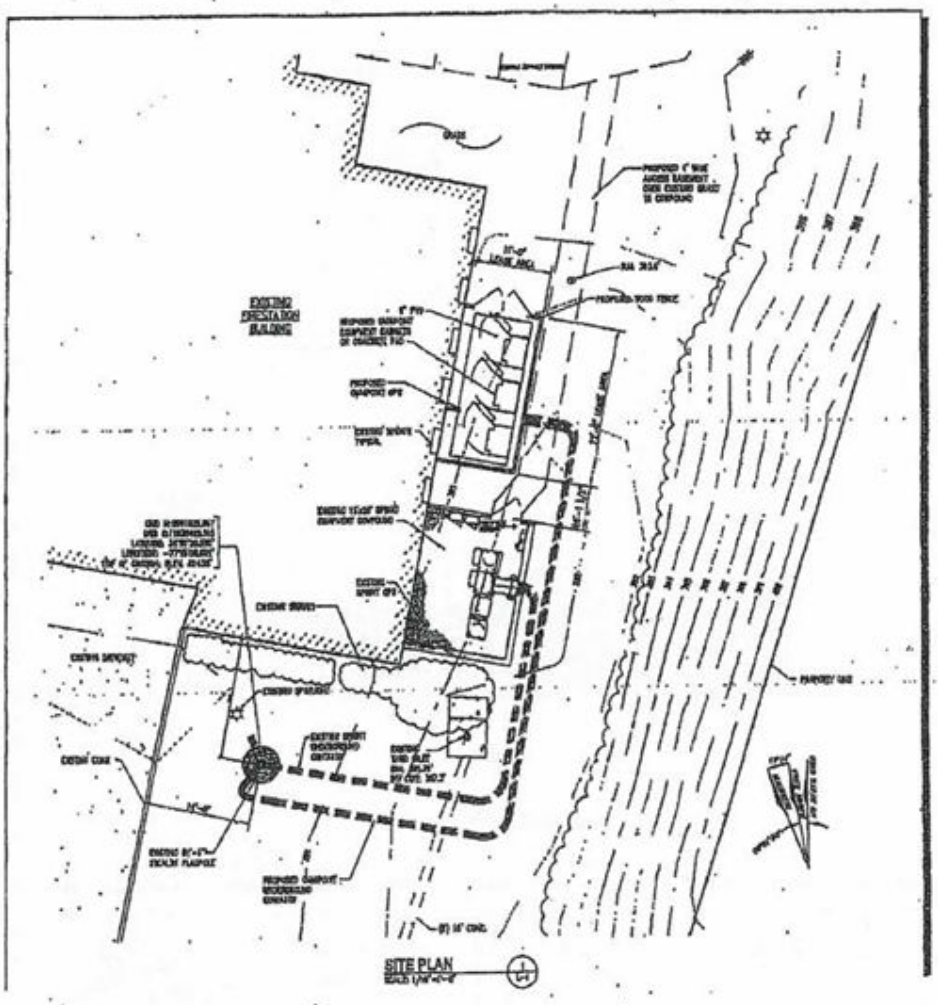
AND BEING the same property conveyed to the parties of the first part by deed recorded in Deed Book 2659 at page 519, among the land records of Fairfax County, Virginia.

Site Number: WAC161
Site Name: Wakefield
Market: Baltimore/Washington

Verizon 10-1-01

EXHIBIT B

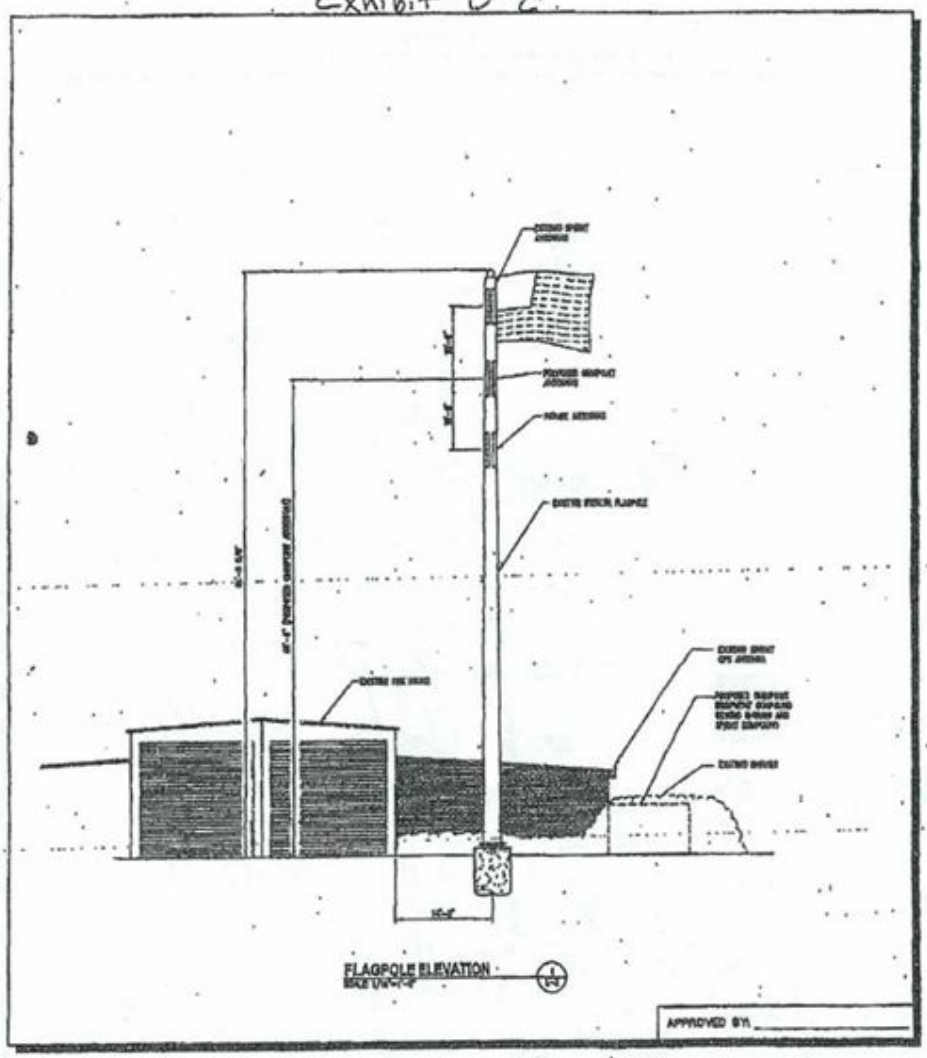
The location of the Premises within the Property (together with access and utilities) is more particularly described and depicted as follows (E911 equipment to be installed in the future -- not depicted):



Site Number: WAC141
Site Name: Wakefield
Market: Baltimore/Washington

Version 10-2-01

Exhibit B-2



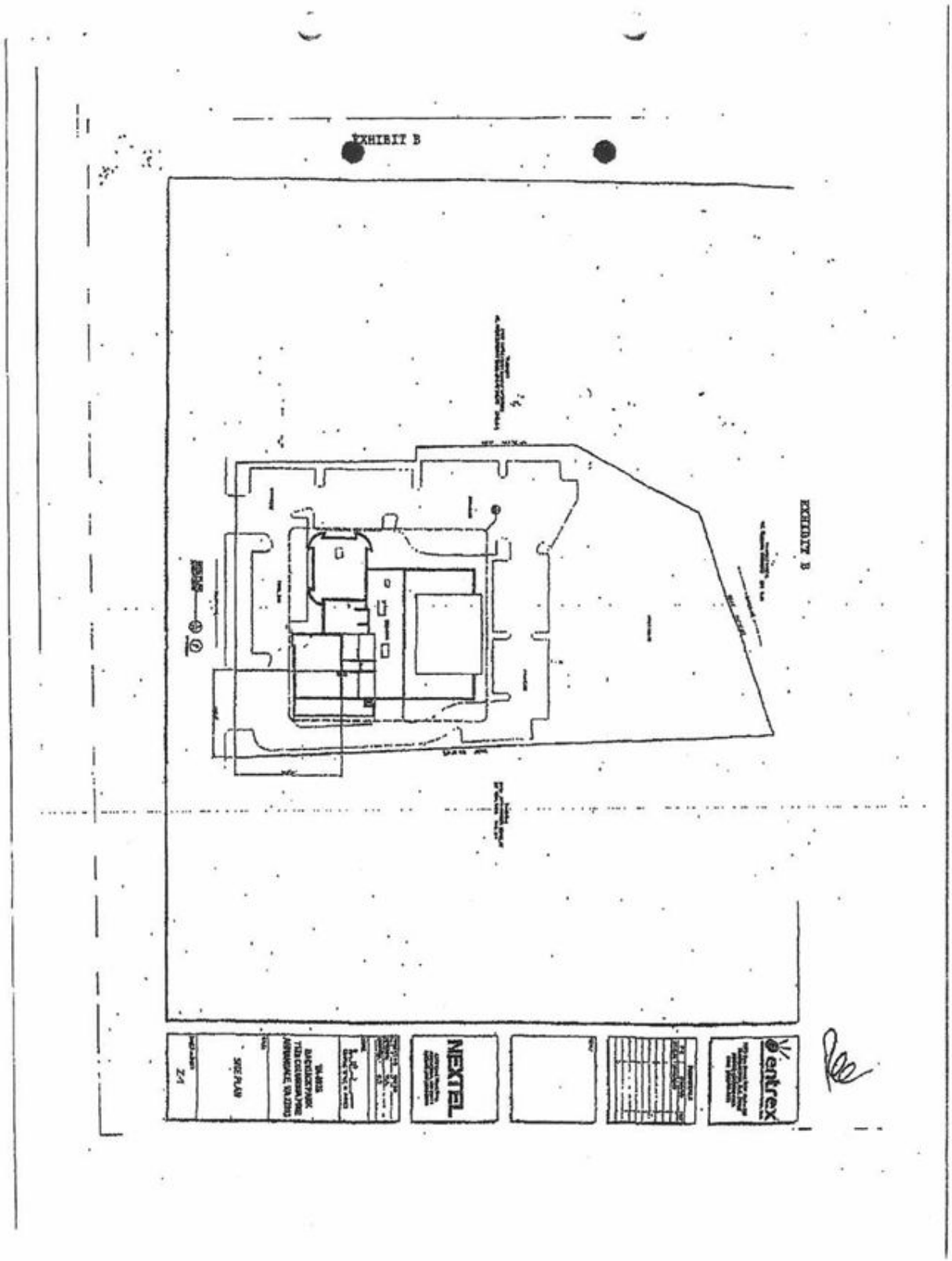
entrex
communication services, inc.

SUBMITTALS

OMNIPOINT
Omnipoint Communications
CAP Operations, LLC

WAC101B
WAKEFIELD
6914 LITTLE RIVER TPK
FAIRFAX, VA 22031

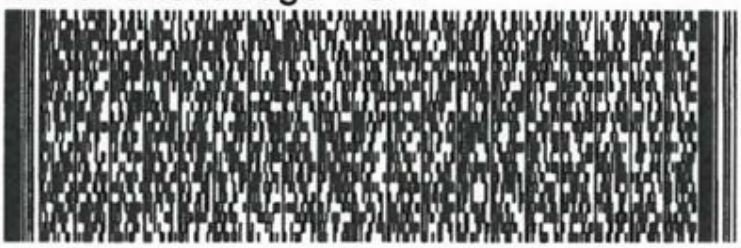
FLAGPOLE ELEVATION



05/26/2016
RECORDED FAIRFAX CO VA
TESTE
CLERK

Fairfax Circuit Court Coversheet Generator

Cover Sheet Page 1 of 1



Consideration		**Consideration/Actual Value %**	100		
Actual/Assessed	**Tax Exemption**	NC	**Amount Not Taxed**		
Code Section	58.1-809				
DEM Number					
Original Book	24584	**Original Page**	1027		
Title Company	COUNTY ATTORNEY		**Title Case**	143487.002	
Property Descr.	LEE JACKSON HWY		**Multiple Lots?**	NO	
Return To Party Name:	JOHN BURTON, ASSISTANT COUNTY ATTORNEY	**Address:**	BOX 1 12000 GOVERNMENT CENTER PARKWAY SUITE 549 FAIRFAX, VA 22035		
No. of Certified Copies	0 **No. of Non-certified Copies**	0	**Page Range**	1-9	

Document Type(s)

EASEMENT CORRECTION, LEASE ASSIGNMENT

Grantor(s)

ANNANDALE VOLUNTEER FIRE DEPARTMENT_F_N, THE BOARD OF SUPERVISORS OF FAIRFAX COUNTY, VIRGINIA_F_N

Grantee(s)

GLOBAL SIGNAL ACQUISITIONS IV LLC_F_N

Tax Map Number

058-4- -01- -0062-00

Exhibit B

Prepared by and after recordation return to:

Office of the County Attorney
12000 Government Center Parkway
Suite 549
Fairfax, Virginia 22035

Tax Map No.: 0584 01 0062

Address of Grantee:

Global Signal Acquisitions IV LLC
General Counsel
Attn: Legal – Real Estate Dept.
2000 Corporate Drive
Canonsburg, PA 15317

Recording Tax Exemption Claimed Pursuant to Va. Code Section 58.1-809.
This instrument amends and modifies the Grant of Easement and Assignment of Lease recorded in Book 24584, Page 1027.

FIRST AMENDMENT TO DEED OF EASEMENT AND ASSIGNMENT OF LEASE

THIS FIRST AMENDMENT TO DEED OF EASEMENT AND ASSIGNMENT OF LEASE (the "Amendment") dated the 3RD day of FEBRUARY, 2020, is made by and among **ANNANDALE VOLUNTEER FIRE DEPARTMENT**, a Virginia not for profit corporation ("Owner"), grantor for indexing purposes only; **THE BOARD OF SUPERVISORS OF FAIRFAX COUNTY, VIRGINIA**, a body corporate and politic (the "County"), grantor for indexing purposes only; and **GLOBAL SIGNAL ACQUISITIONS IV LLC**, a Delaware limited liability company ("Global Signal"), grantee for indexing purposes only.

RECITALS

R-1. Owner is the owner of that property identified on the Fairfax County Tax Maps as 0584 01 0062, having the address of 8914 Little River Turnpike, Fairfax, Virginia and which is more particularly described on the attached and incorporated Exhibit "A" (the "Property").

R-2. By that certain Deed of Easement and Assignment of Lease (the "Easement") dated May 10, 2016, and recorded in Deed Book 24584 at Page 1027 among the land records of Fairfax County, Virginia, Owner granted to Global Signal an easement with respect to certain real property and improvements thereon ("Easement Area") and assigned certain rights under certain agreements to Global Signal all in accordance with the terms and provisions of the Easement.

R-3. Owner is contemplating the conveyance of the Property to the County in order for the County to construct a new, state-of-the-art facility on the Property to ensure the provision of exceptional public safety. Owner has entered into discussions with the County concerning the possibility of such conveyance. The County has notified Owner that because the Easement runs with the land and because certain terms and provisions of such Easement are not acceptable to the County, the County will not accept the Property unless such terms and provisions are modified for

the duration of time the County owns the Property, in accordance with the terms and provisions more particularly set forth below.

NOW THEREFOR WITNESSETH that for and in consideration of the sum of Five Dollars ($5.00), cash in hand paid, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Owner, the County, and Global Signal hereto agree that the Easement shall automatically be amended as set out below upon the conveyance of the Property by Owner to the County, and that such amendments shall remain in full force and effect for so long as the County or any political subdivision thereof remains the fee simple owner of the Property:

1. The provisions of Sections 13 and 32 of the Easement shall have no effect.

2. Notwithstanding any contrary provisions in the Easement, including, but not limited to Sections 8(b), 8(c) and 17, neither party shall have any obligation to indemnify, hold harmless or defend the other party under the Easement for any reason.

3. During the term of the Easement, notwithstanding Section 9, the County and Global Signal shall each maintain, at their sole expense, insurance which may be required by any federal, state or local statute or ordinance of any governmental body having jurisdiction in connection with the Easement Area and Commercial General Liability coverage in an amount not less than $3,000,000 per occurrence and $6,000,000 in the aggregate. The required limits recited herein may be met by primary and excess or umbrella policies. County shall have the right to fulfill its requirements under this Section 3 through self-insurance. Each party shall provide other party with a copy of the certificate of insurance evidencing this insurance coverage upon the other party's request.

4. Notwithstanding any contrary provisions in the Easement, including, but not limited to Sections 5, 26, and 31, except as expressly provided in this Section 4 below the County does not appoint Global Signal as the County's attorney in fact and Global Signal shall not act as the County's attorney for any reason. Notwithstanding the foregoing, if Global Signal requests the County sign documents pursuant to Section 5, and the Grantor fails to do so and return same to Global Signal within forty-five (45) days from receipt of such request, then Grantor shall be deemed to have granted to Global Signal a limited power of attorney to sign such documents on the County's behalf. Nothing in this Amendment shall be construed as limiting the discretion of the Fairfax County Board of Supervisors to approve or deny any land use applications, permits or licenses in accordance with applicable law.

5. Notwithstanding any contrary provisions in the Easement, including, but not limited to Section 26 of the Easement, Global Signal shall not sell, assign, or otherwise transfer its interest in the Easement without the Grantor's prior consent, which consent shall not be unreasonably withheld, conditioned, delayed or denied; provided, however, that no Grantor consent will be required if Global Signal assigns, sells or otherwise transfers its interest in this Easement to an affiliate, subsidiary or parent entity or to any entity that acquires all or substantially all of Global Signal's assets or that merges with or into Global Signal, or if Global Signal provides documentation to Grantor demonstrating to Grantor that the net worth of the assignee is greater than or equal to Ten Million And 00/100 Dollars ($10,000,000.00) at the time of such assignment. Where such consent is required above, failure by Grantor to respond to Global

Signal's request for consent within ten (10) days of receipt of such request shall be deemed to be Grantor's consent to the requested assignment. The foregoing shall not require consent for Global Signal to lease, license, grant sub-easements or similarly encumber its interest in the Easement Area as is currently allowed under the Easement.

6. Notwithstanding any contrary provisions in the Easement, including, but not limited to Sections 3 and 4, the County shall have no obligation to indemnify or hold harmless any individual or entity pursuant to any lease agreement assigned to Global Signal under the Easement.

7. Notwithstanding any contrary provisions in the Easement, including, but not limited to Sections 4 and 14, Global Signal shall not be entitled to a lien against the Grantor's Property for any reason.

8. Global Signal acknowledges and understands that the County is a political subdivision of the Commonwealth of Virginia and therefore not subject to taxation. In the event that Grantor's Property is tax exempt but the Easement Area is taxed due to Global Signal's use thereof, Global Signal shall be responsible for payment of the taxes assessed upon the Easement Area upon the County providing a copy of the tax bill promptly after receipt thereof.

9. A. County shall have the one-time right to relocate the Easement Area of Global Signal to an alternate ground location on Grantor's Property. Such relocation will (i) be at County's sole cost and expense, subject to the limitations set forth below, (ii) be performed exclusively by Global Signal or its agents, (iii) not result in any interruption of the communications service provided by Global Signal on the Grantor's Property including but not limited to Global Signal's right to maintain the rights to the existing communication facility until such time that all tenants are successfully moved to the relocation site, (iv) not impair, or in any manner alter, the quality of communications service provided by Global Signal on and from Grantor's Property, and (v) be done in accordance with the terms and conditions contained in Sections 9B and 9C below. Global Signal shall provide a detailed written itemization of the estimated relocation costs and expenses prior to such relocation. The County shall be responsible for the costs and expenses of relocating the telecommunications equipment, including the monopole (if relocating the monopole is necessary in Global Signal's sole discretion), up to a maximum of FIVE HUNDRED THOUSAND DOLLARS ($500,000), with such costs and expenses based on the costs and expenses actually incurred. Global Signal agrees to provide County documentation evidencing the costs and expenses actually incurred. Global Signal shall be responsible for all such costs and expenses that exceed FIVE HUNDRED THOUSAND DOLLARS ($500,000). Upon relocation of the Easement Area of Global Signal, the access and utility easement(s) of Global Signal will be relocated as required to operate and maintain the communication facility of Global Signal. The relocated Easement Area, excluding the access and utility easement(s), shall not occupy an area of land greater than the existing Easement Area, unless the County, in its sole discretion, approves a larger area.

B. County will exercise its relocation right under Section 9A above by (and only by) delivering written notice (the "Notice") to Global Signal. In the Notice, County will propose an alternate site on Grantor's Property to which Global Signal may relocate its communications facility. Global Signal will have sixty (60) days from the date it receives the notice to evaluate County's proposed relocation site, including, but not limited to, conducting tests to determine the

technological feasibility of the proposed relocation site, obtaining written approval of the telecommunications carriers currently located on the tower. If Global Signal fails to approve the proposed relocation site in writing within said sixty (60)-day period, Global Signal will be deemed to have not approved such proposed relocation site. If Global Signal does not approve such relocation site, County may then propose another relocation site by Notice to Global Signal in the manner set forth above. If Global Signal does not approve a relocation site, upon request by County, Global Signal will provide County with evidence supporting the reason for such disapproval. Any relocation site which County and Global Signal agree upon in writing is referred to hereinafter as the "Relocation Site". If County and Global Signal agree to the proposed alternate site set forth in the Notice, both parties will enter into a written agreement between the parties concerning the location and dimensions of the Relocation Site. If Global Signal agrees to said relocation, County acknowledges that Global Signal will be required to obtain all required approvals of affected governmental agencies, including, but not limited to, the FAA and local zoning authorities. If all governmental requirements, including local, state and federal, are met, Global Signal will use its commercially reasonable efforts to complete the relocation of the new telecommunications facility and the removal of the existing tower compound within a commercially acceptable timeframe not to exceed twenty-four (24) months from execution of the written agreement ("Relocation Phase"). Notwithstanding the foregoing, Global Signal will have an option to extend the Relocation Phase for two (90 day) extensions if there are delays which are out of the control of the Global Signal.

C. Upon relocation of the communications facility of Global Signal, or any part thereof, to the Relocation Site, all references to the Easement Area in the Easement will be deemed to be references to the Relocation Site. County and Global Signal hereby agree that the Relocation Site (including the access and utility right of way) may be surveyed by a licensed surveyor at the sole cost of County, and such survey will then replace the previous survey and become a part hereof and will control or describe the leased premises. County and Global Signal hereby agree that in no event will the relocation of the communications facility of Global Signal, or any part thereof, under Section 9A above, affect, alter, modify or otherwise change any of the terms and conditions and of the current lease as may be amended, unless changes are agreed to in writing by both parties.

10. The amendments to the Easement provided for in Sections 1 through 9 of this Amendment shall only be effective and enforceable during the time that the County or any political subdivision thereof is the fee simple owner of the Easement Area. Until such time as that occurs, or upon the subsequent transfer of the Easement Area to any other party by the County or its political subdivision, the amendments to the Easement provided for in this Amendment shall be of no force or effect.

11. Miscellaneous.

(a) This Amendment was negotiated between the undersigned (together the "Signers" and individually a "Signer") and shall be construed without regard to any presumption or other rule requiring construction against any Signer causing this Amendment to be drafted.

(b) The recitals set forth at the beginning of this Amendment are incorporated herein by this reference and deemed a substantive part hereof.

(c) Each Signer hereto represents and covenants to the other Signers that the person signing this Amendment on behalf of such Signer has full power and authority to enter into and deliver this Amendment and to bind the Signer on behalf of whom such person has executed this Amendment to perform its obligations hereunder.

(d) This Amendment shall run with the land and be binding upon the Signers' respective successors and assigns.

(e) No officer, director, manager, shareholder, trustee, representative, consultant, contractor, employee, or agent of any Signer hereto shall be personally liable for the performance of or failure to perform any term or condition of this Amendment.

(f) This Amendment may be executed in one or more counterparts, by original or facsimile signature, and when executed by all Signers shall constitute one and the same instrument.

(g) This Amendment constitutes the entire agreement of the Signers hereto, and there are no other agreements or understandings, written or oral, with respect to the subject matter hereof other than the Easement. This Amendment may not be amended, modified, changes or waived except by instrument or instruments in writing signed by the Signers.

(h) In case anyone or more of the provisions hereof shall be invalid, illegal or unenforceable in any respect, the validity of the remaining provisions shall in no way be affected, prejudiced or disturbed thereby.

(i) This Amendment shall be governed by, construed and enforced according to the laws of the Commonwealth of Virginia (without regard to its provisions regarding conflict of laws).

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

WITNESS THE FOLLOWING SIGNATURES AND SEALS:

OWNER:
ANNANDALE VOLUNTEER FIRE DEPARTMENT
A Virginia not for profit corporation

By: _____ (Seal)
Name: ROGER WALLER
Title: PRESIDENT, AVFD

7128 Columbia Pike
Annandale, Virginia 22003
Telephone: 703 407 0680
Fax: 703 256 5097

COMMONWEALTH OF VIRGINIA)
) to-wit:
COUNTY OF FAIRFAX)

Subscribed and sworn to before me by ROGER WALLER (name), PRES AVFD (title), of the Annandale Volunteer Fire Department, a Virginia not for profit corporation this 7 day of FEBRUARY, 2020.

_____
Notary Public

My Commission expires: May 31, 2022

TRACY ANN DOAN
COMMONWEALTH OF VIRGINIA
#7804078
COMMISSION EXPIRES
05/31/2022
NOTARY PUBLIC

COUNTY:
THE BOARD OF SUPERVISORS OF FAIRFAX COUNTY, VIRGINIA

By: _____
Name: Bryan J. Hill
Title: County Executive

12000 Government Center Parkway
Fairfax, Virginia 22035
Telephone: 703-324-2536
Fax: 703-324-3956

COMMONWEALTH OF VIRGINIA)
) to-wit:
COUNTY OF FAIRFAX)

Subscribed and sworn to before me by Bryan J. Hill (name), County Executive (title), of the Board of Supervisors of Fairfax County, Virginia this 6th day of February 2020.

_____
Notary Public

My Commission expires: March 31, 2023

SUSAN STANNERS ROBINSON
NOTARY PUBLIC
REG. #7646782
MY COMMISSION EXPIRES
3/31/2023
COMMONWEALTH OF VIRGINIA

GLOBAL SIGNAL:
GLOBAL SIGNAL ACQUISITIONS IV LLC,
A Delaware limited liability company

By: Melanie Webb
Name: Melanie Webb
Title: Senior Transaction Manager

2000 Corporate Drive
Canonsburg, PA 15317
Telephone:
Fax:

STATE OF Texas)
) to-wit:
COUNTY OF Harris)

Subscribed and sworn to before me by Melanie Webb (name) Senior Transaction Manager (title), of Global Signal Acquisitions IV LLC, a Delaware limited liability company, this 3 day of February 2020.

Nicole Arlette Benton
Notary Public
Nicole Arlette Benton

My Commission expires: _____

NICOLE ARLETTE BENTON NOTARY PUBLIC STATE OF TEXAS ID 130931009 EXP. 12-13-2020

Exhibit "A"

SITUATED IN THE COUNTY OF FAIRFAX, STATE OF VIRGINIA:

PARENT PARCEL:
BEGINNING AT A POINT IN THE NORTHERLY RIGHT-OF-WAY LINE OF LITTLE RIVER TURNPIKE, STATE ROUTE 236, SAID POINT BEING THE SOUTHWEST CORNER OF THE ARGYLE INVESTMENT CORP. PROPERTY, AS RECORDED IN DEED BOOK 2329, AT PAGE 349, AMONG THE LAND RECORDS OF FAIRFAX COUNTY, VIRGINIA; THENCE DEPARTING SAID POINT AND RUNNING ALONG THE NORTHERLY RIGHT-OF-WAY LINE OF STATE ROUTE 236 N 78° 22' 10" W-61.97 FEET AND N 77° 44' 40" W - 146.75 FEET TO A POINT A CORNER COMMON TO MOLLIE M. MILLER AND THE BETHLEHEM LUTHERAN CHURCH PROPERTY; THENCE DEPARTING STATE ROUTE 236 AND RUNNING WITH THE LINES COMMON TO MOLLIE M. MILLER AND THE BETHLEHEM LUTHERAN CHURCH PROPERTY N 18° 21' 30" E - 358.37 FEET AND S 77° 52' 30" E - 208.70 FEET TO A POINT IN THE WESTERLY LINE OF THE AFOREMENTIONED ARGYLE INVESTMENT CORP. PROPERTY; THENCE RUNNING WITH A PORTION OF SAID WESTERLY BOUNDARY S 18° 21' 30" W - 358.17 FEET TO THE POINT OF BEGINNING, AS MORE PARTICULARLY DESCRIBED ON THE PLAT PREPARED BY COLDWELL, SHREVE & KEYES, C. L. S., DATED AUGUST, 1965.

TAX I.D. NUMBER: 0584 01 0062

BEING THE SAME PROPERTY CONVEYED TO ANNANDALE VOLUNTEER FIRE DEPARTMENT, INC., A VIRGINIA CORPORATION, GRANTEE, FROM ELDON J. MERRITT AND FLOYD B. MOYE, TRUSTEES, GRANTOR, BY DEED RECORDED 09/09/1968, AS BOOK 3080, PAGE 7 OF THE FAIRFAX COUNTY RECORDS.

P1 Annandale Vol. Fire Dept.
BU 881105
PPAB 5077281v5.docx

02/11/2020
RECORDED FAIRFAX CO VA
TESTE: CLERK

Board Agenda Item
March 10, 2020

ACTION - 5

Approval of the Disease Carrying Insects Program

ISSUE:
Board approval of the annual submission of the Disease Carrying Insects Program (DCIP).

RECOMMENDATION:
The County Executive recommends that the Board of Supervisors direct staff to take the following actions concerning Fairfax County's Disease Carrying Insects Program:

Mosquitoes, West Nile virus, Zika virus, and Other Mosquito-borne Diseases

1. Continue to conduct a county-wide mosquito surveillance program.

2. Continue to test mosquitoes for West Nile virus (WNV), Zika virus, and other pathogens as necessary.

3. Continue inspections and larviciding of mosquito breeding areas in the County using appropriate and approved larvicides according to established criteria in as many rounds during the mosquito season as necessary.

4. Continue to conduct an aggressive community outreach and education program to increase County residents' awareness of mosquitoes, West Nile virus, Zika virus, and other mosquito-borne diseases, as well as personal protection and prevention methods.

5. Continue to use adult mosquito control methods as necessary to protect public health.

Ticks, Lyme disease, and other Tick-borne Diseases

1. Continue to conduct tick surveillance activities.

2. Continue to test ticks for pathogens, including the bacteria that causes Lyme disease.

3. Continue to conduct a county-wide community outreach and education program to increase County residents' awareness of ticks, Lyme disease, and other tick-borne diseases, as well as personal protection and prevention methods.

Other Disease-transmitting Insects of Public Health Importance

1. Continue to work with Environmental Health staff to provide information on other disease-transmitting insects of public health importance.

Board action on this item will cover all Disease Carrying Insects Program activities carried out through June 30, 2021.

TIMING:
Board approval is requested on March 10, 2020, in order to (1) continue mosquito suppression strategies (e.g., surveillance, larviciding mosquito breeding areas, and public outreach), (2) continue tick surveillance program and public outreach, and (3) continue outreach and education efforts for other disease-transmitting insects.

BACKGROUND:
The *Code of the County of Fairfax, Virginia* requires the submission of the annual Disease Carrying Insects Program for Board of Supervisors' approval (Appendix I, Section 7). The Annual Report for the program (Attachment I) provides an overview of many program activities and highlights the importance of vector-borne disease prevention and control.

West Nile Virus, Zika virus, and Other Mosquito-borne Diseases
During 2019, West Nile virus (Attachment II) continued to inflict disease and death across the continental United States as anticipated by the Centers for Disease Control and Prevention (CDC). Fairfax County WNV surveillance activities indicated that the virus was present and widespread throughout the County. By the end of the 2019 WNV season, the virus had been detected in mosquitoes collected at many of the surveillance sites in the County. Three human cases were reported in the County in 2019, nine in 2018, and five cases were reported in 2017. Seven fatal cases in the County since 2002, including one in 2019, underlie the potential severity of this disease. A total of six WNV cases were reported in Virginia in 2019 after a record number of 48 cases were reported in the state in 2018. One WNV-related death was reported in Virginia in 2019 and eight were reported in 2018. Many factors have been suggested as influencing the presence of human cases in the County:

1. Viral activity in the mosquito vectors as found in the surveillance efforts;
2. Presumed feeding habits of *Culex pipiens;*
3. Birds acting as natural amplifiers of the virus;
4. Ambient temperatures which influence the development of the virus within the mosquito;
5. Increased public awareness resulting in increased use of personal protection measures; and

6. Proactive larvicide and adulticide treatments to help control *Culex* mosquitoes.

Due to the flood-prone nature of the area, the DCIP maintains surveillance and treatment activities in the Huntington area.

Based on past surveillance information, the DCIP will continue mosquito inspection and larviciding activities in stormwater ponds that are identified as a result of the larval surveillance activities, as was done in the 2019 mosquito season. The DCIP will initiate inspection activities in the spring and continue for the duration of the season. In 2020, staff will continue to use mobile GIS technology to efficiently perform these activities.

As in previous seasons, DCIP staff will continue to carry out mosquito surveillance activities during mosquito season (May to October). The Fairfax County Health Department's Division of Epidemiology and Population Health (DEPH) will continue to carry out human case surveillance for locally-acquired or travel-associated mosquito-borne disease. Environmental Health and DEPH staff will continue to work together to monitor and respond to vector-borne disease activity in the County.

The Health Department Laboratory began testing mosquitoes using molecular diagnostics in 2012. The laboratory currently offers WNV, Chikungunya, Dengue, and Zika virus testing for mosquito samples and Lyme disease testing for tick samples. In 2020, all mosquito testing and tick testing will be performed by the Health Department Laboratory.

All insecticides used in this program are registered with the U.S. Environmental Protection Agency (EPA) and sanctioned for use by the Commonwealth of Virginia. The principal larvicides that the County will use are spinosad, *Bacillus sphaericus* and *Bacillus thuringiensis* var. *israelensis* (Attachments III, IV, V, VI, VII and VIII). Some applications may require a mineral oil-based pupicide to control immature mosquitoes (Attachment IX). The Health Department has the ability to apply pesticides for adult mosquitoes should the public health need arise; however, this type of control is not routinely performed by the Health Department. The Health Department may apply insecticides to control adult mosquitoes, and in these instances, the application will target those mosquitoes which potentially transmit disease to humans. The following indicators may trigger adult mosquito spraying by the Health Department:

- Results of mosquito surveillance and testing,
- Environmental factors that impact mosquito or disease cycles,
- Detection of medically-important invasive species, or
- Reported cases of human disease.

Synthetic pyrethroids (Attachments X and XI) or other insecticides may be used to control adult mosquitoes. All applications of pesticides will be performed by certified applicators according to the label directions. The Health Department performs insecticide resistance testing on medically-important mosquito species found in the County. This will continue in 2020. The Health Department does not spray for nuisance mosquitoes.

The DCIP will continue to utilize an active and engaging outreach and education strategy. The program will also focus messaging to address at-risk groups, such as residents over 60 years of age who are at greater risk of developing a more severe form of the West Nile virus. Because the Zika virus has the potential to cause birth defects, specific messaging has also been developed for pregnant women and their partners to help minimize exposure. The program will again work with the Health Department's Community Outreach team to deliver its public health messages to the County's diverse population while continuing to seek out new ways to provide prevention messaging to the community. In 2019, the DCIP's outreach activities included providing 14 educational and safety presentations and attending 30 events as well as the preparation and production of another 18-month calendar full of educational information that was widely distributed to County residents. A music video on West Nile virus and mosquito prevention was produced with the assistance of Channel 16 in 2019. A collaborative project between DCIP, Health Department Outreach, Health Department Communications, and Channel 16 produced an award-winning Spanish language digital ad campaign in 2019 aimed at protecting outdoor workers from mosquito and tick-borne diseases.

The Disease Carrying Insects Program Annual Report highlights the 2019 season activities and presents wide-ranging plans for minimizing the impact and risk of mosquito-borne diseases through:

1. Countywide monitoring of WNV activity including mosquito and human surveillance;
2. An integrated approach to mosquito management and control practices, which will primarily target those mosquito species that have been shown to be the most probable WNV vectors in the County;
3. An intensive community outreach and education program to increase awareness of mosquitoes and WNV and other mosquito-borne diseases in County residents; and
4. A continuation of the multi-jurisdictional and multi-agency collaboration efforts to identify ways to minimize the risk of WNV transmission.

The Chikungunya virus (CHIKV) and the Zika virus (ZIKAV), which are transmitted by *Aedes* mosquitoes, began circulating in the Americas in 2013 and 2015, respectively (Attachments XII, XIII, and XIV). Locally-acquired cases of both viruses have been reported in many countries in the Americas. In Virginia, cases have been reported in

returning travelers; however, mosquito-borne transmission of ZIKAV and CHIKV in the continental United States has been reported in Florida and Texas. Cases of dengue (Attachment XV), which has been endemic in the Americas for many years, has also been reported in returning travelers. If locally-acquired cases of CHIKV, dengue, or ZIKAV are identified in the County, the Health Department will utilize guidance from the Centers for Disease Control and Prevention and the Virginia Department of Health in their response activities, which would include case investigation, vector surveillance and control activities, and community education.

In 2019, Health Department staff monitored for reports of CHIKV, dengue, and ZIKAV. The Health Department will continue monitoring travel-associated cases and maintaining vigilance for locally-transmitted dengue virus, CHIKV, and ZIKAV and will engage their partners and the community to protect County residents.

Tick-Borne Disease
During 2019, Lyme disease (Attachment XVI) continued to be a major concern for County residents and it was the most frequently-reported vector-borne disease in the County. The Health Department recorded and reported at least 22 cases of Lyme disease in Fairfax County in 2019. Some of the factors that influence Lyme disease in the County include:

1. Presence of the Lyme disease-causing bacteria in the black-legged tick vectors;
2. White-footed mice and other animals acting as natural amplifiers of the bacteria;
3. Large deer populations that act as a tick transport system, distributing the ticks throughout the County, as well as a source of blood for the female ticks to develop their eggs; and
4. Increased public awareness resulting in increased use of personal protection measures.

Health Department staff plan to continue to perform tick surveillance, tick ID service, collections from veterinary clinics, collections from deer hunts, and human case surveillance in 2020.

The Health Department will continue to include tick prevention and personal protection from ticks in its outreach and education strategy. The Disease Carrying Insects Program Annual Report reviews the 2019 season activities and presents wide-ranging plans for minimizing the impact and risk of tick-borne diseases through:

1. Surveillance for the presence of Lyme disease and other tick-borne pathogens, including black-legged (deer) tick and human case surveillance;

2. An aggressive and intensive community outreach and education program to increase tick, Lyme disease, and tick-borne disease awareness in the County; and
3. A continuation of the multi-jurisdictional and multi-agency collaboration efforts to identify ways to minimize the risk of Lyme disease transmission.

Other Disease-transmitting Insects of Public Health Importance
The DCIP's 2019 Annual Report presents plans for minimizing the impact and risk of other diseases transmitted by insects through:

1. An intensive community outreach and education program to increase awareness of other insects that may transmit diseases of public health importance.

FISCAL IMPACT:
The Disease Carrying Insects Program is primarily funded by a Special Service District for the Control of Infestations that May Carry a Disease that is Dangerous to Humans, Gypsy Moth, Fall Cankerworm, and Certain Identified Pests in Fund 40080, Integrated Pest Management Program. No additional funding is required as the current funding level is sufficient to meet anticipated program needs.

ENCLOSED DOCUMENTS:
Attachment I - Disease Carrying Insects Program Annual Report
Attachment II - CDC WNV Fact Sheet
Attachment III - Natular G Label
Attachment IV - Natular G30 Label
Attachment V – VectoBac G Label
Attachment VI - VectoLex WSP Label
Attachment VII - VectoLex FG Label
Attachment VIII – VectoMax FG Label
Attachment IX - Cocobear Label
Attachment X - Flit 10EC Label
Attachment XI – Aqua Zenivex E20 Label
Attachment XII - CDC Chikungunya Fact Sheet
Attachment XIII - CDC Zika Fact Sheet
Attachment XIV – Health Department Zika Fact Sheet
Attachment XV - CDC Homecare for Dengue Patients Sheet
Attachment XVI - CDC Tick Bites and Lyme Disease Brochure

STAFF:
Tisha Deeghan, Deputy County Executive
Gloria Addo-Ayensu, MD, MPH, Director of Health
Pieter Sheehan, Director of Division of Environmental Health

Disease Carrying Insects Program Annual Report

Presented by

Pieter A. Sheehan, REHS
Director of Environmental Health
Fairfax County Health Department

March 10, 2020

This information can be made available in an alternative format upon request. Please call 703-246-2300 / TTY 711. Allow seven working days for preparation of the material.

Mosquitoes, ticks and other vectors are responsible for transmitting pathogens that can result in life-changing illnesses such as West Nile virus, Lyme disease, and the Zika virus. The Health Department's Disease Carrying Insects Program was established in 2003 and works to protect county residents and visitors from vector-borne diseases. The program uses an integrated approach to monitor and manage vectors. The program continuously promotes personal protection and vector prevention methods in the community to raise awareness of these public health pests, the diseases they transmit, and what residents can do to protect themselves.

Vision, Mission and Values

As part of the Health Department, the Disease Carrying Insects Program strives to help the agency meet its goals and embody the Vision, Mission and Values of the department.



West Nile Virus

The United States continued to experience the effects of West Nile virus (WNV) in 2019 with cases and deaths throughout the country. During 2019, at least 917 human cases with 51 deaths were reported to the Centers for Disease Control and Prevention (CDC).[1] From 1999 when the first locally-acquired cases of WNV were reported in New York through 2018, 50,830 cases and 2,330 deaths have been reported in the United States.

In Fairfax County, WNV was first detected in 2000, when the virus was detected in a dead crow. In 2001, additional infected birds were detected and in 2002, the virus was found in birds, horses, mosquitoes and humans. Six cases of WNV and one death were reported in Virginia in 2019. There were a record number of human cases (47) and seven deaths reported in Virginia in 2018. Three cases of WNV, including one death, were reported in Fairfax County in 2019. From 2003 to present, there have been 230 human cases of WNV and 21 WNV-

[1] 2019 provisional data obtained from CDC web site.

associated deaths in Virginia. In that same time period, 62 human WNV cases, including seven deaths, were reported in Fairfax County. The primary vectors of WNV in our area are *Culex pipiens* and *Culex restuans*. The virus is normally transmitted between these mosquitoes and certain types of birds which serve as a reservoir or source of the virus. Humans and horses can be infected with WNV which may result in clinical illness or death. Mosquitoes cannot spread WNV from person to person.

Other Mosquito-borne Diseases

The Chikungunya virus (CHIKV) and the Zika virus (ZIKAV) began circulating in the Americas in 2013 and 2015, respectively. These viruses are transmitted by certain types of container-breeding *Aedes* mosquitoes. Locally-acquired cases of both viruses have been reported in many countries in the Americas. In 2016, an outbreak of ZIKAV was widespread throughout much of the western hemisphere. Other travel-associated, mosquito-borne diseases routinely reported to the CDC include dengue (DENV) and malaria.

Zika is of particular public health importance because it can be passed from a pregnant woman to her fetus and infection during pregnancy can cause certain birth defects. About 5-10% of babies of women with confirmed Zika virus infection during pregnancy had Zika-associated birth defects. The highest risk of birth defects is from Zika virus infection during the first trimester of pregnancy.

Since the 2016 outbreak, when 4,897 travel-associated Zika cases were reported in the US, the number of Zika cases reported annually has decreased. There have been 20 Zika cases reported in the US for 2019 with one of those being reported in Virginia.[1] We continue to maintain vigilance due to the public health importance of this disease. In 2019, 134 cases of CHIKV were reported in the U.S., with nine of those cases being reported from Virginia.[1] This is an increase in the number of Chikungunya cases reported in 2018. In 2019, 1,183 travel-associated cases of dengue have been reported in the US. Malaria, a parasitic disease transmitted by mosquitoes, is reported from approximately 1,500-2,000 travelers each year.

Occasionally, local mosquitoes can acquire these pathogens from infected individuals and transmit these diseases in the continental U.S. No cases of mosquito-transmitted Chikungunya or Zika have been reported in the continental US for 2019. The only evidence of local mosquito transmission of the Zika virus in the continental United States so far has been in Florida and Texas in both 2016 and 2017. Cases of Zika in the US have also been reported where the virus was acquired through other routes, primarily sexual transmission, in both 2016 and 2017. To date, the only evidence of local mosquito-borne transmission of CHIKV has been in Florida and Texas. In 2019, locally-transmitted cases of dengue were reported from Florida (16), Texas (2), and North Carolina (1). Antibodies detected in a potential locally-acquired case in Washington, DC, in 2019 may have been the result of an infection that occurred during travel to a dengue-endemic country months prior to illness onset. Previously, sporadic DENV outbreaks have been identified in Florida. Local transmission of malaria has occurred in several locations in the U.S. In the last 20 years, it has occurred twice in Virginia with a total of 4 reported cases. If there are locally-acquired cases of CHIKV, DENV, ZIKAV or malaria in the County, the Health Department will utilize guidance from the CDC and Virginia Department of Health (VDH).

Tick-borne Disease

Tick-borne diseases are the most commonly reported vector-borne diseases in the United States. Lyme disease, transmitted by the blacklegged tick, is common in many areas of the United States, including Virginia. Fairfax County began tick and Lyme disease surveillance in 2005 with a small pilot program. In light of significant results from the first year of tick surveillance, the DCIP implemented an enhanced surveillance program in subsequent years.

Tick-borne diseases continue to impact public health causing serious acute illness, long-term effects and, sometimes, death. The recent and widespread encroachment of suburban sprawl into areas that were once undeveloped or farmland, and the large deer populations in these suburban communities, have increased the prevalence of disease-carrying ticks and the exposure of the human population to the disease pathogens they carry.

Other Disease Transmitting Insects of Public Health Importance

Other insects with the potential to transmit disease can be found throughout Fairfax County. These insects or the conditions that allow them to proliferate, could, at times, be considered public health or safety menaces.

Human Case Surveillance

West Nile virus, Lyme disease, and other vector-borne diseases are among the over 70 notifiable diseases and conditions in Virginia. The Fairfax County Health Department (FCHD) uses enhanced passive surveillance to monitor physician and laboratory reporting of these diseases.

The Health Department encourages physicians and laboratories to report cases of these illnesses by educating medical practitioners about the importance of reporting vector-borne diseases and by contacting key medical staff at hospital centers to inquire about potential cases. See Table 1 for selected reported cases.

Condition	Number of Cases, Fairfax Health District	
	CY 2018	CY 2019*
Mosquito-borne Disease		
WNV (neuroinvasive and non-neuroinvasive)	9	3
Dengue**	4	5
Chikungunya**	2	3
Malaria**	23	29
Zika virus disease**	0	0
Zika virus infection**	7	19
Tick-borne Disease		
Lyme Disease	119	22
Ehrlichiosis/Anaplasmosis	14	6
Spotted Fever Rickettsiosis	12	8
Babesiosis**	1	0
Other Vector-borne Disease		
Chagas Disease**	5	0

*2019 data are provisional and subject to change.
**Travel-associated cases.

Table 1: Reported Human Cases of Vector-borne Disease, Fairfax County

Integrated Mosquito Management

The Disease Carrying Insects Program uses Integrated

Mosquito Management (IMM) principles to carry out its duties. This comprehensive program utilizes three basic strategies: surveillance, control, and public education.

Integrated Mosquito Management is a comprehensive mosquito prevention/control strategy that utilizes all available mosquito control methods singly or in combination to exploit the known vulnerabilities of mosquitoes to reduce their numbers to tolerable levels while maintaining a quality environment. IMM does not emphasize mosquito elimination or eradication. Integrated mosquito management methods are specifically tailored to safely counter each stage of the mosquito life cycle. Prudent mosquito management practices for the control of immature mosquitoes include such methods as the use of biological controls, source reduction, water sanitation practices as well as the use of EPA-registered larvicides. When source elimination or larval control measures are not feasible or are clearly inadequate, or when faced with imminent mosquito-borne disease, application of EPA-registered adulticides by applicators trained in the special handling characteristics of these products may be needed. Adulticide products are chosen based upon their demonstrated efficacy against species targeted for control, resistance management concerns and minimization of potential environmental impact.

IMM requires a thorough understanding of mosquitoes and their bionomics by control personnel; careful inspection and monitoring for their presence and conditions favoring their development; and prevention of oviposition and human/mosquito contact through effective public education, sanitation and facility maintenance. The Disease Carrying Insects Program strives to employ these IMM components to the extent possible, but resource availability may limit what the program will do.

All intervention measures will be driven by a demonstrated need based on surveillance data and action thresholds. IMM is knowledge-based and surveillance-driven, and when properly practiced is specifically designed to accomplish the following:

1. Protect human, animal and environmental health.
2. Promote a rational use of pesticides.
3. Reduce environmental contamination to soil, ground water, surface water, pollinators, wildlife and endangered species as a result of mosquito control activities.
4. Utilize biological controls (native, noninvasive predators) to conserve and augment other control methods.
5. Utilize source reduction (elimination, removal or reduction of larval mosquito habitats) where practical and prudent.
6. Use target-specific pesticides at the lowest effective rates to the extent possible.
7. Emphasize the proper timing of applications.
8. Minimize pesticide resistance problems.

Surveillance

Surveillance is essential to an integrated pest management program. The DCIP conducts surveillance for different vectors and some of the diseases they may carry. Surveillance is done for both adult (flying) and immature (swimming) mosquitoes and for West Nile and Zika viruses. It is important to note that absolute high numbers of mosquitoes do not necessarily reflect high risk of human infection with WNV or other mosquito-borne disease. Surveillance for other vectors such as ticks is also performed.

Adult Mosquito Surveillance: The program is anchored by a strong adult mosquito surveillance component that will monitor abundance and viral activity during the 2020 mosquito season.

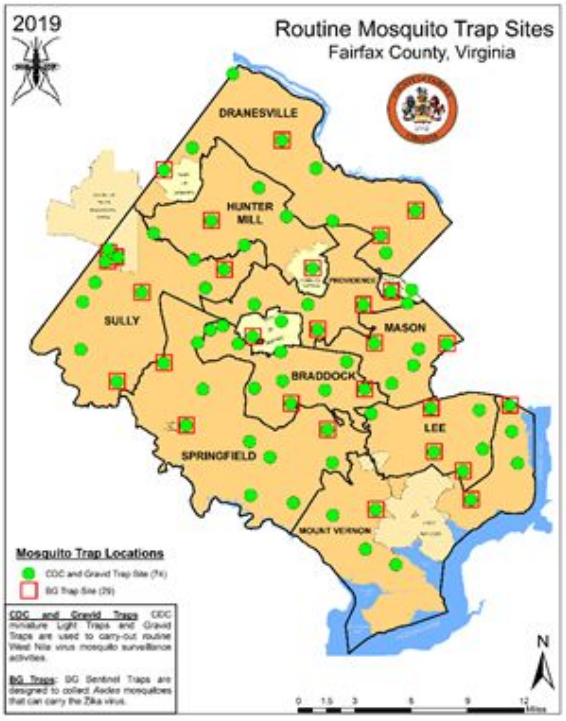


Figure 1. 2019 Routine Mosquito Trap Sites.

During the 2019 season Fairfax County continued its comprehensive mosquito surveillance program at 74 fixed, weekly collection sites (Figure 1) for a total of 4,720 trapping periods. A trap period is defined as a trap collecting mosquitoes for 24 hours. Three trap sites were also used as part of a project at the Police Training Facility in Chantilly in 2019. Those trap collections are included on the maps, overall routine collection numbers, and testing results, but not included in the graphs showing weekly average of *Aedes albopictus* in BG traps. Mosquito trapping routes used by staff (not shown) were previously optimized using available Geographic Information Systems (GIS) software.

The program uses three types of adult mosquito traps: CDC miniature light traps, gravid traps, and BG Sentinel traps. All sites had one CDC miniature light trap and one gravid trap. The number of BG Sentinel trap sites was 29 in 2019.



Figure 2: Staff sorting and identifying mosquitoes (left) and mosquitoes through the microscope (right).

During the 2019 mosquito surveillance season, 159,823 mosquitoes were identified (Figure 2) from routine trapping activities. The yellow fever mosquito *Aedes aegypti*, which has historically been rare in Virginia, has been found annually in the region since 2011 when an overwintering population was identified in Washington, D.C. Each year since 2015, the yellow fever mosquito has been detected at routine trap sites in Fairfax County. Although numbers of mosquito individuals at these locations remain relatively low (usually a single adult in a trap), continued surveillance and multiple types of control are necessary to continue limiting the species' ability to establish here.



Figure 3: CDC Miniature Light Trap (left) and Gravid Trap (right).

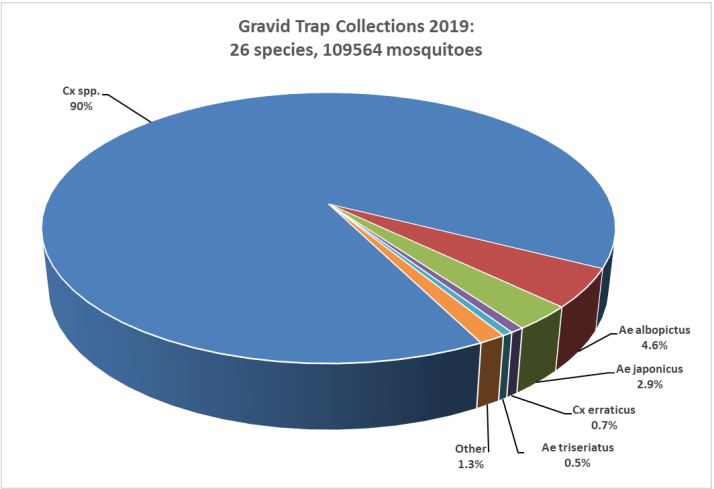


Figure 4: Gravid Trap Collections, 2019.

The **gravid trap** (Figure 3) is a trap that collects mosquitoes that are looking for a place to lay their eggs. This trap is baited with an infusion (water, grass, straw, yeast) that is attractive to the *Culex* mosquitoes that are the primary vectors of WNV. The majority of mosquitoes collected in this trap are *Culex* species (*Culex pipiens* and *Culex restuans*) (Figure 4). In 2019, this trap was set for 2,066 trap periods and collected over 109,000 mosquitoes. Twenty-six different species of mosquitoes were collected in the trap in 2019, but 90 percent were *Culex* species (*Cx. pipiens* and *Cx. restuans*). In 2019, the population of *Culex* mosquitoes varied widely from the average of the

previous five years with the weather and rainfall impacting collections throughout the season (Figure 5).

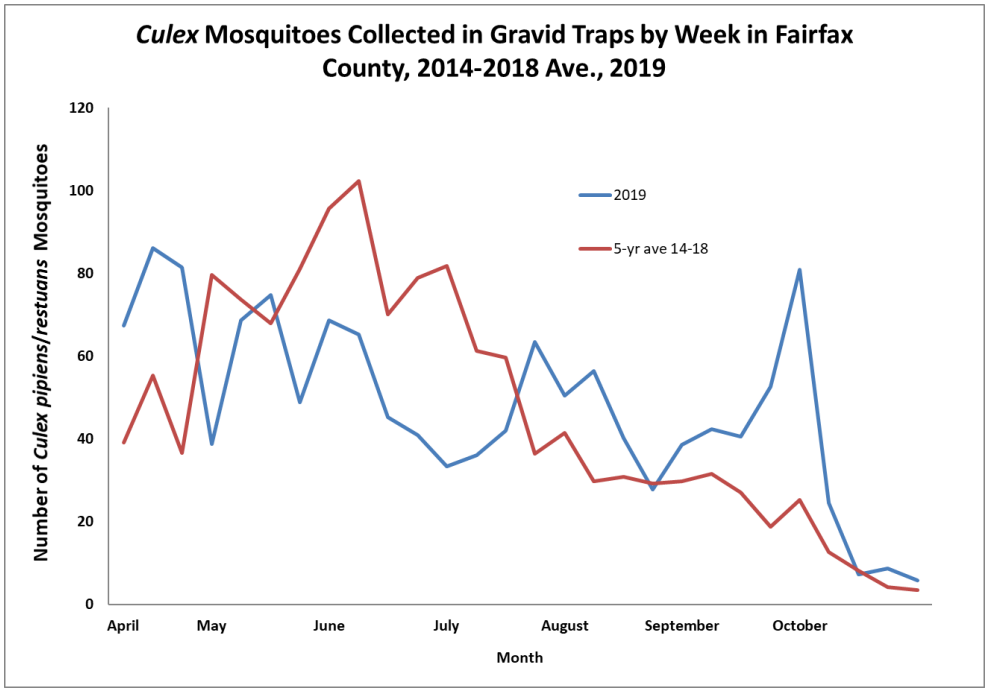


Figure 5: Average Number of Culex pipiens/restuans *collected in Gravid Traps, 5 year average and 2019.*

The **CDC miniature light trap** (Figure 3) is a trap that collects mosquitoes that are searching for something to bite. This trap is baited with carbon dioxide (dry ice) and a small light. This trap typically collects the greatest variety of mosquitoes and 31 different species

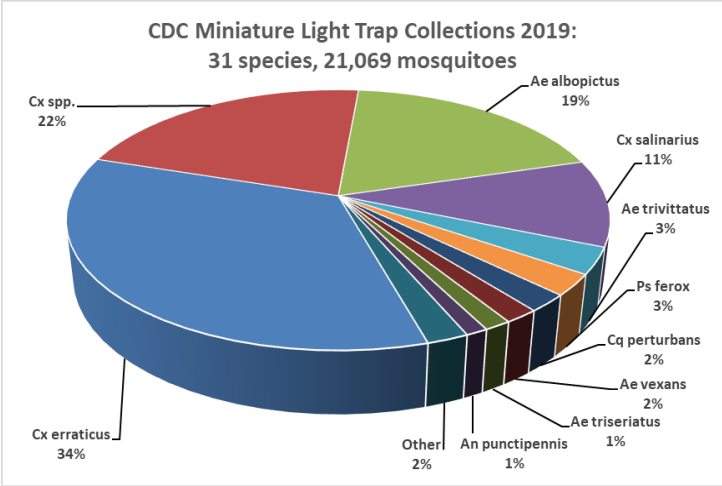


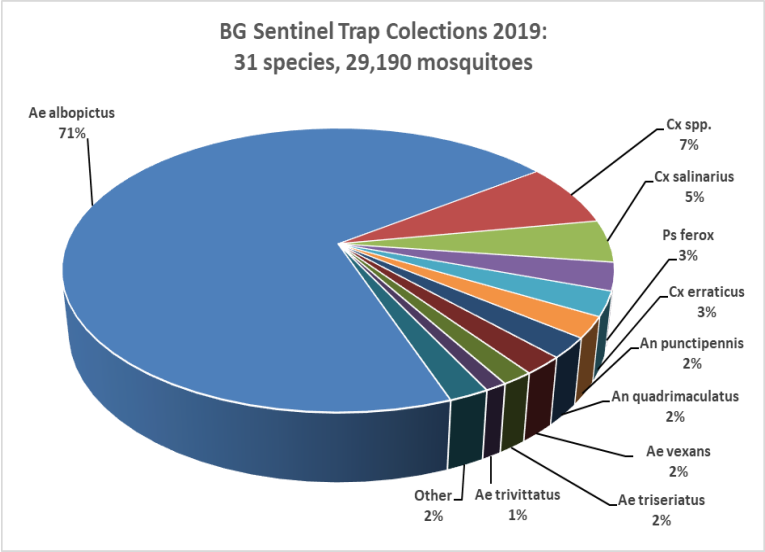
Figure 6: CDC Miniature Light Trap Collections, 2019.

were collected in 2019 (Figure 6). In 2019, the CDC traps were set for 1,917 trap periods and collected over 21,000 mosquitoes.



Figure 7: BG Sentinel Trap.

The **BG Sentinel trap** (Figure 7) is another trap that collects mosquitoes that are looking for something to feed on. This trap is baited with carbon dioxide (dry ice) as well as a special lure that is based on the scent of human sweat. This trap collected 31 mosquito species throughout the 2019 season. It is most effective at collecting *Aedes albopictus* (Figure 8), a potential vector of a variety of pathogens including the Zika virus, which is widespread throughout the County and present in most yards. In 2019, the trap was set for 737 trap periods at the fixed mosquito trap sites and collected over 29,000 mosquitoes. *Aedes albopictus* followed the same general trends seen in the previous five years; however, the average number of mosquitoes per trap was lower during the usual peak time of the season (early July through early September) than the multi-year average (Figure 9).



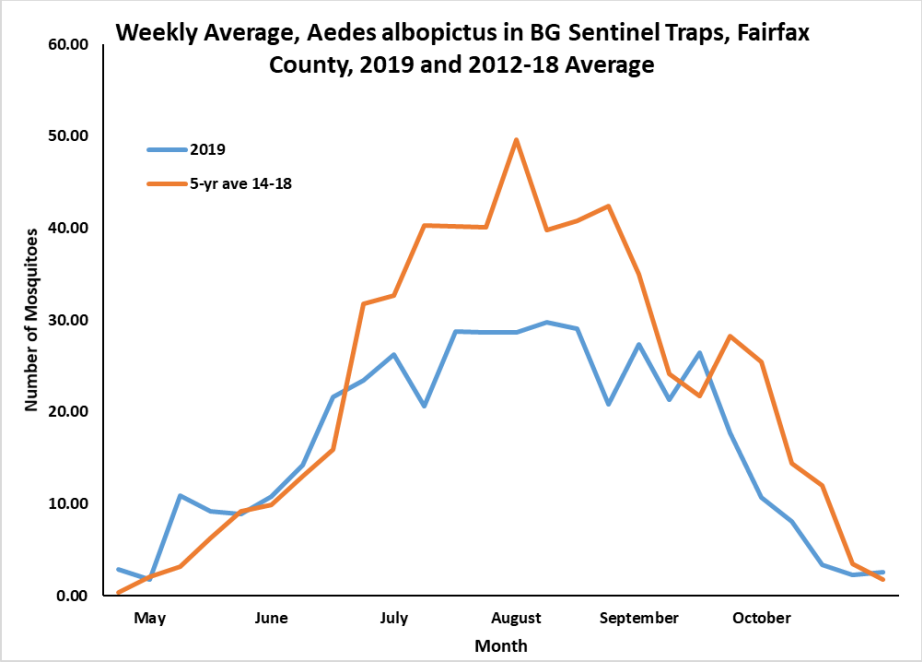


Figure 9: Average Number of Aedes albopictus *Collected in BG Sentinel Traps, 2019 and 5-year average.*

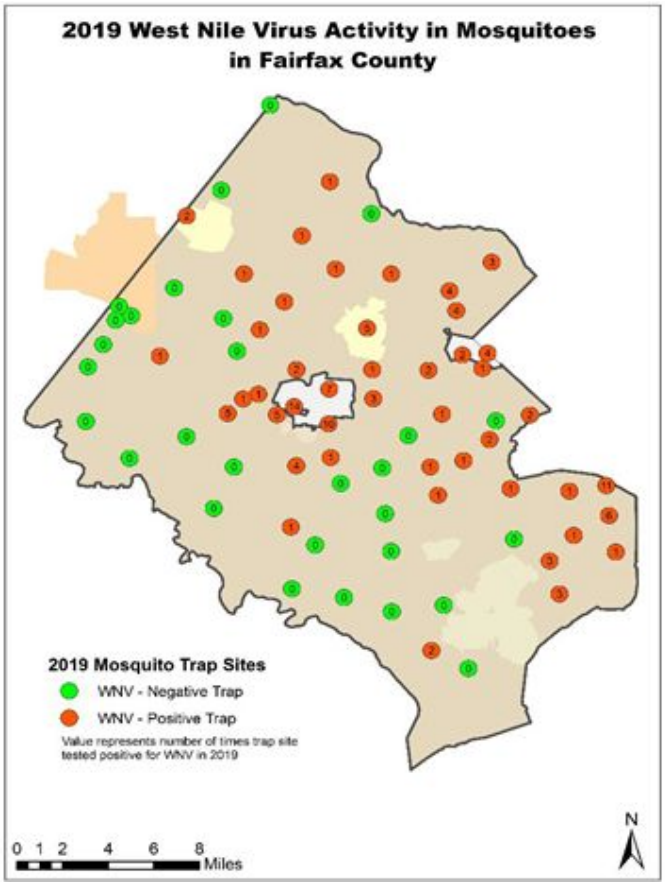


Figure 10: Map of WNV-positive Mosquito Trap Sites, 2019.

Mosquito Testing. In the 2019 mosquito season, 111,663 mosquitoes were tested in 3,707 pools. A mosquito pool is a batch of up to 50 mosquitoes of the same species from the same trap, location and trap period. These pools included mosquitoes collected outside of normal routine surveillance activities. There were 127 positive WNV pools. Positive mosquitoes were found throughout the county (Figure 10). As a comparison, during 2018, 147,018 mosquitoes were tested in 5,077 routine pools, of which 359 were positive. In 2019, *Culex* species of mosquitoes (*Culex pipiens* and *Culex restuans*) tested positive for West Nile virus. Most of the mosquitoes tested were *Culex* species (*pipiens* or *restuans*) collected in gravid traps. Most of the positive mosquito pools in 2019 were *Culex* species (*pipiens* or *restuans*) from the gravid trap. The first WNV-positive mosquitoes of

2019 were *Culex* species collected in a gravid trap in late June. The infection rate of *Culex* species tested from gravid traps was calculated throughout the season. The peak infection rate (maximum likelihood estimate: MLE) in 2019 came in mid to late August when the MLE was calculated at 5.99 mosquitoes per 1,000, which was lower than the average peak infection rate of 13.09 mosquitoes per 1,000. The last positive mosquitoes were collected in mid-October (Figure 11). The infection rate followed the same general trend seen in previous years.

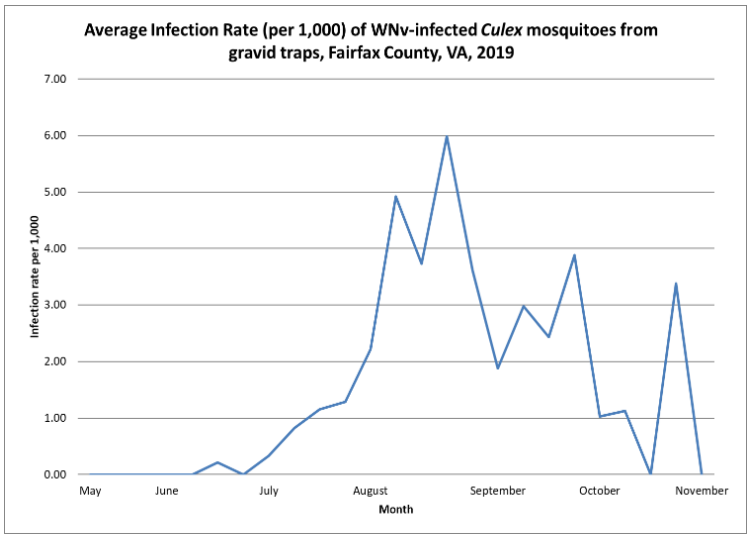


Figure 11: West Nile Virus Infection Rate (Maximum Likelihood Estimate) in Culex *species collected in Gravid Traps, 2019*

Tick Surveillance: In 2019, 835 ticks (including 460 blacklegged ticks) were collected throughout the year using various techniques including a collaboration with the County Wildlife Management Specialist's office to collect ticks from deer harvested as a part of deer management activities. Most of the ticks collected in 2019 were from harvested deer (n=451) and veterinary clinics (n=384). The blacklegged tick *Ixodes scapularis* was the most abundant tick species collected.

An invasive tick species, *Haemaphysalis longicornis* or the Asian longhorned tick, was first reported in New Jersey in late 2017 and has since been found in 11 other states, including Virginia. After reviewing archived specimens in 2018, a single tick of this species was identified from collections made in Fairfax County in 2017. To date, no additional specimens of this tick have been identified from Fairfax County. This tick transmits a variety of pathogens to humans and animals in other parts of the world; however, its medical importance in the western hemisphere is uncertain.

Tick testing for Lyme disease was made available at the Health Department Laboratory in 2016. Blacklegged ticks from 2019 (n=187) have been submitted for testing. Nineteen of the 265 blacklegged ticks tested (7%) from 2018 were positive for the Lyme disease bacteria. Ticks that have been feeding are not submitted for testing per protocol as the vertebrate blood in the ticks may interfere with the testing. As in previous years, tick surveillance and the tick identification service will be conducted by existing staff in the Division of Environmental Health and will follow previously-established protocols.

Control

Mosquito control is a component of an integrated management program. Routine and non-routine control decisions take a variety of factors into consideration including mosquito species, presence of mosquito-borne disease, proximity to people, mosquito tolerance, weather patterns, environment, non-target impacts, health and safety, mosquito habitat, and accessibility for surveillance and treatment. Pesticide applications are made according to the product label. Federal and state regulatory guidance is adhered to.

Larval Control: In 2016, the program embarked on a project to evaluate county-maintained stormwater dry ponds and their mosquito production. This activity continued in 2019. From April through October, both seasonal and merit staff checked 1,405 individual storm water sites throughout the county. These sites are inspected multiple times during the season and a total 10,418 inspections (e.g, Figure 12) was completed in 2019. Of those inspections, over 6,280 had water that could be sampled for mosquitoes. There were over 2,100 inspections where mosquito larvae were collected; 1,356 had enough immature mosquitoes to meet the treatment threshold (3 immature mosquitoes per dip or sample with a minimum of 3 dips). A total of 1,516 treatments were made with either Natular G, VectoMax or Cocobear. All applications were made by certified pesticide applicators or registered technicians and were made according to label guidelines.

Using available GIS software, staff created new larval inspection districts for 2018. Two mobile applications available through the county's GIS software were customized to streamline field and laboratory data collection processes. The apps took the place of hundreds of paper maps and forms and greatly increased staff efficiency in the field, laboratory, and office. Staff are working on incorporating this technology into adult mosquito surveillance activities as well.



Figure 12: Staff inspecting and treating a storm water pond.

Data collected since 2016 allowed staff to identify ways to streamline routine work. During the 2019 season, staff increased the number of inspections at sites where mosquitoes had been previously collected while reducing the inspection frequency at sites where no mosquitoes had ever been collected.

Adult Control: While source reduction and the application of larvicides are the principal and most effective interventions to reduce mosquito populations, situations may arise in which infected adult mosquitoes are present in significant numbers and pose a threat to human health. In these situations, judicious application of adulticides to control mosquito populations will be added to all other mosquito control activities as an additional measure to reduce vector populations.

Guidelines from CDC state that adulticiding based on surveillance data is an extremely important part of any integrated mosquito management program and should be used when there is significant risk of human illness. The Health Department may apply insecticides to

control adult mosquitoes, and in these instances, the application will target those mosquitoes which potentially transmit disease to humans. The following indicators may trigger adult mosquito spraying by the Health Department:

- Results of mosquito surveillance and testing,
- Environmental factors that impact mosquito or disease cycles,
- Detection of medically-important invasive species, or
- Reported cases of human disease.

The Health Department is equipped to apply pesticides for adult mosquitoes should the public health need arise. The program has increased its capacity to respond to mosquito-borne public health threats by purchasing additional equipment to include backpack sprayers (Figure 13), a truck-mounted ultra-low volume (ULV) sprayer (Figure 14), and a backpack ULV sprayer. Synthetic pyrethroids or other insecticides may be used to control adult mosquitoes. All applications of pesticides will be performed by certified applicators according to the label directions. Targeted mosquito spraying was done in 2005, 2006, 2007, 2016, 2017 and 2018. In 2019, no pesticide applications were made to control adult mosquitoes. In previous years, treatments to control adult mosquitoes have been made using the methods described above using either AquaZenivex E20 or Flit 10EC.



Figure13: Application with a backpack sprayer.



Figure 14: Ultra-low volume sprayer mounted in the back of a pick-up truck.

In 2019, staff performed pesticide resistance testing on adult mosquitoes to help ensure mosquito spraying is effective and help guide local mosquito control efforts. This activity will continue to be performed using the active ingredients of the pesticides used by the program against potential vector mosquitoes.

Community Outreach and Education



Figure 15: Pictures from selected outreach activities.

Fairfax County will continue to emphasize personal protection measures from mosquito bites, mosquito-borne disease, and mosquito prevention and control. This is done through distribution of informational materials, media interviews, advertising, Web pages, presentations, community events (Figure 15), and collaborations with community groups and homeowners associations. In 2020, the program will also continue its tick outreach activities as originally requested by the BOS.

The 15th 18-month "Fight the Bite" calendar was produced in 2019. The calendar was once again distributed to fourth graders in all Fairfax County Public Schools prior to the end of the school year. Other materials were updated in 2019 including a new version of the Tick ID card. The calendar, storybooks, and other materials were distributed at various events and venues throughout the County, including libraries, recreation centers and other County offices. (See Figure 16 for examples of outreach material.)



Figure 16: Some examples of outreach material.

The demand for educational material, especially information on mosquitoes, was again high in 2019. In addition to the demand for materials, DCIP staff attended multiple events giving approximately 14 educational and safety presentations and participating in 30 other community-based events such as health fairs, Celebrate Fairfax, Fall for Fairfax KidsFest, and SpringFest. Previously DCIP worked with other Health Department staff to develop a mosquito and tick prevention presentation that was translated into Spanish and Chinese. Health Department Outreach staff gave presentations and provided mosquito and tick prevention information at 33 additional events in 2019.

A Spanish-language digital ad campaign aimed at protecting outdoor workers from mosquito- and tick-borne diseases was honored by the National Public Health Information Coalition. The Health Department received a gold award in the government health marketing category of the 2019 Berreth Awards, recognizing excellence in public health communication. The mobile media campaign was designed to build awareness of mosquito and tick-bite prevention among local Hispanic men who work outdoors. The project was a collaboration between Health Department Outreach, Health Department Communications, Channel 16 and DCIP.

Program staff collaborated with Channel 16 to produce a music video entitled "West Nile Story" which was released in June of 2019. The Health Department's Communications team developed a marketing strategy using the music video as a starting point. The video was the 5th most popular on the County's YouTube channel in 2019 and has over 4,200 views. "Tick Check 1, 2", a music video collaboration with Channel 16 from 2018 was the 7th most popular video in 2019 and has logged over 16,000 views since its release in May 2018.

The program will continue to work with other staff in the Division of Environmental Health, the Health Department's Communications Office, the Community Outreach Team and the Division of Epidemiology and Population Health to develop messaging and provide messaging to all communities within the County.

New outreach materials in 2020 include a new 18-month calendar, updated versions of other outreach handouts and new Spanish-language versions of some of the previously developed materials.



Figure 17: Aedes albopictus*, the Asian Tiger mosquito--the main nuisance mosquito in Fairfax County. Image courtesy CDC.*

Service Requests: The FCHD continued to promote source reduction (elimination of mosquito breeding sites) in 2019 through the outreach campaign. The Asian tiger mosquito (*Aedes albopictus*) (Figure 17) was the source of most mosquito-related complaints. This mosquito, which generally lays its eggs in and develops in containers (Figure 18), is an aggressive, persistent biter that can be found in large numbers around residences. The most commonly identified breeding sites contributing to the presence of *Aedes albopictus* around inspected homes were household containers, corrugated downspout extensions, gardening



Figure 18: Some of the container breeding sites found on service requests.

containers/flowerpots or saucers, trash/recycling containers, and tarps. The presence of black corrugated pipes at the end of the downspouts from the roof gutters, even when placed underground, continue to be a frequent source of mosquito problems. Most of these corrugated pipes do not drain adequately and they retain water throughout the season, thus providing great mosquito breeding habitat. This mosquito is a potential vector of the Chikungunya, dengue, West Nile and Zika viruses. During 89 site visits and inspections in 2019, DCIP and Environmental Health staff educated property owners and managers about the benefits of eliminating breeding sites and/or provided Mosquito Dunks®.

Tick Identification Service: The Health Department's tick identification service encourages County residents to bring their ticks to the Health Department to help raise awareness of Lyme disease and provide information on ticks and tick-borne diseases. In 2019, 222 specimens were brought to the Health Department for identification. Of these, 201 were ticks: 126 Lone Star ticks (*Amblyomma americanum*), 49 American Dog ticks (*Dermacentor variabilis*), 24 blacklegged ticks (*Ixodes scapularis*), 1 castor bean/sheep tick (*Ixodes ricinus*) and 1 Gulf Coast tick (*Amblyomma maculatum*) were brought to the tick identification service (Figure 19). The castor bean/sheep tick is a very common tick in northern Europe and was brought in by someone with recent travel history to Europe.

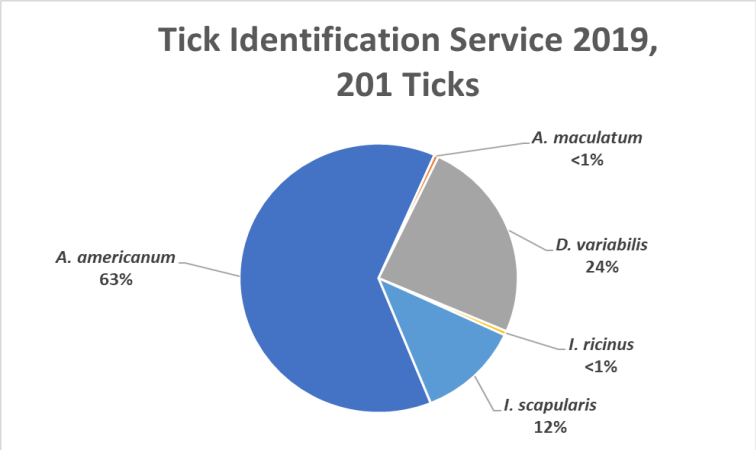


Figure 19: Ticks identified through walk-in Tick ID Service, 2019.

Preparedness and Response Activities

In 2016, the World Health Organization declared Zika virus to be a "Public Health Emergency of International Concern" due to the ongoing epidemic and concern about Zika's relationship to birth defects including microcephaly. The CDC and VDH continuously provided guidance before and throughout the 2016-17 mosquito seasons. The Fairfax County Health Department's Incident Command System (ICS) was active from March through October both years as staff worked together to develop a response plan and educate and engage the community and stakeholders. The Disease Carrying Insects Program worked together with Fairfax County Health Department staff and other stakeholders to help prepare for any potential local, mosquito-borne ZIKAV transmission.

The Division of Epidemiology and Population Health (DEPH) of the Health Department performed human case investigations and coordinated human testing. The Health Department

Laboratory also helped with human testing coordination. Environmental investigations and mosquito-related activities were performed by DCIP staff and continue to be performed when cases are identified. These activities included site visits, education and outreach, source reduction, vector surveillance and vector abatement activities. The Health Department Laboratory performed mosquito testing for ZIKAV. These actions taken by the Health Department laid the foundation for how the agency may respond in similar scenarios involving this mosquito vector.

The DEH and the DEPH will continue to work together to respond to vector-borne disease issues that arise in the County. Staff from both divisions will continue working together to develop and revise response activities and incorporate communications strategies with the Health Department's Communications Office. Staff will stay abreast of current vector-borne disease issues and incorporate new knowledge and actions into response plans as appropriate.

The Division of Environmental Health has taken additional steps to increase preparedness and capacity within the agency by moving forward with a plan to have all Environmental Health staff become certified pesticide applicators. Currently, 44 merit Environmental Health staff (81%) have a Pesticide Applicator Certificate from the Virginia Department of Agriculture and Consumer Services. Staff have worked with community partners and stakeholders to create an in-house recertification opportunity for staff.

Climate change is expected to have an impact on vectors and vector-borne diseases. Staff will continue to monitor for vector presence and abundance, will stay abreast of vector-borne disease trends, and take steps to prepare and respond as appropriate.

***

In 2020, the program will continue perform vector surveillance, community outreach and public education, and mosquito control, primarily through proactive larviciding. We encourage the community to do their part by eliminating standing water to prevent mosquitoes and by preventing mosquito and tick bites. A healthier community begins with you!

West Nile Virus (WNV) Fact Sheet

What Is West Nile Virus?

West Nile virus infection can cause serious disease. WNV is established as a seasonal epidemic in North America that flares up in the summer and continues into the fall. This fact sheet contains important information that can help you recognize and prevent West Nile virus.

What Can I Do to Prevent WNV?

The easiest and best way to avoid WNV is to prevent mosquito bites.

- When outdoors, use repellents containing DEET, picaridin, IR3535, some oil of lemon eucalyptus or para-menthane-diol. Follow the directions on the package.
- Many mosquitoes are most active from dusk to dawn. Be sure to use insect repellent and wear long sleeves and pants at these times or consider staying indoors during these hours.
- Make sure you have good screens on your windows and doors to keep mosquitoes out.
- Get rid of mosquito breeding sites by emptying standing water from flower pots, buckets and barrels. Change the water in pet dishes and replace the water in bird baths weekly. Drill holes in tire swings so water drains out. Keep children's wading pools empty and on their sides when they aren't being used.

What Are the Symptoms of WNV?

- **Serious Symptoms in a Few People**. About 1 in 150 people infected with WNV will develop severe illness. The severe symptoms can include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness and paralysis. These symptoms may last several weeks, and neurological effects may be permanent.
- **Milder Symptoms in Some People.** Up to 20 percent of the people who become infected will have symptoms which can include fever, headache, body aches, nausea, vomiting, and sometimes swollen lymph glands or a skin rash on the chest, stomach and back. Symptoms can last for as short as a few days to as long as several weeks.
- **No Symptoms in Most People**. Approximately 80 percent of people who are infected with WNV will not show any symptoms at all, but there is no way to know in advance if you will develop an illness or not.

How Does West Nile Virus Spread?

- **Infected Mosquitoes.**
  WNV is spread by the bite of an infected mosquito. Mosquitoes become infected when they feed on infected birds. Infected mosquitoes can then spread WNV to humans and other animals when they bite.
- **Transfusions, Transplants, and Mother-to-Child.**
  In a very small number of cases, WNV also has been spread directly from an infected person through blood transfusions, organ transplants, breastfeeding and during pregnancy from mother to baby.
- **Not through touching.**
  WNV is not spread through casual contact such as touching or kissing a person with the virus.

How Soon Do Infected People Get Sick?

People typically develop symptoms between 3 and 14 days after they are bitten by the infected mosquito.

How Is WNV Infection Treated?

There is no specific treatment for WNV infection. In cases with milder symptoms, people experience symptoms such as fever and aches that pass on their own, although illness may last weeks to months. In more severe cases, people usually need to go to the hospital where they can receive supportive treatment including intravenous fluids, help with breathing, and nursing care.

What Should I Do if I Think I Have WNV?

Milder WNV illness improves on its own, and people do not need to seek medical attention for this infection though they may choose to do so. If you develop symptoms of severe WNV illness, such as unusually severe headaches or confusion, seek medical attention immediately. Severe WNV illness usually requires hospitalization. Pregnant women and nursing mothers are encouraged to talk to their doctor if they develop symptoms that could be WNV.



National Center for Emerging and Zoonotic Infectious Diseases
Division of Vector-Borne Diseases

CS242240-A

What Is the Risk of Getting Sick from WNV?

- **People over 50 at higher risk to get severe illness.** People over the age of 50 are more likely to develop serious symptoms of WNV if they do get sick and should take special care to avoid mosquito bites.
- **Being outside means you're at risk.** The more time you're outdoors, the more time you could be bitten by an infected mosquito. Pay attention to avoiding mosquito bites if you spend time outside, either working or playing.
- **Risk through medical procedures is very low.** All donated blood is checked for WNV before being used. The risk of getting WNV through blood transfusions and organ transplants is very small, and should not prevent people who need surgery from having it. If you have concerns, talk to your doctor.



What Is CDC Doing About WNV?

CDC is working with state and local health departments, the Food and Drug Administration and other government agencies, as well as private industry, to prepare for and prevent new cases of WNV.

Some things CDC is doing include:

- Coordinating a nation-wide electronic database where states share information about WNV
- Helping states develop and carry out improved mosquito prevention and control programs
- Developing better, faster tests to detect and diagnose WNV
- Creating new education tools and programs for the media, the public, and health professionals
- Working with partners to develop vaccines.

What Else Should I Know?

West Nile virus infects birds. In nature, West Nile virus cycles between mosquitoes and birds. Some infected birds can develop high levels of the virus in their bloodstream and mosquitoes can become infected by biting these infected birds. Some, but not all infected birds get sick and die of disease. One way health officials conduct surveillance for West Nile virus is by testing local birds. Finding dead birds may be a sign that West Nile virus is circulating between birds and the mosquitoes in an area. By reporting dead birds to state and local health departments, you can play an important role in monitoring West Nile virus. State and local agencies have different policies for collecting and testing birds, so check with your county or state health department to find information about reporting dead birds in your area.

If you find a dead bird: Don't handle the body with your bare hands. Contact your local health department for instructions on reporting and disposing of the body. They may tell you to dispose of the bird after they log your report.

For more information, visit www.cdc.gov/westnile, or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6348 (TTY).

NATULAR® G

Mosquito Larvicide Granule

Controls larvae of mosquitoes which may transmit Zika, Dengue, or Chikungunya.
To be used in governmental mosquito control programs, by professional pest control operators, or in other mosquito or midge control operations.

Active Ingredient:	
Spinosad (a mixture of Spinosyn A and Spinosyn D)	0.5%
Other Ingredients	99.5%
Total	100.0%

Group	5	INSECTICIDE

KEEP OUT OF REACH OF CHILDREN

Precautionary Statements

Environmental Hazards

This product is toxic to aquatic invertebrates. Non-target aquatic invertebrates may be killed in water where this pesticide is used. Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Do not apply when weather conditions favor drift from treated areas. Drift from treated areas may be hazardous to aquatic organisms in neighboring areas. Apply this product only as specified on the label.

Directions For Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
Read all Directions for Use carefully before applying.

Product Information

NATULAR® G is a product for killing mosquito and midge larvae. This product's active ingredient, spinosad, is biologically derived from the fermentation of *Saccharopolyspora spinosa*, a naturally occurring soil organism. NATULAR® G may be applied with suitable ground or aerial application equipment.

Use Precautions

Integrated Pest Management (IPM) Programs

NATULAR® G is intended to kill mosquito and midge larvae. Mosquitoes are best controlled when an IPM program is followed. Larval control efforts should be managed through habitat mapping, active adult and larval surveillance, and integrated with other control strategies such as source reduction, public education programs, harborage or barrier adult mosquito control applications, and targeted adulticide applications.

Insecticide Resistance Management (IRM)

NATULAR® G contains a Group 5 insecticide. Insect biotypes with acquired resistance to Group 5 insecticides may eventually dominate the insect population if appropriate resistance management strategies are not followed. Currently, only spinetoram and spinosad active ingredients are classified as Group 5 insecticides. Resistance to other insecticide groups is not likely to impact the effectiveness of this product. Spinosad may be used in rotation with all other labeled products in a comprehensive IRM program.

To minimize the potential for resistance development, the following practices are recommended:

- Base insecticide use on comprehensive IPM and IRM programs.
- Routinely evaluate applications for loss of effectiveness.
- Rotate with other labeled effective mosquito larvicides that have a different mode of action.
- In dormant rice fields, standing water within agricultural/crop sites, and permanent marine and freshwater sites, do not make more than 20 applications per year.
- Use insecticides with a different mode of action (different insecticide group) on adult mosquitoes so that both larvae and adults are not exposed to products with the same mode of action.
- Contact your local extension specialist, technical advisor, and/or Clarke representative for insecticide resistance management and/or IPM recommendations for the specific site and resistant pest problems.
- For further information or to report suspected resistance, you may contact your local Clarke representative by calling 800-323-5727.

Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making decisions. Where states have more stringent regulations, they should be observed.

Application

Proper application techniques help ensure adequate coverage and correct dosage necessary to obtain optimum kill of mosquito and midge larvae. Apply NATULAR® G prior to flooding as a prehatch application to areas that breed mosquitoes, or at any stage of larval development after flooding in listed sites. The following recommendations are provided for ground and aerial application of NATULAR® G.

Ground Application

Use conventional ground application equipment and apply NATULAR® G at the designated rate for the targeted site.

Spot Treatment

Apply NATULAR® G as a spot treatment to areas where mosquitoes are breeding at rates appropriate for the treatment site habitat and conditions.

Aerial Application

Equipment used in the application of NATULAR® G should be carefully calibrated before use and checked frequently during application to be sure it is working properly and delivering a uniform distribution pattern. Avoid overlaps that will increase NATULAR® G dosage above recommended limits.

Application Sites and Rates

The rates listed are typical for efficaciously killing mosquito and midge larvae in the listed habitat sites. Within this range, use lower rates when water is shallow, vegetation and/or pollution are minimal, and mosquito populations are low. Do not use less than labeled minimum rate. NATULAR® G may be applied at rates up to 20 lb per acre in waters high in organic content (such as polluted water, sewage lagoons, animal waste lagoons, and waters with high concentrations of leaf litter or other organic debris), deep-water mosquito habitats or those with dense surface cover, and where monitoring indicates a lack of kill at typical rates. Do not re-apply within 7 days of the initial application unless monitoring indicates that larval populations have reestablished or weather conditions have rendered initial treatments ineffective. Do not apply to water intended for irrigation.

AL0537

SAMPLE LABEL

For killing mosquito larvae species in the following non-crop sites:

Non-Crop Site	NATULAR® G lb/acre (lb ai/acre)
Temporary Standing Water: Woodland pools, snow pools, roadside ditches, retention ponds, freshwater dredge spoils, tire tracks and other natural or man-made depressions, rock holes, pot holes and similar areas subject to holding water **Other Freshwater Sites:** Natural and manmade aquatic sites, edges of lakes, ponds, canals, stream eddies, creek edges, detention ponds	3.5 - 6.5 (0.018 - 0.033)
Freshwater Swamps and Marshes: Mixed hardwood swamps, cattail marsh, common reed wetland, water hyacinth ponds, and similar freshwater areas with emergent vegetation **Marine/Coastal Areas:** Intertidal areas above the mean high water mark, mangroves, brackish water swamps and marshes, coastal impoundments and similar areas	9 (0.045)
Stormwater/Drainage Systems: Storm sewers, catch basins, drainage ditches, and similar areas **Wastewater:** Sewage effluent, sewers, sewage lagoons, cesspools, oxidation ponds, septic ditches and tanks, animal waste lagoons and settling ponds, livestock runoff lagoons, wastewater impoundments associated with fruit and vegetable processing, and similar areas	6.5 - 9 (0.033 - 0.045)
Dormant Rice Fields: Impounded water in dormant rice fields (for application only during the interval between harvest and preparation of the field for the next cropping cycle)	3.5 - 6.5 (0.018 - 0.033)
Natural and Artificial Containers: Tree holes, bromeliads, leaf axils, and other similar natural water holding containers, cemetery urns, bird baths, flower pots, rain barrels, buckets, single tires, tires stockpiled in dumps, landfills, recycling plants and other similar areas, abandoned swimming pools, ornamental ponds, flooded roof tops and similar water holding sites. Landfill containers, salvage yards, abandoned vehicles Do not apply to natural or artificial containers of water intended for consumption by people, animals, or livestock.	3.5 - 9 (0.018 - 0.045) For small to medium size containers, apply 1/8 teaspoon (about 0.37 g) of Natular G per 10-20 gallons of water. For very small containers, apply a pinch of Natular G (0.02 g) per ½ - 1 gallon of water. This is approximately 7 - 9 granules per ½ - 1 gallon of water.

Agricultural/Crop Sites Where Mosquito Breeding Occurs:

Apply NATULAR® G at the rate of 3.5 to 9 lb per acre in standing water within agricultural/crop sites where mosquito breeding occurs: pastures/hay fields, rangelands, orchards, vineyards, and citrus groves. Do not apply to waters intended for irrigation.

STORAGE AND DISPOSAL

Attachment III

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store in original container only. In case of leak or spill, contain material with absorbent materials and dispose as waste.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site according to label use directions or at an approved waste disposal facility.

Container Handling for Non-Refillable Bag: Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Container Handling for Rigid Refillable Tote: Refillable container. Refill this container with granular spinosad pesticide formulation only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment. Use a sprayer with water to quickly and completely rinse the interior of the container. Ensure the top, bottom, and all sides are rinsed. A high pressure sprayer with a rinsing nozzle could provide a thorough rinse of the interior. Drain and collect rinsate from the container into a collection system for later disposal. Drain the container dry so no water remains. Return to point of sale. Then offer for recycling if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by State and local authorities.

Warranty

To the extent consistent with applicable law CLARKE MOSQUITO CONTROL PRODUCTS, INC. makes no warranty, express or implied, concerning the use of this product other than as indicated on the label. Buyer assumes all risk of use/handling of this material when use and/or handling is contrary to label instructions.

Natular® is a Registered Trademark of Clarke Mosquito Control Products, Inc.

IN CASE OF MEDICAL EMERGENCY, CALL THE INTERNATIONAL POISON CONTROL CENTER 1-800-214-7753

Manufactured By:
CLARKE MOSQUITO CONTROL PRODUCTS, INC.
159 North Garden Avenue
Roselle, IL 60172, U.S.A.
1-800-323-5727

EPA Reg. No.: 8329-80 NET WEIGHT: _____

EPA Est. No.: LOT:_____

AL0537

NATULAR® G30

Mosquito Larvicide / Extended Release Granule

To be used in governmental mosquito control programs, by professional pest control operators, or in other mosquito or midge control operations.

Controls larvae of mosquitoes which may transmit Dengue, Chikungunya, or Zika.

Active Ingredient (dry weight basis):	
Spinosad (a mixture of Spinosyn A and Spinosyn D)	2.5%
Other Ingredients	97.5%
Total	100.00%

U.S. Patent No. 5,362,634 and 5,496,931
Natular® G30 is a 2.5% extended release granule.

Group	5	INSECTICIDE

KEEP OUT OF REACH OF CHILDREN

CAUTION

Precautionary Statements

Hazards to Humans and Domestic Animals

Harmful if swallowed. Causes moderate eye irritation. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Avoid contact with eyes or clothing. Wear protective eyewear (such as goggles, face shield, or safety glasses).

First Aid	
If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Have a person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything to an unconscious person.
If in eyes:	• Hold eye open and rinse slowly and gently with warm water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. • Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact 1-800-214-7753 for emergency medical treatment information.	

Environmental Hazards

This product is toxic to aquatic organisms. Non-target aquatic invertebrates may be killed in waters where this pesticide is used. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

Directions For Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read all Directions for Use carefully before applying.

Product Information

Natular® G30 is a product for killing mosquito and midge larvae. This product's active ingredient, spinosad, is biologically derived from the fermentation of *Saccharopolyspora spinosa*, a naturally occurring soil organism. Natular® G30 releases effective levels of spinosad for up to 30 days under typical environmental conditions. Natular® G30 may be applied with ground or aerial equipment.

Use Precautions

Integrated Pest Management (IPM) Programs

Natular® G30 is intended to kill mosquito and midge larvae. Mosquitoes are best controlled when an IPM program is followed. Larval control efforts should be managed through habitat mapping, active adult and larval surveillance, and integrated with other control strategies such as source reduction, public education programs, harborage or barrier adult mosquito control applications, and targeted adulticide applications.

Insecticide Resistance Management (IRM)

Natular® G30 contains a Group 5 insecticide.Insect biotypes with acquired resistance to Group 5 insecticides may eventually dominate the insect population if appropriate resistance management strategies are not followed. Currently, only spinetoram and spinosad active ingredients are classified as Group 5 insecticides. Resistance to other insecticides is not likely to impact the effectiveness of this product. Spinosad may be used in rotation with all other labeled products in a comprehensive IRM program.

To minimize the potential for resistance development, the following practices are recommended:

- Base insecticide use on comprehensive IPM and IRM programs.
- Routinely evaluate applications for loss of effectiveness.
- Rotate with other labeled effective mosquito larvicides that have a different mode of action.
- In dormant rice fields, standing water within agricultural/crop sites, and permanent marine and freshwater sites, do not make more than 5 applications per year.
- Use insecticides with a different mode of action (different insecticide group) on adult mosquitoes so that both larvae and adults are not exposed to products with the same mode of action.
- Contact your local extension specialist, technical advisor, and/or Clarke representative for insecticide resistance management and/or IPM recommendations for the specific site and resistant pest problems.
- For further information or to report suspected resistance, you may contact your local Clarke representative by calling 800-323-5727.

Application

Proper application techniques help ensure adequate coverage and correct doasge necessary to obtain optimum kill of mosquito and midge larvae. Apply Natular® G30 prior to flooding as a prehatch application to areas that breed mosquitoes, or at any stage of larval development after flooding in listed sites. Do not allow this product to drift onto neighboring crops or non-crops areas or use in a manner or at a time other than in accordance with label directions.

Ground Application

Use conventional ground application equipment that provides even coverage at labeled rates.

Aerial Application

Fixed wing aircraft or helicopters equipped with granular spreaders capable of applying rates from 5 to 20 lb per acre may be used to apply Natular® G30. Aerial application equipment should be carefully calibrated before use to be sure it is working properly and delivering a uniform distribution pattern. Avoid flight path overlaps while dispensing granules. Do not exceed labeled limits.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the treatment coordinator are responsible for considering all these factors when making application decisions.

Application Sites and Rates

Apply Natular® G30 at rates (see table) for the targeted treatment site. Within these rate ranges apply at a rate appropriate to site habitat and conditions at the time of application. Use lower labeled rate when water is shallow, vegetation and/or pollution are minimal, and mosquito populations are low. Do not use less than labeled minimum rate. Within the labeled rate range, use higher rates when water is deep, vegetation and/or pollution are high, and mosquito populations are high in number.

AL0479

SAMPLE LABEL

Natular® G30 may be applied at rates up to 20 lb per acre in waters high in organic content, deep-water mosquito habitats or those with dense surface cover, and where monitoring indicates a lack of kill at typical rates.

Reapply after 30 days, if needed for extended control in continuously flooded habitat. More frequent applications may be made if monitoring indicates that larval populations have reestablished or weather conditions have rendered initial treatments ineffective.

Treatment Area	Natular® G30
Temporary Standing Water: Woodland pools, snow pools, roadside ditches, retention ponds, freshwater dredge spoils, tire tracks and other natural or manmade depressions, rock holes, pot holes and similar areas subject to holding water. **Other Freshwater Sites:** Natural and manmade aquatic sites; edges of lakes, ponds, canals, stream eddies, creek edges, and detention ponds. **Dormant Rice Fields:** Impounded water in dormant rice fields (for application only during the interval between harvest and preparation of the field for the next cropping cycle). **Freshwater Swamps and Marshes:** Mixed hardwood swamps, cattail marsh, common reed wetland, water hyacinth ponds, and similar freshwater areas with emergent vegetation. **Marine/Coastal Areas:** Intertidal areas above the mean high water mark, mangroves, brackish water swamps and marshes, coastal impoundments and similar areas.	Apply 5 to 12 lbs per acre (5.6 to 13.5 kg per hectare). Rate is equivalent to 5 to 12 g per 100 sq. ft. of water.
Stormwater/Drainage Systems: Storm sewers, catch basins, drainage ditches, and similar areas. **Wastewater:** Sewage effluent, sewers, sewage lagoons, cesspools, oxidation ponds, septic ditches and tanks, animal waste lagoons and settling ponds, livestock runoff lagoons, wastewater impoundments associated with fruit and vegetable processing, and similar areas. **Natural and Artifical Containers:** Tree holes, bromeliads, leaf axils, and other similar natural water holding containers; cemetery urns, bird baths, flower pots, rain barrels, buckets, single tires, tires stockpiled in dumps, landfills, recycling plants and other similar areas, abandoned swimming pools, ornamental ponds, flooded roof tops and similar water holding sites; landfill containers, salvage yards, abandoned vehicles. Do not apply to natural or artificial containers of water intended for consumption by people, animals, or livestock.	Apply 5 to 20 lbs per acre (5.6 to 22.4 kg per hectare). Rate is equivalent to 5 to 20 g per 100 sq. ft. of water. For small to medium size containers, apply 0.15 g of Natular G30 per 10-25 gallons of water. For very small containers, apply a pinch of Natular G30 (about 0.02 g) per 5 liters (1.3 gallons) of water. This is approximately 8-10 granules per 5 liters of water.
Agricultural/Crop Sites Where Mosquito Breeding Occurs Apply Natular® G30 to standing water within agricultural/crop sites where mosquito breeding occurs to kill mosquito larvae species, including: pastures/hay fields, rangeland, orchards, vineyards, and citrus groves. **Do not apply to waters intended for irrigation.**	Apply 5 to 20 lbs per acre (5.6 to 22.4 kg per hectare). Rate is equivalent to 5 to 20 g per 100 sq. ft. of water.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a cool dry place in original container only. Keep away from moisture.

Pesticide Disposal: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Container Handling for Non-Refillable Bag: Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Offer for recycling, if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Container Handling for Rigid Refillable Tote: Refillable container. Refill this container with granular spinosad pesticide formulation only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment. Use a sprayer with water to quickly and completely rinse the interior of the container. Ensure the top, bottom, and all sides are rinsed. A high pressure sprayer with a rinsing nozzle could provide a thorough rinse of the interior. Drain and collect rinsate from the container into a collection system for later disposal. Drain the container dry so no water remains. Return to point of sale. Then offer for recycling if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by State and local authorities.

Warranty: To the extent consistent with applicable law, CLARKE MOSQUITO CONTROL PRODUCTS, INC. makes no warranty, express or implied, concerning the use of this product other than as indicated on the label. Buyer assumes all risk of use/handling of this material when use and/or handling is contrary to label instructions.

Manufactured For:
CLARKE MOSQUITO CONTROL PRODUCTS, INC.
159 North Garden Avenue
Roselle, IL 60172, U.S.A.
1-800-323-5727

EPA Reg. No.: 8329-83
EPA Est. No.:
Net Contents: _____
Lot: _____

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AL0479

VectoBac® G

BIOLOGICAL LARVICIDE

GRANULE

ACTIVE INGREDIENT:

Bacillus thuringiensis, subspecies *israelensis*, strain AM 65-52, fermentation solids, spores, and insecticidal toxins	2.80%
OTHER INGREDIENTS	97.20%
TOTAL	100.00%

Potency: 200 International Toxic Units (ITU) per mg
(Equivalent to 0.091 billion potency: ITU per pound)

The percent active ingredient does not indicate product performance and potency measurements are not Federally standardized.

EPA Reg. No. 73049-10
EPA Est. No. 33762-IA-001 List No. 05108

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KEEP OUT OF REACH OF CHILDREN
CAUTION

1.0 FIRST AID

If in Eyes	• Hold eyes open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. • Call a poison control center or doctor for treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-315-9819 (24 hours) for emergency medical treatment and/or transport emergency information. For all other information, call 1-800-323-9597.

2.0 PRECAUTIONARY STATEMENTS

2.1 HAZARD TO HUMANS (AND DOMESTIC ANIMALS)

CAUTION

Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

Mixers/loaders and applicators not in enclosed cabs or aircraft must wear a dust/mist respirator meeting NIOSH standards of at least N-95, R-95 or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

2.2 ENVIRONMENTAL HAZARDS

Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Do not apply directly to treated, finished drinking water reservoirs or drinking water receptacles when the water is intended for human consumption.

3.0 DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

4.0 APPLICATION DIRECTIONS

VectoBac G is an insecticide for use against mosquito larvae.

Mosquitoes Habitat (Such as the following examples):	**Suggested Range Rate***
Irrigation ditches, roadside ditches, flood water, standing ponds, livestock watering ponds and troughs, woodland pools, snow melt pools, pastures, catch basins, storm water retention areas, tidal water, salt marshes and rice fields	2.5 - 10 lbs. / acre

In addition, standing water containing mosquito larvae, in fields growing crops such as alfalfa, almonds, asparagus, corn, cotton, dates, grapes, peaches, sugar cane and walnuts may be treated at the recommended rates.

* Use 10-20 lbs. / acre when late 3rd and early 4th instar larvae predominate, mosquito populations are high, water is heavily polluted (sewage lagoons, animal waste lagoons), and/or algae are abundant.

Apply uniformly by aerial or ground conventional equipment.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the treatment coordinator are responsible for considering all of these factors when making decisions.

A 7 to 14 day interval between applications should be employed.

SPECIMEN

5.0 STORAGE AND DISPOSAL

Do not contaminate potable water, food or feed by storage or disposal.

Storage: Store in a cool [59-86°F (15-30°C)], dry place.

Pesticide Disposal: Completely empty bag into application equipment. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Nonrefillable container. Do not reuse or refill this container. Once cleaned, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or manufacturer, or contact Ag Container Recycling Council at 202-861-3144 or www.acrecycle.org. If recycling is not available dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

6.0 NOTICE TO USER

Seller makes no warranty, express or implied, of merchantability, fitness or otherwise concerning the use of this product other than as indicated on the label. User assumes all risks of use, storage or handling not in strict accordance with accompanying directions.

VectoBac is a registered trademark of Valent BioSciences Corporation.

VALENT BIOSCIENCES CORPORATION
870 TECHNOLOGY WAY
LIBERTYVILLE, IL 60048 USA
PH: 800-323-9597

04-6623/R6 ©Valent BioSciences Corporation, January 2012

VectoLex® WSP

BIOLOGICAL LARVICIDE

WATER SOLUBLE POUCH

ACTIVE INGREDIENT:
Bacillus sphaericus 2362, Serotype H5a5b, strain ABTS 1743 Technical Powder (670 BsITU/mg) 7.5%
OTHER INGREDIENTS 92.5%
TOTAL 100.0%

Potency: This product contains 50 BsITU/mg or 0.023 Billion BsITU/lb.

Expiration Date: (Two years from the date of manufacture).

The percent active ingredient does not indicate product performance and potency measurements are not federally standardized.

EPA Reg. No. 73049-20 List No. 05722
EPA Est. No. 33762-IA-001 (Lot No. Suffix 'N8')
EPA Est. No. 33967-NJ-1 (Lot No. Suffix 'Q5')

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KEEP OUT OF REACH OF CHILDREN

CAUTION

1.0

FIRST AID	
If in eyes	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center for treatment advice.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-315-9819 (24 hours) for emergency medical treatment and/or transport emergency information. For all other information, call 1-800-323-9597.

2.0 PRECAUTIONARY STATEMENTS

2.1 HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if absorbed through the skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling.

2.2 ENVIRONMENTAL HAZARDS

Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply directly to treated, finished drinking water reservoirs or drinking water receptacles when the water is intended for human consumption.

3.0 DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

4.0 STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. Do not contaminate water when disposing of equipment washwaters.

Pesticide Storage: Store in a cool, dry place.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Non refillable container. Do not reuse or refill this container. Offer for recycling if available. Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke. For Water Soluble Pouches, dispose of empty outer foil bag in trash.

Continued

SPECIMEN

5.0 DIRECTIONS FOR USE - VECTOLEX WATER SOLUBLE POUCHES (WSP)

Once the foil bag containing Water Soluble Pouches is opened, use pouches within one day.

5.1 APPLICATION DIRECTIONS

MOSQUITO CONTROL

VectoLex WSP is a selective microbial insecticide for use against mosquito larvae in a variety of habitats. VectoLex WSP can be applied to areas that contain fish, other aquatic life, and plants. VectoLex WSP can be applied to areas used by or in contact with humans, pets, horses, livestock, birds or wildlife.

I. For control of mosquito larvae species* in the following non-crop sites:

Habitat	Rate Range
Drainage/Drainage Systems:	
Storm drains, catch basins, retention, detention and seepage ponds.	1 pouch/50 sq.ft.(1)

Treatment Areas (For Use In)(1):

Ponds	Standing water	Unused swimming pools or spas
Lagoons	Storm water retention areas	Flooded basements
Water gardens	Catch basins	Pool covers
Hollow trees and tree holes	Birdbaths	Gutters and drains
Urns	Fountains	Wheelbarrows
Rain barrels	Flowerpots and planters	Garbage cans and covers
Livestock watering troughs/ponds/tanks	Snowmelt pools	Discarded tires
Irrigation ditches	Abandoned swimming pools	
Roadside ditches		
Flood water		

Any location where water accumulates and remains standing for periods of time, except treated, finished drinking water for human consumption.

(1)Treat on basis of surface area of potential mosquito breeding sites by placing one (1) VectoLex Soluble Pouch for up to 50 square feet of treatment area. Re-apply as needed after 1 to 4 weeks.

5.1 APPLICATION DIRECTIONS (cont'd)

Longer periods of mosquito population suppression may result where sufficient numbers of non-target aquatic invertebrate parasites and predators are present since these are not affected by the product and contribute to mosquito population reduction.

* Mosquito species effectively controlled by VectoLex WSP, including many of those known to carry/transmit West Nile Virus:

Culex spp.	
Aedes vexans	
Ochlerotatus melanimon	*(Aedes melanimon)*
Ochlerotatus stimulans	*(Aedes stimulans)*
Ochlerotatus nigromaculis	*(Aedes nigromaculis)*
Psorophora columbiae	
Psorophora ferox	
Ochlerotatus triseriatus	*(Aedes triseriatus)*
Ochlerotatus sollicitans	*(Aedes sollicitans)*
Anopheles quadrimaculatus	
Coquillettidia perturbans	

6.0 NOTICE TO USER

To the fullest extent permitted by law, seller makes no warranty, express or implied, of merchantability, fitness or otherwise concerning the use of this product other than as indicated on the label. User assumes all risks of use, storage or handling not in strict accordance with accompanying directions.

VALENT BIOSCIENCES CORPORATION
870 TECHNOLOGY WAY
LIBERTYVILLE, IL 60048 USA
PH: 800-323-9597

04-7321/R6 ©Valent BioSciences Corporation, August 2012

VectoLex® FG

BIOLOGICAL LARVICIDE

FINE GRANULE

ACTIVE INGREDIENT:

Bacillus sphaericus 2362, Serotype H5a5b, strain ABTS 1743 fermentation solids, spores, and insecticidal toxins . . .	7.5%
OTHER INGREDIENTS	92.5%
TOTAL	100.0%

Potency: This product contains 50 BsITU/mg or 0.023 Billion BsITU/lb.
Expiration Date: (Two years from the date of manufacture).

The percent active ingredient does not indicate product performance and potency measurements are not federally standardized.

EPA Reg. No.73049-20
EPA Est. No. 33762-IA-001 List No. 05722

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KEEP OUT OF REACH OF CHILDREN
CAUTION

1.0 FIRST AID

If in eyes	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center for treatment advice.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If inhaled	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-315-9819 (24 hours) for emergency medical treatment and/or transport emergency information. For all other information, call 1-800-323-9597.

2.0 PRECAUTIONARY STATEMENTS

2.1 HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION

Causes moderate eye irritation. Harmful if absorbed through the skin or inhaled. Avoid contact with skin, eyes or clothing. Wear protective eyewear. Avoid breathing dust. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

Mixers/loaders and applicators not in enclosed cabs or aircraft, must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitizations.

2.2 Environmental Hazards

Do not apply directly to treated, finished drinking water reservoirs or drinking water receptacles when the water is intended for human consumption.

3.0 DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

For use only by federal, state, tribal or local government officials responsible for public health or vector control, or by persons certified in the appropriate category or otherwise authorized by the state or tribal lead pesticide regulatory agency to perform mosquito control applications, or by persons under their direct supervision. IN CALIFORNIA: This product is to be applied by County Health Department, State Department of Health Services, Mosquito and Vector Control or Mosquito Abatement District personnel, or persons under contract to these entities only.

4.0 STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. Do not contaminate water when disposing of equipment washwaters.

Pesticide Storage: Store in a cool, dry place.

Pesticide Disposal: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment, then offer for recycling if available or dispose of empty bag in a sanitary landfill or by incineration or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

5.0 DIRECTIONS FOR USE - VECTOLEX FG

5.1 Application Directions

MOSQUITO CONTROL

VectoLex® FG Biological Larvicide Fine Granule (hereafter referred to as VectoLex FG) is a selective microbial insecticide for use against mosquito larvae in a variety of habitats. VectoLex FG can be applied to areas that contain fish, other aquatic life, and plants. VectoLex FG can be applied to areas used by or in contact with humans, pets, horses, livestock, birds, or wildlife.

CONTINUED

SPECIMEN

I. For control of mosquito larvae species* in the following non-crop sites:

Habitat	Rate Range
Wastewater: Sewage effluent, sewage lagoons, oxidation ponds, septic ditches, animal waste lagoons, impounded wastewater associated with fruit and vegetable processing.	5-20 lbs/acre**
Stormwater/Drainage Systems: Storm sewers, catch basins, drainage ditches, retention ponds, detention ponds and seepage ponds.	5-20 lbs/acre**
Marine/Coastal Areas: Salt marshes, mangroves, estuaries.	5-20 lbs/acre**
Water Bodies: Natural and manmade aquatic sites such as lakes, ponds, rivers, canals, streams and livestock watering ponds and troughs.	5-20 lbs/acre**
Dormant Rice Fields: Impounded water in dormant rice fields. (For application only during the interval between harvest and preparation of the field for the next cropping cycle.)	5-20 lbs/acre**
Waste Tires: Tires stockpiled in dumps, landfills, recycling plants, and other similar sites.	0.5-2 lbs/ 1000 sq. ft.

II. For the control of mosquito larvae species* in the following agricultural/crop sites where mosquito breeding occurs:

Habitats:	Rate Range
Rice, pastures/hay fields, orchards, citrus groves, irrigated crops.	5-20 lbs/acre**

Apply VectoLex FG uniformly by aerial or conventional ground equipment. Reapply VectoLex FG as needed after 1 to 4 weeks.

* Mosquito species effectively controlled by VectoLex FG, including many of those known to carry/transmit West Nile virus:

Culex spp.	
Aedes vexans	
Ochlerotatus melanimon	*(Aedes melanimon)*
Ochlerotatus stimulans	*(Aedes stimulans)*
Ochlerotatus nigromaculis	*(Aedes nigromaculis)*
Psorophora columbiae	
Psorophora ferox	
Ochlerotatus triseriatus	*(Aedes triseriatus)*
Ochlerotatus sollicitans	*(Aedes sollicitans)*
Anopheles quadrimaculatus	
Coquillettidia perturbans	

**Use higher rates (10 to 20 lbs/acre) in areas where extended residual control is necessary, or in habitats having deep water or dense surface cover.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the treatment coordinator are responsible for considering all these factors when making decisions.

6.0 NOTICE TO USER

To the extent consistent with applicable law, seller makes no warranty, express or implied, of merchantability, fitness or otherwise concerning the use of this product other than as indicated on this label. To the extent consistent with applicable law, user assumes all risks of use, storage or handling not in accordance with accompanying directions.

VALENT BIOSCIENCES CORPORATION
870 TECHNOLOGY WAY
LIBERTYVILLE, IL 60048 USA
PH: 800-323-9597

04-8636/R2 ©Valent BioSciences Corporation, June 2015

VectoMax® FG

BIOLOGICAL LARVICIDE

FINE GRANULE

FOR ORGANIC PRODUCTION

MADE WITH BioFuse™ TECHNOLOGY

ACTIVE INGREDIENTS:

Bacillus sphaericus 2362, Serotype H5a5b, Strain ABTS 1743 Fermentation Solids, Spores, and Insecticidal Toxins	2.7%
Bacillus thuringiensis subsp. *israelensis* Serotype H-14, Strain AM65-52 Fermentation Solids, Spores, and Insecticidal Toxins	4.5%
OTHER INGREDIENTS	92.8%
TOTAL	100.0%

Potency: This product contains 50 BsITU/mg or 0.023 Billion BsITU/lb.

Expiration Date: (Two years from date of manufacture)

The percent active ingredient does not indicate product performance and potency measurements are not Federally standardized.

EPA Reg. No.73049-429
EPA Est. No. 33762-IA-001 List No. 05750
US Patent No. 7,989,180, US Patent No. 8,454,983

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KEEP OUT OF REACH OF CHILDREN
CAUTION

1.0

FIRST AID	
If in eyes	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If inhaled	• Move person to fresh air. • If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-315-9819 (24 hours) for emergency medical treatment and/or transport emergency information. For all other information, call 1-800-323-9597.	

2.0 PRECAUTIONARY STATEMENTS

2.1 Hazards To Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Harmful if absorbed through the skin or inhaled. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes, or clothing. Avoid breathing dust. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

Mixers/loaders and applicators not in enclosed cabs or aircraft, must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

2.2 Environmental Hazards

Do not apply directly to treated, finished drinking water reservoirs or drinking water receptacles when the water is intended for human consumption.

3.0 DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

For use only by federal, state, tribal or local government officials responsible for public health or vector control, or by persons certified in the appropriate category or otherwise authorized by the state or tribal lead pesticide regulatory agency to perform mosquito control applications, or by persons under their direct supervision.

IN CALIFORNIA: This product is to be applied by County Health Department, State Department of Health Services, Mosquito and Vector Control or Mosquito Abatement District personnel, or persons under contract to these entities only.

CONTINUED

SPECIMEN

4.0 APPLICATION DIRECTIONS

MOSQUITO CONTROL

VectoMax® FG Biological Larvicide Fine Granule (hereafter referred to as VectoMax FG) is a selective microbial insecticide for use against mosquito larvae in a variety of habitats. VectoMax FG can be applied to areas that contain fish, other aquatic life, and plants. VectoMax FG can be applied to areas used by or in contact with humans, pets, horses, livestock, birds, or wildlife.

I. For control of mosquito larvae in the following non-crop sites:

Habitat	Application Rate Range
Wastewater: Sewage effluent, sewage lagoons, oxidation ponds, septic ditches, animal waste lagoons, and impound wastewater associated with fruit and vegetable processing.	5-20 lbs/acre*
Storm Water/Drainage Systems: Drainage ditches, roadside ditches, retention ponds, detention ponds, and seepage ponds.	5-20 lbs/acre*
Marine/Coastal Areas: Tidal water, saltmarshes, mangroves, and estuaries.	5-20 lbs/acre*
Water Bodies: Natural and manmade aquatic sites such as lakes, ponds, canals, rivers and streams (including river & stream edges), floodplains, swamps, marshes, irrigation ditches, flood water, woodland pools, snow melt pools and livestock watering ponds and troughs.	5-20 lbs/acre*
Waste Tires: Tires stockpiled in dumps, landfills, recycling plants, and other similar sites.	0.5-2 lbs/ 1000 sq. ft.

II. For control of mosquito larvae in agricultural/crop sites where mosquito breeding occurs.

Habitat	Application Rate Range
Rice fields, pastures/hay fields, orchards (including citrus groves, peaches, almonds, dates, and walnuts), asparagus fields, corn fields, cotton fields, alfalfa fields, and vineyards.	5-20 lbs/acre*

Apply VectoMax FG uniformly by aerial or conventional ground equipment. Reapply VectoMax FG as needed (after 1-4 weeks under typical environmental conditions).

*Use higher application rates (10-20 lbs/acre) in areas where 4th instar *Aedes* or *Ochlerotatus* spp. larvae predominate, or in areas where very high densities of late instar mosquito larvae are present, or under conditions where local experience indicates the need for higher application rates to achieve extended residual control.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the treatment coordinator are responsible for considering all these factors when making desicions.

5.0 STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store in a cool, dry place.

Pesticide Disposal: To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

Container Handling: Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Then offer for recycling if available or dispose of empty bag in a sanitary landfill or by incineration. Do not burn, unless allowed by State and local ordinances. If burned, stay out of smoke.

6.0 WARRANTY AND DISCLAIMER

To the extent consistent with applicable law, seller makes no warranty, express or implied, of merchantability, fitness or otherwise concerning the use of this product other than as indicated on this label. To the extent consistent with applicable law, user assumes all risks of use, storage, or handling not in accordance with the accompanying directions.

VectoMax is a registered trademark and BioFuse is a trademark of Valent BioSciences Corporation.

VALENT BIOSCIENCES CORPORATION
870 TECHNOLOGY WAY
LIBERTYVILLE, IL 60048 USA
PH: 800-323-9597

04-8648/R2 ©Valent BioSciences Corporation, May 2015

COCOBEAR™
Mosquito Larvicide Oil

Kills larvae and pupa stages of mosquitoes. Physical control of mosquito broods: kills by suffocation - mosquitoes do not develop resistance. Prevents mosquito emergence.

Standing water treatment. Use on: ponds, pools, ditches, standing water within irrigated croplands and pastures, flood waters, and other listed areas where mosquitoes develop.

ACTIVE INGREDIENT	
Mineral Oil*	10.0%
OTHER INGREDIENTS	90.0%
TOTAL	100.0%

* Contains petroleum distillate

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-214-7753 for emergency medical treatment information.	
IF SWALLOWED:	Call a poison control center or doctor immediately for treatment advice. DO NOT induce vomiting unless told to do so by a poison control center or doctor. Do not give ANY liquid to the person. Do not give anything by mouth to an unconscious person.
NOTICE TO PHYSICIANS: This product contains petroleum distillate and may pose an aspiration pneumonia hazard.	

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION. Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

Personal Protective Equipment (PPE): Mixers, loaders, applicators, and other handlers must wear long-sleeved shirt and long pants, and shoes plus socks.

User Safety Requirements: Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

User Safety Recommendations: Users should wash hands before eating, drinking, chewing gum, tobacco, or using the toilet. Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Users should remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, except as directed for use on this label. Aquatic organisms may be killed in waters where this pesticide is used. Consult with the State or tribal agency with primary authority for regulating pesticides before applying this product to public waters to determine if a permit is needed.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

This product may cause injury to plants in the treatment area. Stressed plants may be more susceptible.

COCOBEAR may only be used to control mosquito larvae and pupae. COCOBEAR leaves a thin film on the surface of treated, non-flowing water and kills mosquito larvae and pupae by suffocation. COCOBEAR kills immature mosquitoes where they develop.

This product may be used for surface applications to standing water within irrigated croplands and pastures, drainage areas, ditches, stagnant pools, swamps, marshes, temporary rain pools, sloughs, log ponds, open sewage basins, settling ponds, catch basins, waste tires and intermittently flooded areas.

Apply at uniform rates of 3 gallons per surface acre (for smaller areas, treat at 10 ounces per 1,000 sq. ft. or 1 1/2 quart per 5,000 sq. ft.). Where there is extremely dense vegetation or if the water to be treated is high in organic content, up to 5 gallons per acre (15 ounces per 1,000 sq. ft. or 2 quarts per 5,000 sq. ft.) may be used.

When applying by aerial application, adjust spray volume up to 5 gallons per acre dependent on vegetation and surface conditions. 3 gallons per acre (36 gallons per 100 ft swath mile) is likely to be sufficient for most conditions.

Spray Drift Management

A variety of factors including weather conditions (e.g. wind direction, wind speed, temperature, and relative humidity) and method of application (e.g. ground, aerial) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

Wind Speed: Do not apply this product at wind speeds greater than 15 mph at the application site.

Droplet Size: Apply as a medium or coarser spray (ASABE Standard

SAMPLE LABEL

AL0337

572), and the minimum mean volume diameter (VMD) for spinning atomizer nozzles.

Temperature Inversions: Application is allowed under stable and/or temperature inversion conditions as long as application is done below the point in the atmosphere where the inversion begins and the droplet size meets the dimensions of very coarse or extremely coarse as defined in ASABE Standard 572 (VMD of 400-500 microns).

Release Height for Ground Applications: Apply using a nozzle height of no more than 4 feet above the surface.

Aerial Applications: Applications must conform to the requirements indicated above regarding wind speed, droplet size, and temperature inversions and to the additional requirements listed below.

Attachment IX

Release Height: Aircraft altitude should be maintained at the lowest altitude necessary for aircraft safety in order to reduce the exposure of droplets to evaporation and wind.

Boom Length: The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter. Nozzle placement may be extended to 100% of rotor blade diameter when very coarse droplets of VMD 400-500 microns (ASABE Standard 572) are used. Orient nozzles to spray backward and parallel to the air stream.

Swath Adjustment: When applications are made with a cross-wind, the swath will be displaced downwind. The applicator must compensate for this displacement at the upwind and downwind edges of the application area by adjusting the path of the aircraft upwind.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage and disposal.

PESTICIDE STORAGE: Store upright at room temperature. In case of spill or leakage, soak up with absorbent material such as sand, sawdust, earth, fuller's earth, etc.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL:

(REFILLABLE DRUMS & TOTES): Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning the container before refilling is the responsibility of the refiller. To clean the container before disposal, drain the container until it is empty. Add a minimum amount of clean water to allow recirculation through the pump, meter and hoses. A commercial tank-cleaning detergent may be used, if desired. Thoroughly drench the interior sides, ceiling, and floor of the container. Using a steam-cleaning process or a high-pressure/low-water process, clean sides, ceiling, and floor of container. Recirculate wash water through the pump, meter and hoses. Drain the tank. Dispose of wash water or rinsate with pesticide waste. Offer cleaned container for recycling, if available, or puncture and dispose of it in a sanitary landfill, or by other procedures approved by State and local authorities.

(2.5 GALLON JUGS): Nonrefillable container. Do not reuse or refill this container. When container is empty, drain it completely, then puncture and dispose of it in a sanitary landfill or by other procedures approved by State and local authorities.

MANUFACTURED FOR:
CLARKE MOSQUITO CONTROL PRODUCTS, INC.
159 N. GARDEN AVENUE
ROSELLE, ILLINOIS 60172
For more information call: 1-800-323-5727

EPA REG. NO. 8329-93

EPA EST. NO._____

Available Packaging: 2.5 GAL, 30 GAL, 55 GAL, 275 GAL, BULK

LOT NO: Marked on Container Label

COCOBEAR™ is a trademark of Clarke Mosquito Control Products, Inc.

NOTICE: To the extent consistent with applicable law, Clarke Mosquito Control Products, Inc. makes no warranty, express or implied, concerning the use of this product other than as indicated on the label. To the extent consistent with applicable law, buyer assumes all risk of use/handling of this material when use and/or handling is contrary to label instructions.

AL0337

FLIT® 10EC

Broad Spectrum Multi-Use Insecticide

Quick Knockdown. For Use Outdoors and in Non-Food/Feed Areas of Commercial Buildings, Warehouses, and Food/Feed Processing Establishments. For Use on Livestock: Cattle (Beef and Dairy), Goats, Sheep, Swine, Horses, and Poultry.

Active Ingredient:	
Permethrin	10.00%
†**Other Ingredients:**	90.00%
	100.00%

†Contains petroleum distillate

KEEP OUT OF REACH OF CHILDREN

WARNING

FIRST AID	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-214-7753 for emergency medical treatment information.	
IF ON SKIN OR CLOTHING	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
IF IN EYES	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing the eye. • Call a poison control center or doctor for treatment advice.
IF INHALED	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
IF SWALLOWED	• Call a poison control center or doctor immediately for treatment advice. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give any liquid to the person. • Do not give anything by mouth to an unconscious person.
Note to Physician: Contains petroleum distillate – vomiting may cause aspiration pneumonia. Do not administer or instill milk, cream or other substances containing vegetable or animal fats which enhance absorption of lipophilic substances.	

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

WARNING. Causes skin irritation. Do not get on skin, or on clothing. Harmful if inhaled. Avoid breathing vapor or spray mist. Causes moderate eye irritation. Avoid contact with eyes. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wear Coveralls worn over long sleeved shirt and long pants, socks, chemical resistant footwear, and chemical resistant gloves (barrier laminate, nitrile rubber, neoprene, rubber, Viton, selection category F*).

Personal Protective Equipment (PPE): Some materials that are chemical-resistant to this product are barrier laminate, butyl rubber greater or equal to 14 mils, and nitrile rubber greater or equal to 14 mils. If you want more options, follow the instructions for category F on an EPA chemical-resistance category selection chart.

Applicators using ULV cold foggers or fog/mist generators in indoor spaces must wear:

- Coveralls over long-sleeved shirt and long pants,
- Chemical resistant gloves,
- Chemical-resistant footwear plus socks, and
- Chemical resistant headgear, if overhead exposure.

Applicators using ULV cold foggers and/or fog/mist generators in outdoor spaces must wear:

- Long-sleeve shirt and long pants,
- Shoes plus socks, and
- Chemical-resistant gloves

All other mixers, loaders, applicators, and other handlers must wear:

- Long-sleeve shirt and long pants,
- Shoes plus socks,
- Chemical-resistant gloves for all handlers except for applicators using motorized ground equipment, pilots, and flaggers.
- Chemical resistant apron for mixers/loaders, persons cleaning equipment, and persons exposed to the concentrate and for handlers performing animal dip.

See engineering controls for additional requirements.

User Safety Requirements: Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Entry Restrictions:

For space spray use:

Do not enter or allow others to enter until vapors, mists, and aerosols have dispersed, and the treated area has been thoroughly ventilated.

For surface spray use:

Except when applying to livestock, do not enter or allow others to enter treated area until sprays have dried.

ENVIRONMENTAL HAZARDS FOR TERRESTRIAL APPLICATIONS

This pesticide is extremely toxic to aquatic organisms, including fish and invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean water mark. Do not apply when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment wash waters. This pesticide is

SAMPLE LABEL

highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are foraging the treatment area.

ENVIRONMENTAL HAZARDS FOR WIDE AREA MOSQUITO ADULTICIDE APPLICATIONS

This pesticide is extremely toxic to aquatic organisms, including fish and invertebrates. Runoff from treated areas or deposition of spray droplets into a body of water may be hazardous to fish and aquatic invertebrates. When applying as a wide area mosquito adulticide, before making the first application in a season, it is advisable to consult with the state or tribal agency with primary responsibility for pesticide regulation to determine if other regulatory requirements exist.

When applying as a wide area mosquito adulticide, do not apply over bodies of water (lakes, rivers, permanent streams, natural ponds, commercial fish ponds, swamps, marshes or estuaries), except when necessary to target areas where adult mosquitoes are present, and weather conditions will facilitate movement of applied material away from the water in order to minimize incidental deposition into the water body.

PHYSICAL & CHEMICAL HAZARDS

Do not use or store near heat or open flame. Do not use this product in or on electrical equipment due to the possibility of shock hazard.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

APPLICATION RESTRICTIONS

- Do not breathe vapors or spray mist.
- Do not use in aircraft cabins.
- Use in a handheld cold or thermal fogger is prohibited.
- Except when applying to livestock or as a wide area mosquito adulticide, do not apply this product in a way that will contact workers or other persons, either directly or through drift.
- Except when applying to livestock or as a wide area mosquito adulticide, only protected handlers may be in the area during application.
- Do not apply when food is present.

WIDE AREA MOSQUITO CONTROL

For use by federal, state, tribal, or local government officials responsible for public health or vector control, or by persons certified in the appropriate category or otherwise authorized by the state or tribal lead pesticide regulatory agency to perform adult mosquito control applications, or by persons under their direct supervision.

APPLICATION INSTRUCTIONS

Do not exceed 25 applications at 0.007 lbs. of permethrin per acre or 0.18 lbs. of permethrin per acre in any given season. More frequent treatments may be made to prevent or control a threat to public and/or animal health determined by a state, tribal or local health or vector control agency on the basis of documented evidence of disease causing agents in vector mosquitoes or the occurrence of mosquito-borne diseases in animal or human populations, or if specifically approved by the state or tribe during a natural disaster recovery effort. Apply when wind speed is greater than 1 mph.

GENERAL

FLIT® 10EC Broad Spectrum Multi-Use Insecticide is designed for application as an Ultra-Low Volume (ULV) aerosol to control adult mosquitoes and flies in residential, industrial, urban, recreational and other areas where adult mosquitoes and flies are found. FLIT® 10EC is also recommended for application with mist-blowers, backpack sprayers, handheld sprayers, and low pressure hand sprayers for barrier or surface applications. FLIT® 10EC is used for control of annoyance flies and mosquitoes, mosquitoes and flies of public health or disease vector importance in areas such as but not limited to residential areas, industrial areas, urban areas, parks, campsites, woodlands, athletic fields, golf courses, playgrounds, recreational and overgrown waste areas, roadsides, and other areas where adult mosquitoes and flies occur. Apply at a rate not to exceed 0.007 pounds of permethrin per acre in any given 24 hour period.

Attachment X

In the treatment of corrals, feed lots, swine lots, poultry ranges and zoos cover any exposed drinking water, drinking fountains and animal feed before application.

FLIT® 10EC provides effective control of adult mosquitoes, black flies, gnats, biting and non-biting midges, stable flies, horse flies, deer flies, sheep flies, horn flies, and nuisance flying insects such as houseflies.

SPRAY DROPLET SIZE DETERMINATION

Ground Equipment: Spray equipment must be adjusted so that the volume median diameter is less than 30 microns (Dv 0.5 < 30 µm) and that 90% of the spray is contained in droplets smaller than 50 microns (Dv 0.9 < 50µm). Directions from the equipment manufacturer or vendor, pesticide registrant or a test facility using a laser-based measurement instrument must be used to adjust equipment to produce acceptable droplet size spectra. Application equipment must be tested at least annually to confirm that pressure at the nozzle and nozzle flow rate(s) are properly calibrated.

GROUND APPLICATION

Vehicle-Mounted ULV Cold Aerosol Generators or Vehicle-Mounted Non-Thermal Aerosol (Cold Fog): Dilute 1 part concentrate with 1 part water or suitable oil solvent or at proportional oil dilutions calculated on the basis of vehicle speed and swath width to achieve the target dose. Apply through non-thermal ULV application equipment and base acreage calculations on the equipment manufacturer's recommended swath width. Apply at a rate not to exceed 0.007 pounds of permethrin per acre in any given 24 hour period. An optimum swath is created when FLIT® 10EC is applied from a truck that is being driven perpendicular to the wind direction. Direct the spray head of equipment to ensure even distribution of the spray cloud throughout the area. For best results, apply when insects are most active and meteorological conditions are conducive to keeping the spray cloud in the air column close to the ground. An inversion of air temperatures and a light breeze is preferable. Do not exceed 25 applications at 0.007 pounds of permethrin per acre (not to exceed a total of 0.18 pounds of permethrin per acre) in any given season. More frequent applications may be made to prevent or control a threat to public and/or animal health determined by a state, tribal or local health or vector control agency on the basis of documented evidence of disease causing agents in vector mosquitoes or the occurrence of mosquito-borne disease in animal or human populations, or if specifically approved by the state or tribe during a natural disaster recovery effort. Application during the cooler hours of the night or early morning is recommended.

FLIT® 10EC may be applied through ULV Cold Aerosol Generators, or other equipment designed for non-thermal ULV aerosol applications. The desired application rate may be obtained under different conditions by altering the dilution rate of FLIT® 10EC, the flow rate of the insecticide from the application equipment and the vehicle speed. Where dense vegetation is present, the use of higher rates and/or slower speeds is recommended.

BARRIER APPLICATIONS

For control and exclusion of resting or flying adult mosquitoes in areas such as animal quarters, roadsides, urban areas, residential areas, industrial areas, golf courses, parks, recreational areas, tire piles and all public areas where adult mosquitoes may occur. May be used to treat aggregation and harborage areas such as the perimeter of residential buildings, storage buildings, empty rail cars, truck transport trailers, abandoned buildings and other areas where adult mosquitoes find harborage. For application to resting or aggregation surfaces using low pressure hand sprayers or other similar equipment which has demonstrated the capacity to deliver an even distribution of the labeled rate over the desired treatment area, mix 1 part concentrate with 1 part of water or suitable oil diluents and apply sufficient spray to dampen surface. For application using backpack or truck-mounted mist blower equipment, apply at a rate not to exceed 36.6 fl. oz. of diluted product per acre or diluted at a rate not to exceed 0.1 lbs. a.i. per acre.

SAMPLE LABEL

Direct spray onto foliage at the perimeter of areas from which mosquitoes or flies are to be excluded or direct spray into harborage areas or resting areas where adult mosquitoes or flies may be found. When this product is applied as a barrier application using low pressure hand sprayers, hydraulic sprayers, or ground ULV equipment, do not apply within 100 feet (30 meters) of lakes and streams.

Not for use in outdoor residential misting systems.

To prepare dilutions, the concentrate should first be stirred or agitated well. Add the required amount of concentrate to water or oil and blend thoroughly. Do not hold dilutions for more than 24 hours.

For maximum effectiveness, a combination of localized application and space treatment is recommended. Remove pets, birds, and cover fish aquaria before spraying.

USE RESTRICTIONS FOR WIDE AREA MOSQUITO USE

Do not allow spray treatment to contaminate cropland, poultry ranges or water supplies. Do not use on crops used for food or forage.

USE RESTRICTIONS FOR INDOOR USE

Except when making wide area mosquito adulticide applications or treating livestock, do not apply this product in a way that will contact workers or other persons, either directly or through drift.

Except when making wide area mosquito adulticide applications or treating livestock, only protected handlers may be in the area during application.

Do not breathe dusts, vapors, or spray mist.

For applications to food/feed handling and service areas:

Do not apply when food is present.

Do not use in food areas of food handling establishments, restaurants, or other areas where food is commercially prepared or processed.

Do not use in serving areas while food is exposed or facility is in operation. Serving areas are areas where prepared foods are served, such as dining rooms, but excluding areas where foods may be prepared or held. All food processing surfaces and utensils should be covered during treatment or thoroughly washed before use. Exposed food should be covered or removed.

Do not apply indoors at residential sites, including nurseries, day care centers, schools, hospitals, and nursing homes.

Not for broadcast use.

Application is prohibited directly into sewers or drains, or to any area like a gutter where drainage to sewers, storm drains, water bodies, or aquatic habitat can occur. Do not allow the product to enter any drain during or after application.

USE RESTRICTIONS FOR OUTDOOR AND ANIMAL QUARTER USE

When used in dairy barns or facilities: Close milk bulk tank lids to prevent contamination from spray and from dead or falling insects. Remove or cover milking utensils before application. Wash teats of animals before milking.

All outdoor applications must be limited to spot or crack-and-crevice treatments only, except for the following permitted uses:

(1) Treatment to soil or vegetation around structures;
(2) Applications to lawns, turf, and other vegetation;
(3) Applications to building foundations, up to a maximum height of 3 feet.

Other than applications to building foundations, all outdoor applications to impervious surfaces such as sidewalks, driveways, patios, porches, and structural surfaces (such as windows, doors, and eaves) are limited to spot and crack-and-crevice applications only.

Do not water the treated area to the point of run-off.

Do not make applications during rain.

INDOOR USE AREAS

Bakeries, Flour Mills, Granaries, Meat Packing Plants, Truck Trailers, Beverage Plants, Food Processing Plants, Industrial Installations, Railroad Cars, Warehouses, Canneries, Grain Elevators, Kennels, Ships' Holds

STORAGE AND DISPOSAL Attachment X

Do not contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE AND SPILL PROCEDURES: Store upright at room temperature. Avoid exposure to extreme temperatures. In case of spill or leakage, soak up with an absorbent material such as sand, sawdust, earth, fuller's earth, etc. Dispose of with chemical waste.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING:

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or if allowed by State and Local authorities, by burning. If burned, stay out of smoke.

Rigid, Non-refillable containers, small enough to shake (i.e., with capacities equal to or less than 5 gallons)

Non-refillable container. Do not reuse or refill this container. Offer for recycling, if available. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or if allowed by State and Local authorities, by burning. If burned, stay out of smoke.

SAMPLE LABEL

IMPORTANT: READ BEFORE USE

Read the entire Directions for Use, Conditions, Disclaimer of Warranties and Limitations of Liability before using this product. If terms are not acceptable, return the unopened product container at once. By using this product, user or buyer accepts the following Conditions, Disclaimer of Warranties and Limitations of Liability.

CONDITIONS: The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Clarke Mosquito Control Products, Inc. All such risks shall be assumed by the user or buyer.

DISCLAIMER OF WARRANTIES: TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, CLARKE MOSQUITO CONTROL PRODUCTS, INC. MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, THAT EXTEND BEYOND THE STATEMENTS MADE ON THIS LABEL. No agent of Clarke Mosquito Control Products, Inc. is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, CLARKE MOSQUITO CONTROL PRODUCTS, INC. DISCLAIMS ANY LIABILITY WHATSOEVER FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

LIMITATIONS OF LIABILITY: TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, WHETHER IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, SHALL NOT EXCEED THE PURCHASE PRICE PAID, OR AT CLARKE MOSQUITO CONTROL PRODUCTS, INC.'S ELECTION, THE REPLACEMENT OF PRODUCT.

FLIT® is a Registered Trademark of Clarke Mosquito Control Products, Inc.

In Case Of Medical Emergency, Call The International Poison Control Center 1-800-214-7753

In Case Of Transportation Emergency, Call Info-Trac 1-800-553-5053

For More Information Call: 1-800-323-5727

Application Sites	Pests Controlled	Use Directions	Diluent	Dilution Rate	Application Rate
LIVESTOCK SPRAY: Dairy & Beef Cattle, Sheep, Goats, Swine, Horses, and Poultry (For swine, do not ship animals for slaughter within 5 days of last treatment).	Horn Flies, House Flies, Mosquitoes, and Gnats	Apply to wet the hair thoroughly, with particular attention to topline, underline, flanks, withers, and other infested areas. Repeat treatment at intervals of 5 to 12 days for small insect populations or as needed when flies are emerging in large numbers.	Water	1 part concentrate in 100 parts water (1.3 fl ounces per gallon)	
	Stable Flies, Horse Flies, and Deer Flies	Apply a quart per adult animal to wet the hair thoroughly with particular attention to the legs, flanks, barrel, topline, and other body areas commonly attacked by these flies. Repeat daily as needed.	Water	1 part concentrate in 100 parts water (1.3 fl ounces per gallon)	
	Face Flies	Apply using spray which produces large wetting droplets. Apply to the face of the animal in the morning before release to pasture. Apply sufficiently to wet the face but not more than 1.5 ounces per animal. Repeat daily as needed.	Water	1 part concentrate in 100 parts water (1.3 fl ounces per gallon)	
	Sheep "ticks" or keds	Thoroughly wet all portions of the body by dipping or by spraying with sufficient pressure and with a nozzle adjustment to give penetration of the wool. Treat at a rate sufficient to wet the animal.	Water	1 part concentrate in 100 parts water (1.3 fl ounces per gallon)	
	Fleas on Livestock (To kill and to protect against reinfestation)	Wet the animal by dipping or spraying	Water	1 part concentrate in 20 parts water (6.5 fl ounces per gallon)	
AS A SPACE SPRAY LIVESTOCK PREMISES: Barns, Milking Parlors, Milk Rooms, Dairies, Poultry Houses, Swine and Livestock Housing. Bakeries, Beverage Plants, Canneries, Flour Mills, Food Processing Plants, Granaries, Industrial Installations, Kennels, Meat Packaging Plants, Railroad Cars, Ships' Holds, Truck Trailers, Warehouses	Fleas, Mosquitoes, and Gnats	Apply as a fog or fine mist, directing the spray toward the ceiling and upper corners until the area is filled with mist, using about 2 ounces per 1000 cubic feet of space. For best results, close doors and windows before spraying and keep them closed for ten to fifteen minutes. Vacate the treated area and ventilate before reoccupying. Repeat treatment daily as needed.	Water	1 part concentrate in 20 parts water (6.5 fl ounces per gallon)	2 ounces per 1000 cubic feet
	House Flies, Fruit Flies, Gnats, Mosquitoes, Skipper Flies, Wasps, Hornets, Bees, Black Flies, Small Flying Moths.	Apply with mechanical or compressed air equipment (non-thermal) adjusted to deliver a fine mist. Close doors and windows and shut off ventilating systems. When using an oil dilution for space spraying extinguish all flames and pilot lights when applying. For rapid control of Houseflies, Fruit Flies, Gnats, Mosquitoes, Skipper Flies, Wasps, Hornets, Bees, Black flies, Small Flying Moths, direct spray at an upward angle distributing uniformly through the entire area at a rate of 1 ounce per 1000 cubic feet of space. Keep area closed for at least 10 minutes. Vacate areas after treatment and ventilate and sweep up dead insects before reoccupying. For rapid kill of exposed or accessible stages of other insects named on this label, apply using conventional mechanical or compressed air equipment (non-thermal) following directions for space spraying.	Oil or Water	1 part concentrate in 20 parts oil or water (6.5 fl ounces per gallon)	1 ounce per 1000 cubic feet

SAMPLE LABEL

MANUFACTURED BY:
CLARKE MOSQUITO CONTROL PRODUCTS, INC.
159 N. GARDEN AVENUE
ROSELLE, ILLINOIS 60172 U.S.A.

EPA Reg. No.: 8329-67
EPA Est. No.:

Lot No.: Marked On Container
Net Contents: Marked on Container

Aqua Zenivex™ E20

For use only by federal, state, tribal or local government officials responsible for public health or vector control, or by persons certified in the appropriate category or otherwise authorized by the state or tribal lead pesticide regulatory agency to perform adult mosquito control applications, or by persons under their direct supervision.

- **FOR EFFECTIVE ADULT MOSQUITOES, NON-BITING MIDGE CONTROL AND BLACK FLY CONTROL**
- **FOR USE AS A ULV, THERMAL OR SPACE SPRAY BY AIR AND GROUND APPLICATION TO CONTROL ADULT MOSQUITOES**
- **APPROVED FOR USE OVER AGRICULTURAL CROPS (INCLUDING THOSE INTENDED FOR HUMAN CONSUMPTION), PASTURE AND RANGELAND**
- **CAN BE USED UNDILUTED OR DILUTED**
- **FORMULATION ALLOWS DILUTION WITH WATER RATHER THAN OIL**
- **QUICK PERMANENT KNOCKDOWN OF ADULT MOSQUITOES AND OTHER TARGET INSECTS**
- **CONTROLS NON-BITING MIDGES AND NUISANCE FLIES**
- **CONTROLS ADULT MOSQUITOES THAT MAY CARRY WEST NILE, EASTERN EQUINE ENCEPHALITIS, ST. LOUIS ENCEPHALITIS, AND CHIKUNGUNYA VIRUSES**

SPECIMEN LABEL

ACTIVE INGREDIENT:

Etofenprox (CAS #80844-07-1)	20%
OTHER INGREDIENTS:	80%
TOTAL	100%

Contains 1.48 lbs Etofenprox per gallon

EPA Reg. No. 89459-81 EPA Est. No. 2724-TX-1

KEEP OUT OF REACH OF CHILDREN

WARNING

See additional Precautionary Statements

PRECAUTIONARY STATEMENTS – HAZARDS TO HUMANS & DOMESTIC ANIMALS – WARNING

Causes substantial but temporary eye injury. Do not get in eyes. Avoid contact with skin or clothing. Applicators and other handlers must wear long-sleeved shirt, long pants, socks and shoes. Repeated exposure to etofenprox can cause skin irritation.

FIRST AID

If in eyes	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice. *(continued)*
If on skin	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact 1-800-248-7763 for emergency medical treatment information.

USER SAFETY REQUIREMENTS

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them. Wash thoroughly with soap and water after handling. Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

USER SAFETY RECOMMENDATIONS

Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

Users should remove clothing/PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to aquatic organisms, including fish and aquatic invertebrates. Runoff from treated areas or deposition into bodies of water may be hazardous to fish and other aquatic organisms. Do not apply over bodies of water (lakes, rivers, permanent streams, natural ponds, commercial fish ponds, swamps, marshes or estuaries), except when necessary to target areas where adult mosquitoes are present, and weather conditions will facilitate movement of applied material away from water in order to minimize incidental deposition into the water body. Do not contaminate bodies of water when disposing of equipment rinsate or washwaters.

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Time applications to provide the maximum possible interval between treatment and the next period of bee activity. Do not apply to blooming crops or weeds when bees are foraging the treatment area, except when applications are made to prevent or control a threat to public and/or animal health determined by a state, tribal, or local health or vector control agency on the basis of documented evidence of disease-causing agents in vector mosquitoes or the occurrence of mosquito-borne disease in animal or human populations, or if specifically approved by the state or tribe during a natural disaster recovery effort.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

READ AND FOLLOW ALL LABEL DIRECTIONS. Before making the first application of the season, it is advisable to consult with the state or tribal agency with primary responsibility for pesticide regulation to determine if other regulatory requirements exist.

PRODUCT INFORMATION

Aqua Zenivex™ E20 is an effective insecticide used at low doses to control adult mosquitoes, non-biting midges, biting and non-biting flies. Use Aqua Zenivex™ E20, either undiluted as Ultra-Low Volume (ULV) or diluted with water, for the control of pest species in or near residential, industrial, commercial, urban, recreational areas, woodlands, golf courses, and other areas where these pests are a problem. Aqua Zenivex™ E20 may be applied over agricultural areas prior to or following harvest for the control of adult mosquitoes within or adjacent to these areas. Apply Aqua Zenivex™ E20 aerially (both fixed and rotary aircraft) for low volume applications or through mist-blowers, backpack, and handheld sprayers for ground applications. Aqua Zenivex™ E20 will control non-biting midges, black flies and mosquitoes and can be used as part of a total integrated pest management program for controlling disease vectors. Apply Aqua Zenivex™ E20 at rates from 0.00175 to 0.00700 pounds of etofenprox per acre. Dilute this product with water. Apply when wind is ≥ 1 mph. Do not apply when wind speeds exceed 10 mph. A temperature inversion is preferable to keep the fog close to the ground and apply when labeled insects are most active.

Do not spray more than 0.18 lbs etofenprox per acre per site per year. Do not make more than 25 applications per site per year. More frequent treatments may be made to prevent or control a threat to public and/or animal health determined by a state, tribal, or local health or vector control agency on the basis of documented evidence of disease-causing agents in vector mosquitoes or the occurrence of mosquito-borne disease in animal or human populations, or if specifically approved by the state or tribe during a natural disaster recovery effort.

GROUND APPLICATION

Use a vehicle-mounted cold aerosol ULV sprayer to apply the product. Direct the spray equipment nozzle to provide even distribution of the product. For best results, apply perpendicular to the wind direction using a swath width of 300 ft. Spray equipment must be adjusted so that the volume median diameter (VMD) is between 7-30 microns (10μ ≤ $Dv_{0.5}$ ≤ 30μ) and that 90% of the spray is contained in droplets smaller than 50 microns ($Dv_{0.9}$ < 50μ). Directions from the equipment manufacturer or vendor, pesticide registrant, or test facility using a laser-based measurement instrument must be used to adjust equipment to produce acceptable droplet size spectra. Application equipment must be tested at least annually to confirm that nozzle flow rate(s) are properly calibrated.

The appropriate application rate can be achieved by altering the dilution rate of Aqua Zenivex™ E20. Refer to the following chart for examples.

Application rate pound AI per acre	Vehicle Speed MPH	Flow rates			
		Undiluted	Diluted 1 to 1	Diluted 1 to 2	Diluted 1 to 4.5
		Oz/minute	Oz/minute	Oz/minute	Oz/minute
0.00175	10	0.9	1.8	2.7	5.0
	15	1.4	2.7	4.1	7.6
	20	1.8	3.6	5.5	10.1
0.00350	10	1.8	3.6	5.5	10.1
	15	2.7	5.4	8.3	15.1
	20	3.6	7.2	11.0	20.2
0.00700	10	3.6	7.2	11.0	20.2
	15	5.4	10.8	16.5	30.3
	20	7.2	14.4	22.0	40.4

Use the higher label rates when spraying areas where dense vegetation is present. Conduct applications when temperatures are between 50-95° F.

Backpack Sprayer ULV Application: Apply Aqua Zenivex™ E20 diluted or undiluted through non-thermal ULV backpack sprayer capable of applying the product in the 7 to 30 micron range. Apply product to the area as evenly as possible. Apply at the rate of 0.00175 to 0.00700 pounds etofenprox per acre.

Urban ULV Mosquito Control Applications: For control of

resting or flying adult mosquitoes, biting flies and non-biting midges in areas such as utility tunnels, sewers, storm drains and catch basins, pipe chases, underground basements, underground passages, parking decks, crawl spaces or uninhabited buildings, apply Aqua Zenivex™ E20 using mechanical foggers, handheld or truck-mounted ULV equipment, thermal foggers or other spray equipment suitable for this application. Apply Aqua Zenivex™ E20 at rates up to but not exceeding 0.00700 pounds of etofenprox per acre.

Thermal Fogging Application: Apply using a truck, dolly mounted, handheld, or other thermal fogging equipment. Following the equipment manufacturer's instructions, apply this product at a rate of 0.00175 to 0.00700 pounds etofenprox per acre. Direct fog to areas where mosquitoes and other pests are located. The volume median diameter (VMD) of droplets produced by thermal foggers is less than 60 microns ($Dv_{0.5}$ < 60µ) and 90% of the spray is contained in droplets smaller than 100 microns ($Dv_{0.9}$ < 100µ).

AERIAL APPLICATION

Apply Aqua Zenivex™ E20 aerially, either diluted or undiluted, by fixed wing or rotary aircraft. Apply at the rate of 0.00175 to 0.00700 pounds of etofenprox per acre. Apply using ULV equipped and capable aircraft. Spray equipment must be adjusted so that the volume median diameter (VMD) produced is less than 60 microns ($Dv_{0.5}$ < 60µ) and that 90% of the spray is contained in droplets smaller than 100 microns ($Dv_{0.9}$ < 100µ). Directions from the equipment manufacturer or vendor, pesticide registrant, or test facility using a wind tunnel and laser-based measurement instrument must be used to adjust equipment to produce acceptable droplet size spectra. Application equipment must be calibrated annually to confirm that nozzle flow rate(s) are accurate. Do not apply Aqua Zenivex™ E20 at altitudes below 100 feet. Apply at altitudes from 100–300 feet. Apply when wind speed on the ground is ≥ 1 mph. Apply when labeled insects are most active. For best results, use Global Positioning System (GPS) equipped aircraft.

Applications over crops or to areas favoring drift over crops

Aqua Zenivex™ E20 may be applied over crops (including row, tree, fruit, citrus, pasture and other areas where agricultural enterprises take place) or to areas where drift over cropland could occur. Aqua Zenivex™ E20 can be applied to these areas by either ground or aerial application. Use label rates and follow Directions For Use as directed in this label. Applications over crops or where drift may occur over crops are limited to 4 applications per month to the same site but no more than two applications within a seven day interval. Do not apply more than 0.028 pounds of active ingredient per month to the same site within a month. Do not spray more than 0.18 lbs etofenprox per acre per site per year. Do not make more than 25 applications per site per year.

IN FLORIDA: Aerial applications of this product require trained personnel to perform industry accepted assays to monitor resistance formation in targeted mosquitoes.

PESTICIDE STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Storage and Spill Procedures: Store upright at room temperature, but do not store at temperatures below 50° F. Avoid exposure to extreme temperatures. In case of spill or leakage, soak up with an absorbent material such as sand, sawdust, earth, fuller's earth, etc. Dispose of with chemical waste.

Pesticide Disposal: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Container Disposal: Refillable 275 Gallon Totes: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. If not refilled, offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration. To clean the container before final disposal, triple rinse (or equivalent) promptly after emptying. Triple rinse as follows. Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

In case of an emergency or for product use information, call 1-800-248-7763.

To the extent consistent with applicable law, seller makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Buyer assumes all risks of use and handling of this material when such use and handling are contrary to label instructions.

Manufactured for:

Central Garden & Pet Company
1501 East Woodfield Road 200W
Schaumburg, Illinois 60173

ZOËCON®

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May 2016
Schaumburg, IL

Chikungunya Virus: What you need to know



Chikungunya (pronunciation: \chik-en-gun-ye) is:

- A virus spread through *Aedes* species mosquito bites. *Aedes* mosquitoes also spread dengue and Zika viruses.
- A risk to anyone traveling to a region of the world where chikungunya virus is found.



Global risk

Outbreaks have occurred in parts of Africa, Europe, Southeast Asia, and islands in the Indian and Pacific Oceans.

In 2013, chikungunya was found for the first time in the Americas and has spread to the Caribbean, South and Central America, and North America.

For information on where chikungunya virus is found, see: http://www.cdc.gov/chikungunya/geo/.

Traveling? For country-specific travel information and recommendations, visit www.cdc.gov/travel.

Signs and symptoms of chikungunya virus disease (chikungunya)



- Common symptoms include fever and severe joint pain. Other symptoms may include headache, muscle pain, joint swelling, or rash.
- Symptoms usually begin 3—7 days after being bitten by an infected mosquito.
- Most patients will feel better within a week. In some people, the joint pain may persist for months. Death is rare.
- People at risk for more severe disease include newborns infected around the time of birth, older adults (≥65 years), and people with medical conditions such as high blood pressure, diabetes, or heart disease.

CS258143B September 23, 2015

Attachment XII

Sick? Could it be chikungunya?



- See your healthcare provider.
- Your healthcare provider may order tests to look for chikungunya or similar diseases, like dengue or Zika.



Chikungunya is preventable, but not treatable

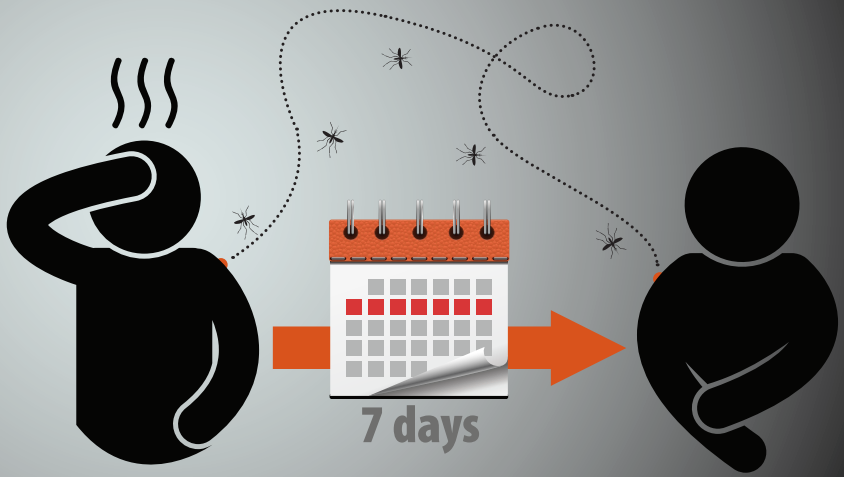
- No vaccine to prevent or medicine to treat infection is available.
- Mosquitoes that spread chikungunya bite aggressively during the day. Avoid infection by preventing mosquito bites.
  - » Use insect repellents. Repellents containing DEET, picaridin, IR3535, and some oil of lemon eucalyptus or para-menthane-diol products provide long-lasting protection.
  - » Use air conditioning or window/door screens.
  - » Wear long-sleeved shirts and long pants or permethrin-treated clothing.
  - » Once a week, empty and scrub, turn over, cover, or throw out items that hold water, such as tires, buckets, planters, toys, or trash containers. Check inside and outside your home.





If you are sick with chikungunya:

- During the first week of infection, chikungunya virus can be found in your blood. If a mosquito bites you, it can become infected and spread the virus to other people through bites.
- To help prevent others from getting sick, protect yourself from mosquito bites during the first week of illness.



www.cdc.gov/chikungunya

Attachment XIII

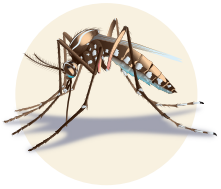
ZIKA BASICS AND HOW TO PROTECT YOURSELF

How Zika Spreads

Zika virus spreads to people primarily through the bite of an infected *Aedes* species mosquito (*Ae. aegypti and Ae. albopictus*). The mosquitoes that spread Zika can bite at day and night.

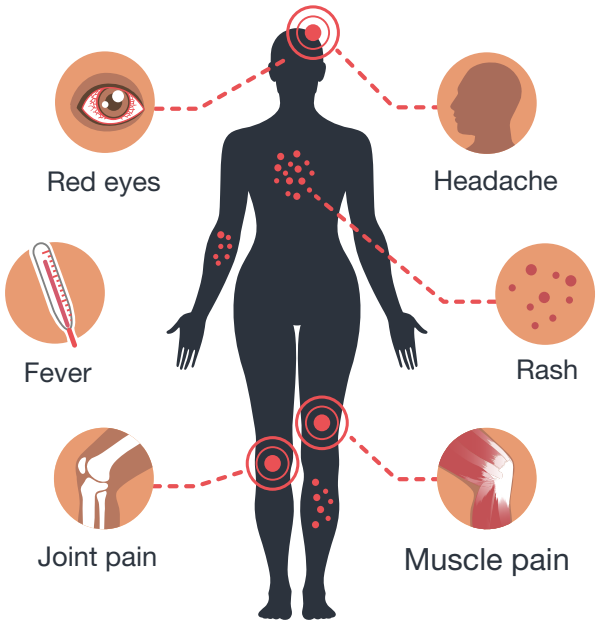
Zika virus can also spread

- During sex with a person who has Zika to his or her sex partners.
- From a pregnant woman to her fetus during pregnancy or around the time of birth.
- Through blood transfusion (likely but not confirmed).



Zika Symptoms

Many people infected with Zika won't have symptoms or will only have mild symptoms. The most common symptoms are fever, rash, headache, joint pain, red eyes, and muscle pain. Symptoms can last for several days to a week. People usually don't get sick enough to go to the hospital, and they very rarely die of Zika. Once a person has been infected with Zika, they are likely to be protected from future infections.





Visit our Areas with Risk of Zika webpage to find out where Zika is spreading.

www.cdc.gov/zika

CS289371-C August 21, 2018

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Why Zika is Risky for Some People

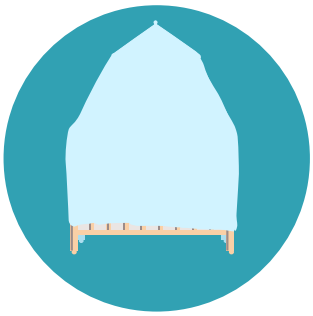
Zika infection during pregnancy can microcephal yand other birth defects. Microcephaly is a birth defect in which a baby's head is smaller than expected when compared to babies of the same sex and age. There have also been increased reports of Guillain-Barré syndrome, an uncommon sickness of the nervous system, in areas affected by Zika.



Microcephaly

How to Prevent Zika





There is no vaccine to prevent Zika. The best way to prevent diseases spread by mosquitoes is to protect yourself and your family from mosquito bites and from getting Zika through sex.. **Here's how:**

- Wear long-sleeved shirts and long pants.
- Stay in places with air conditioning and window and door screens to keep mosquitoes outside.
- Take steps to control mosquitoes inside and outside your home.
- Treat your clothing and gear with permethrin or buy pre-treated items.
- Use Environmental Protection Agency (EPA)-registered insect repellents. Always follow the product label instructions.
- When used as directed, these insect repellents are proven safe and effective even for pregnant and breastfeeding women.
    - Do not use insect repellents on babies younger than 2 months old.
        - Mosquito netting can be used to cover babies younger than 2 months old in carriers, strollers, or cribs to protect them from mosquito bites.
    - Do not use products containing oil of lemon eucalyptus or para-menthane-diol on children younger than 3 years old.
- Sleep under a mosquito bed net if air conditioned or screened rooms are not available or if sleeping outdoors.
- Prevent sexual transmission of Zika by using condoms or not having sex.

What to Do if You Have Zika

There is no specific medicine to treat Zika. Treat the symptoms:

- Get plenty of rest.
- Drink fluids to prevent dehydration.
- Take medicine such as acetaminophen to reduce fever and pain.
- Do not take aspirin or other non-steroidal anti-inflammatory drugs.
- If you are taking medicine for another medical condition, talk to your healthcare provider before taking additional medication.

To help prevent others from getting sick, strictly follow steps to prevent mosquito bites during the first week of illness.



www.cdc.gov/zika

ZIKA: What you need to know.

Attachment XIV

WHAT WE KNOW ABOUT ZIKA



(Aedes albopictus, or Asian tiger mosquito, is common in Northern Virginia.)

- **Zika is a viral disease spread to people mostly through the bite of an infected mosquito.** It is transmitted primarily by the yellow fever mosquito (*Aedes aegypti*). The Asian tiger mosquito (*Aedes albopictus*), which is common in Northern Virginia, can also spread the virus. These are both aggressive, daytime-biting mosquitoes.
- **There is a risk of Zika being imported into Virginia and being transmitted by local mosquitoes.**
- Zika can be passed through sex from a person who has Zika to his or her partners even if the infected person does not have symptoms.
- Zika may be transmitted through blood transfusions.
- Zika can pass from a pregnant woman to her fetus.
- **Infection with Zika during pregnancy can cause birth defects in babies, including microcephaly** (a condition in which a baby's head is smaller than expected).
- **Pregnant women should not travel to areas with active Zika transmission.**
- **There is no vaccine or medicine for Zika.**
- Based on information about similar infections, once a person has been infected with Zika, he or she is likely to be protected from future Zika virus infections.
- Local mosquito-borne Zika virus transmission has been reported in the continental United States.

SYMPTOMS OF ZIKA

Most people with Zika won't even know they have it. The illness is usually mild with symptoms lasting for several days to a week.

The most common symptoms of Zika are fever, rash, joint pain and conjunctivitis (red eyes). Other symptoms include muscle pain and headache. If you suspect you may be infected with Zika, contact your medical practitioner, especially if pregnant. Even if you do not feel sick, take steps to prevent mosquito bites for three weeks by staying indoors or wearing protective clothing and insect repellent. This will help prevent mosquitoes from biting you and spreading the virus to others in the community.

DO YOUR PART FROM THE START:
Prevent & Protect Against Mosquito Bites!

Control Mosquitoes in Your Yard

- *Aedes* mosquitoes lay eggs in containers. **To prevent mosquitoes in your yard, eliminate standing water weekly.** Tip and toss water from containers like tires, buckets, flower pots, drain pipes, tarps, bird baths, toys, etc. Scrub the inside of containers, discard them or place indoors.



- If you cannot dump water from a container, **treat it with a larvicide** like *Bacillus thuringiensis var. israelensis* (follow label instructions).
- If mosquitoes are biting, **use insecticides in your yard** to control them. Treat areas where they rest, such as dense vegetation or ground cover (follow label instructions).

Prevent Mosquito Bites

- **Use EPA-registered insect repellents** containing DEET, picaridin, oil of lemon eucalyptus or IR3535 (follow label instructions).
- **Cover exposed skin.** Wear light-colored, long-sleeved shirts and long pants.
- **Treat clothing with permethrin.** Treated clothing remains protective after multiple washings. Never apply permethrin to skin (follow label instructions).
- **Keep window and door screens in good repair** to keep mosquitoes out.

RESOURCES

www.fairfaxcounty.gov/hd/westnile/zika-virus.htm
http://www.vdh.virginia.gov/zika/
https://www.cdc.gov/zika/

Fairfax County Health Department

A Fairfax County, Va., publication. Updated Feb. 2017. To request this information in an alternate format, please call the Health Department at 703-246-2411, TTY 711.

Homecare for Dengue Patients

How to Care for Your Sick Family Member

Your child or family member might have dengue. It is important for you to carefully watch them because dengue can rapidly become severe between the third and seventh day of illness when the fever is going away. Your doctor can order tests to determine if your sick family member has dengue.

Keep the name and telephone number of your doctor available, and call if you have questions.



With Fever

Bed rest

- Let your sick child or family member rest as much as possible.

Control high fever

- Do not give ibuprofen (Motrin, Advil), aspirin, or aspirin-containing drugs.
- Sponge the patient's skin with cool water if fever remains high.
- Give acetaminophen or paracetamol (Tylenol) every 6 hours if needed for high fever (maximum 4 doses per day).

Prevent dehydration

Give plenty of fluids, and watch for signs of dehydration, which occurs when a person loses too much body fluid from fever, vomiting, or if he or she does not drink enough fluids. Bring your child or sick family member to a clinic or emergency room if any of the following signs appear:

- Decrease in urination (check the number of wet diapers or trips to the bathroom)
- Few or no tears when a child cries
- Dry mouth, tongue, or lips
- Sunken eyes
- Listlessness, overly agitated, or confused
- Rapid heartbeat (more than 100 beats per minute)
- Cold or clammy fingers and toes
- Sunken soft spot (fontanel) in an infant's head

Prevent spread of dengue inside your house

Mosquitoes that bite the affected family member can go on to bite and infect others.

- Allow the sick child or family member to rest and sleep under a bed net or use insect repellant while feverish.
- Kill all mosquitoes in the house and empty containers that carry water on patios.
- Place screens on windows and doors to prevent mosquitoes from entering the house.

As Fever Goes Away

Watch for warning signs

Although the fever is going away, this phase of dengue can be dangerous for some patients.

- Watch for warning signs as temperature declines, 3-7 days after symptoms began.

Return IMMEDIATELY to the clinic or emergency department if any of the following warning signs appear:

- Severe abdominal pain or persistent vomiting
- Red spots or patches on the skin
- Bleeding from nose or gums
- Vomiting blood or blood in stools
- Drowsiness or irritability
- Pale, cold, or clammy skin
- Difficulty breathing



Cover sleeping areas to keep away mosquitos.

National Center for Emerging and Zoonotic Infectious Diseases
Division of Vector-Borne Diseases

CS238777

Understanding Tick Bites and Lyme Disease

How to prevent tick bites



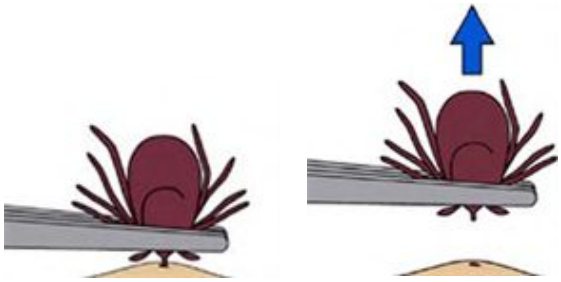
Ticks can spread disease, including Lyme disease.

Protect yourself:

- Use Environmental Protection Agency (EPA)-registered insect repellents containing DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undecanone. Always follow product instructions.
- Wear clothing treated with permethrin.
- Shower as soon as possible after spending time outdoors.
- Check for ticks daily. Ticks can hide under the armpits, behind the knees, in the hair, and in the groin.
- Tumble clothes in a dryer on high heat for 10 minutes to kill ticks on dry clothing after you come indoors. If the clothes are damp, additional time may be needed.

How to remove a tick

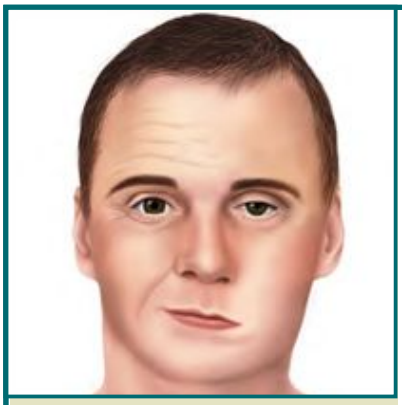
1. Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible.
2. Pull upward with steady, even pressure to remove the tick. Avoid twisting or jerking.
3. Clean the bite area and your hands with rubbing alcohol or soap and water.



Notes:

- Remove the tick as soon as possible to reduce your chances of getting an infection from the tick bite.
- Don't use nail polish, petroleum jelly, or a hot match to make the tick detach.
- If tick mouthparts remain in the skin, leave them alone. In most cases, they will fall out in a few days.

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention



Facial paralysis.



Bull's eye rash on the back.



Arthritic knee.

When to see your healthcare provider

If you develop a rash, fever, exhaustion, or joint and muscle aches within several weeks of removing a tick or spending time in tick habitat, see your healthcare provider. Be sure to mention your recent tick bite and when it happened, or that you've spent time in places where ticks may live.

If left untreated, Lyme disease can affect the joints, heart, or nervous system.

Antibiotics treat Lyme disease

People treated with antibiotics in the early stages of Lyme disease usually recover rapidly and completely. The antibiotics most commonly used to treat Lyme disease include: doxycycline, amoxicillin, or cefuroxime axetil.

Looking ahead to recovery

Rest and take antibiotics as prescribed. Recovery may take several weeks or longer.

Some people wonder if there is a test to confirm that they are cured, but there is no such test. Retesting for Lyme disease is not recommended because blood tests might be positive for months or years after you have been treated. A positive test doesn't mean you are still infected. It simply means that your immune system remembers your infection.

You can get Lyme disease again if you are bitten by another infected tick, so protect yourself from tick bites.



For more information see www.cdc.gov/Lyme and www.cdc.gov/Ticks

Board Agenda Item
March 10, 2020

ACTION - 6

Approval of the Calendar Year 2020 Forest Pest Management Program

ISSUE:
Board approval of the Calendar Year 2020 Forest Pest Management Program.

RECOMMENDATION:
The County Executive recommends that the Board of Supervisors direct staff to take the following actions concerning Fairfax County's Calendar Year 2020 Forest Pest Management Program:

Gypsy Moth

a. Continue a monitoring program for life stages of the gypsy moth in all areas of the County.

b. Continue to conduct an outreach program targeting the tree care industry and residents of the County in monitoring of gypsy moth populations.

Fall Cankerworm

a. Continue a monitoring program for all life stages of the fall cankerworm in the County.

b. Continue fall cankerworm spring defoliation surveys.

c. Continue to conduct an outreach program to the public on the potential impacts of this pest.

Emerald Ash Borer (EAB)

a. Continue to inventory the County for ash resources as well as investigate new control methods for EAB, including the use of biological control.

b. Continue a control program for this pest on high value ash trees on Fairfax County owned properties. Staff plans to use the trunk injected pesticide Mectinite® (Attachment I) and basal bark trunk spray Safari 20 SG® (Attachment II).

c. Monitor ash trees that were treated as part of the previous year's program to determine the effectiveness of the control.

d. Monitor areas where EAB parasitoids were previously released to determine if parasitoids can be recovered. Investigate additional areas that are suitable for parasitoid release.

e. Continue to implement an extensive outreach program targeting the tree care industry and residents of the County on EAB control methods and removal of dead ash trees.

f. Coordinate the remediation of damage caused by EAB, including the removal of dead ash trees from County property.

Thousand Canker Disease of Walnut

a. Continue to explore the potential impact of this disease that is threatening black walnut (*Juglans nigra*).

b. Continue to provide outreach opportunities for residents on methods for protecting black walnut trees on their property.

c. Investigate new control methods for the walnut twig beetle, including the use of biological control.

Sudden Oak Death Disease (SOD)

a. Continue to conduct a monitoring program in order to determine if SOD is present in the County.

b. Continue to update a management plan in the event SOD is discovered in the County.

Hemlock Woolly Adelgid (HWA)

a. Continue a control program in naturally occurring stands of eastern hemlock on County and Northern Virginia Regional Park Authority property. Staff has selected sites in the Dranesville and Springfield districts and may provide control at each site. Staff plans to use the soil or trunk injected pesticides IMA-jet® (Attachment III), Safari 20 SG® (Attachment II), and CoreTect® (Attachment IV).

b. Continue to evaluate hemlock trees that have been treated to determine treatment efficacy and tree health.

c. Establish partnerships with other local and regional authorities to provide treatment for HWA.

d. Investigate new control methods for HWA, including the use of biological control.

Asian Longhorned Beetle (ALB)

a. Continue to update the long-term management plan for ALB.

b. Continue to conduct an outreach program in order to educate the public and private industry on the potential impacts of this pest.

c. Continue to monitor in areas that have been identified as being at high risk for ALB introduction.

Spotted Lanternfly (SLF)

a. Continue to monitor scientific research for SLF to determine its impact on trees in the County should it arrive.

b. Continue to survey all life stages in all areas of the County.

c. Initiate a County inventory of tree of heaven (*Ailanthus altissima*). Trees found on County property may be treated with an herbicidal treatment of Arsenal (Attachment V), Garlon 3A (Attachment VI) or Garlon 4 (Attachment VII), Milestone (Attachment VIII), and Rodeo (Attachment IX).

d. Initiate a control program with Merit 2F (Attachment X) and Safari 20 SG (Attachment II), systemic insecticides that deliver insecticides into host trees, or Botinigard (Attachment XI), a contact insecticide, in the event SLF is discovered in the County.

e. Develop a management plan in the event SLF is discovered in the County.

f. Continue to conduct an outreach program targeting the tree care industry and residents of the County in monitoring of SLF.

Beech Bark Disease (BBD)

a. Initiate a monitoring program for BBD in beech stands on County owned properties.

Beech Leaf Disease (BLD)

a. Petition the Commissioner of the Virginia Department of Agriculture and Consumer Services (VDACS) to add BLD to the list of insects and diseases that can be controlled by local service districts.

b. Initiate a monitoring program for BLD in beech stands on County owned properties.

Forest Health Initiative

a. Continue to evaluate forest health using data from the i-Tree™ survey conducted in 2017.

b. Continue to evaluate the soil microbiota and its effects on forest health.

TIMING:
Board action is requested on March 10, 2020. The timing of this item corresponds with the beginning of program monitoring activities.

BACKGROUND:
The Code of the County of Fairfax, Virginia requires the submission of the annual Integrated Pest Management Program proposal for Board of Supervisors' approval.

Gypsy Moth
Based on egg mass surveys conducted during the fall of 2019, staff has determined that gypsy moth populations have remained low. The Forest Pest Program found no infestations of gypsy moth that warrant treatment in calendar year 2020.

Gypsy moth populations, like all insect populations, are cyclical in nature. Periods of high pest levels are followed by periods of low pest levels. There are many factors which influence the timing and duration of pest outbreaks and declines. Staff believes that the recurrent low gypsy moth pest levels are the result of effective treatment programs in the past and a fungal disease, *Entomaphaga maimaiga*. Gypsy moth caterpillars are very susceptible to *E. maimaiga*, a moisture dependent fungal disease.

This disease is naturally occurring in the environment and can potentially have a dramatic effect on gypsy moth populations if there is sufficient rainfall during the spring when caterpillars are small. There have been outbreaks observed in parts of the eastern United States in 2019. Attachment XII portrays the cumulative gypsy moth defoliation in Virginia from 1984 to 2009. This map shows that the County's gypsy moth suppression program continues to meet its program goals by keeping gypsy moth populations below defoliation levels.

Fall Cankerworm
Fall cankerworm populations were monitored this winter in those areas of the County that have experienced outbreaks in the past. Results of monitoring indicate that fall cankerworm populations levels are low in the Mount Vernon, Lee, and Mason magisterial districts. **Staff has identified no areas that will require treatment in 2020**.

The method used for monitoring fall cankerworm is a United States Department of Agriculture, Forest Service recommended technique that involves trapping female moths as they emerge in the winter.

Over the last several years, staff has received input from civic groups regarding the strategies that are used to implement this control program. Staff continues to explore ways to refine and improve this program to address these concerns.

Parasite Study - Fall cankerworms have natural predators that can be influential in their population levels. One explanation for outbreak populations in these areas is a lack of predator controls like *Telenomus alsophilae*, an egg parasitoid. Staff have been monitoring *T. alsophilae* to determine its presence in the County.

Staff collect eggs from survey bands and from small branches of trees located near the bands. Cankerworm eggs are reared indoors and the number of viable eggs is counted to determine the level of parasitism.

The data acquired from this survey will increase understanding of overall cankerworm population dynamics in the County as well as locating areas of concern to be targeted in the ensuing year's fall cankerworm banding survey. The results of this study, in conjunction with sticky banding methods, will provide a larger picture of cankerworm population dynamics.

Defoliation Survey – In 2019, staff conducted an extensive defoliation survey to measure the damage caused by fall cankerworm. The purpose of this survey was to determine those areas of the County where fall cankerworm larvae have impacted the County's urban forest resources. By quantifying feeding damage as a percentage of

canopy defoliated, data acquired from this survey provides better understanding of overall cankerworm population dynamics in the County, as well as locating areas of concern to be targeted in the ensuing year's fall cankerworm banding survey.

The defoliation survey for fall cankerworm consisted of two phases. The first phase of the survey consisted of a gridded ground survey. The grid was established in the known area of fall cankerworm activity in the southeastern portion of the County. Defoliation was quantified at each grid point. Nearly 90 ground-based surveys were conducted. The second phase of the defoliation survey is an aerial survey, conducted if significant defoliation is evident during ground survey. The aerial survey can only identify large areas of defoliation, as well as target large wooded tracts, such as those found on Mason Neck and in Huntley Meadows, where a ground survey is impractical. The results of this survey indicated that there was no heavy defoliation from fall cankerworm in 2019.

Staff used band counts, 2019 defoliation surveys, and parasite surveys in determining whether control for fall cankerworm was warranted in the spring of 2020. Staff plan to continue these activities in 2020.

Emerald Ash Borer (EAB)
EAB was first identified in the County in 2003 at a school site in the Wolftrap area of the County. Due to the extremely destructive nature of this pest, the Virginia Department of Agriculture and Consumer Services (VDACS) and the United States Department of Agriculture (USDA) - Animal Plant Health Inspection Service (APHIS) ordered all ash trees within a one-half mile radius of the introduction site be removed and destroyed. Staff of the Forest Pest Program carried out this project during the spring of 2004 and set in place a monitoring program for EAB.

All interstate movement of infested ash wood and wood products from Virginia is now regulated, including firewood of all hardwood species, nursery stock, green lumber, waste, compost, and chips from ash trees. There is a federal contiguous EAB quarantine throughout parts of the Eastern and Midwestern United States. Movement of EAB regulated articles cannot exit the Federal quarantine boundaries without Federal permits. Violations of the federal quarantine governing interstate movement of regulated articles will be enforced by USDA-APHIS and are subject to federal penalties.

Without treatment, infested ash trees will likely die. Many ash trees have already succumbed with economic impacts to homeowners, parks, and private business. Researchers have developed control options for EAB and staff is implementing a control program on ash trees on public lands within the County. Staff have selected ash trees for control based on historic or aesthetic value. Staff have coordinated with the agency that is responsible for the maintenance of the tree and have advised them of ongoing

control activity. To date, there are roughly 185 ash trees in this control program. Yearly assessments are made on treated trees to evaluate their health and crown conditions based on parameters set in the EAB Management Plan.

EAB control utilizes tree injection techniques that deliver the insecticide into the tree itself. Once injected, the insecticide is transported throughout the tree and will provide control for up to three years. The insecticide that will be used is a material that contains emamectin benzoate and is sold by the trade name Mectinite ® (Attachment I). Research indicates that the treatment used is effective and can provide control for up to three years. To date, staff have effectively conducted this control activity; however, staff proposes to investigate contracting with a tree care company if feasible to be cost effective. For areas with small trees, basal bark trunk sprays may be more appropriate for control. The preferred insecticide contains dinotefuran and is sold by the trade name Safari 20 SG® (Attachment II). The material is sprayed on a segment of the trunk and absorbed through the bark into the vascular tissues of the wood.

Research into EAB parasitoids have shown this strategy to be an effective control option by various universities and government agencies. Staff continues to investigate areas that qualify for the release of EAB parasitoids. Since 2017, EAB parasitoids have been released in Fairfax County Park Authority (FCPA) properties. Staff have found new areas in the County that qualify for parasitoid release in 2020. Parasitoids are produced and supplied from the USDA EAB Parasitoid Rearing Facility in Brighton, MI. Staff will continue to monitor these release sites to determine if parasitoids can be recovered as well as identifying additional areas that qualify for parasitoid release.

EAB has caused widespread damage to trees nationwide and in the County. Dead and dying trees infested with EAB pose a safety risk to people and property, requiring remediation. In July 2019, amendments in Appendix I of *The Code of the County of Fairfax, Virginia* enabled the use of service district funds for the remediation of damage caused by forest pests, including pruning or removal of trees directly killed or damaged by forest pests. In FY 2020, FCPA was allotted $250,000 in service district funds to remove hazardous infested ash trees in County parks. FCPA and Facilities Management Department will be using service district funds for the removal of hazardous infested ash trees in 2020.

Hemlock Woolly Adelgid (HWA)

Staff continues to explore various control options for HWA. HWA is an insect that attacks and kills eastern hemlock (*Tsuga canadensis*) trees (Attachment XIII). Native eastern hemlock is relatively rare in the County. The rarity of this species, the multiple benefits to wildlife, and the natural beauty that they impart make them worthy of protection. Staff will continue to inventory the County's natural stands of eastern

hemlock. For this year's program, staff has identified two native stands in Dranesville and Springfield districts for control.

Control for HWA can be done through trunk or soil injection. Soil injection is an effective method providing control to the target trees. Once injected, an insecticide is absorbed by the tree roots providing control for up to eight years. The insecticide that will be used for soil injection is a material that contains dinotefuran and is sold by the trade name Safari 20 SG® (Attachment II). Another viable soil injection treatment option is using a soil pellet that contains imidacloprid and is sold by the trade name CoreTect® (Attachment IV). Trunk injection is another effective method for providing control to target trees. Once injected, an insecticide is transported throughout the tree and will provide control for up to eight years. The insecticide that will be used for trunk injection is a material that contains imidacloprid and is sold by the trade name IMA-jet® (Attachment III). Treatment options are dependent on site location and condition. Staff has the ability to conduct this control activity, therefore treatment will be cost effective, as well as biologically effective. Staff continues to investigate other insecticide options that may provide better control for HWA while minimizing environmental impacts.

In addition to chemical control, staff has released parasites of HWA in hopes of providing limited control. This effort was conducted in cooperation with local universities. The viability of releasing additional parasites in the future is being investigated.

Thousand Cankers Disease (TCD) of Black Walnut
Black walnut (*Juglans nigra*) is a native tree to the County. Scientists have observed a disease called thousand cankers disease that affects black walnut trees in the western United States and have identified a beetle that spreads the disease. Scientists confirmed that the beetle and disease had been artificially introduced to the eastern United States (Attachment XIV).

TCD was found in the vicinity of Richmond, VA, in the summer of 2011 and in Fairfax and Prince William County in 2012. VDACS established a quarantine to curtail the movement of walnut material in hopes of slowing the spread of this disease. Staff will continue to implement an outreach component that will educate private and public groups on this disease and its control.

Sudden Oak Death (SOD)
In 1995, a disease was found to be killing oak trees in California. Scientists determined that SOD was caused by a fungus called *Phytophthora ramorum*. This disease has caused wide scale tree mortality in the western United States (Attachment XV). Fortunately, SOD has only been found in a number of isolated locations in the eastern United States and officials feel that these infestations have been contained.

Like other invasive insects and diseases, diligent monitoring is critical in slowing the spread of SOD. Recent testing methods have been developed that are simple and cost effective, and staff will continue to monitor for this disease following VDACS recommended monitoring techniques. Staff will continue to implement an outreach component that will educate private and public groups on this disease and its control.

Asian Longhorned Beetle (ALB)
ALB (*Anoplophora glabripennis*) is an invasive insect that is thought to have been brought to the United States via wood packing material used in shipping (Attachment XVI). Since the mid 1990's, ALB infestations in Chicago, New York City, New Jersey, Boston, and Ohio have been discovered. ALB will infest many hardwood species. According to recent analysis conducted by the Urban Forest Management Division, approximately 4.2 million trees in the County are susceptible to this pest. ALB larvae infest and kill trees by boring into the heartwood of the tree and disrupting its nutrient flow causing eventual tree death.

ALB infestations are difficult to detect. Most ALB infestations in the United States have been established for a number of years before detection. Eradication can be particularly difficult since they have had time to spread well beyond the initial site of introduction. ALB has the potential to have drastic economic and social impacts should it be introduced in the County. It is critical that private and public tree care experts remain vigilant in monitoring for this pest. According to the USDA, Forest Service, most of the infestations found in the United States have been identified by tree care professionals and informed homeowners.

Spotted Lanternfly (SLF)
Spotted lanternfly (*Lycorma delicatula*) is an insect that is native to Asia and was found in suburban Philadelphia, PA in 2014 (Attachment XVII). Since January of 2018, this insect has been found in Frederick and Clarke County, Virginia. Due to the destructive nature of this pest, the Virginia Department of Agriculture and Consumer Services and the United States Department of Agriculture - Animal Plant Health Inspection Service have begun eradication efforts in areas with known infestation.

While SLF is not known to be in the County, it has potential to cause a significant financial impact should it become established here. This insect feeds on a broad range of host trees and has a strong preference for tree of heaven (*Ailanthus altissima*). Tree of heaven is an invasive tree species and native to Asia. Staff proposes a monitoring program throughout the County in 2020 including at-risk areas. Areas that are considered at-risk are light industrial sites, transportation corridors, as well as orchards and vineyards. Monitoring will consist of trapping for all life stages of SLF and inventorying tree of heaven in the County. The removal of tree of heaven could minimize the negative impact of this pest once it arrives. Removal of tree of heaven

would include an herbicidal treatment of Arsenal (Attachment V), Garlon 3A (Attachment VI) or Garlon 4 (Attachment VII), Milestone (Attachment VIII), and Rodeo (Attachment IX). Herbicides are essential for successful removal since cutting alone would promote it to resprout vigorously. Staff will monitor areas that received herbicide treatment for the effectiveness. If SLF were to be found in the County, treatments for the pest are necessary for minimizing the negative impact. A variety of effective options are available including a systemic insecticide, Merit 2F (Attachment X) and Safari 20 SG (Attachment II), that will deliver the insecticide into host trees, or contact insecticides, Botinigard (Attachment XI).

Beech Bark Disease (BBD)
BBD affects American beech trees (*Fagus grandifolia*) through the effects of an insect and a fungal pathogen. The insect, a small, white, fuzzy scale known as *Cryptococcus fagisuga,* feeds on the bark. The multitude of wounds made by the feeding insects create entry points for *Neonectria faginiata*, a lethal fungus. The fungus creates lesions under the bark, disrupting vasculature, and killing the tree within a few years. BBD is present in portions of western Virginia, but it has not been found in the County (Attachment XVIII). Staff proposes a limited monitoring program in at-risk areas of the County in 2020.

Beech Leaf Disease (BLD)
BLD is a recently discovered disease of American beech trees. This disease is known to occur in Ohio, Pennsylvania, and New York. While the causal agent has yet to be officially identified, diagnostic efforts have revealed an association with a foliar nematode (*Litylenchus crenatae*) and fungal pathogens. Staff proposes adding BLD to the list of pests that may be controlled by service district so that monitoring and outreach may be conducted. With Board approval, staff will petition the Commissioner of VDACS to add BLD to the list of pests that can be controlled by service districts.

Forest Health Initiative
The Forest Pest Management Branch conducted a countywide survey of the urban forest called i-Tree Eco™ in 2017. The study involved evaluating forest conditions in 204 randomly selected sites throughout the County. The i-Tree data and protocol will help influence the Forest Pest Management Branch to broaden its scope to include monitoring overall forest health. Staff plans to revisit these sites in the future to help County agencies understand how condition of the trees and forests change over time.

Staff analyzed the 2017 data and will continue to use it to communicate ecosystem services such as stormwater runoff reduction, energy savings, carbon sequestration, and pollution removal among others (Attachment XIX). Ongoing analyses include mapping at-risk forest resources which may be susceptible to invasive insects and diseases, both existing and future threats.

In 2019, the University of Maryland was contracted for an evaluation of soil microbiota (bacteria and mycorrhizae) and its effects on forest health. For the evaluation, soil and root samples were collected from the same sites where i-Tree Eco™ data were collected. Evaluating soil microbiota can help in developing an overall metric for soil condition as it relates to overall ecosystem health, including its influence on restoration in degraded urban sites. Other County agencies, including Stormwater Planning and the FCPA, would have applications for the results of this project. This is a collaborative partnership between the Stormwater Planning Division, Urban Forest Management Division, and the Northern Virginia Soil and Water Conservation District. A report of this evaluation will be ready in 2020.

FISCAL IMPACT:
Currently, the Forest Pest Program is funded through the Special Service District for the Control of Infestations that May Carry a Disease that is Dangerous to Humans, Gypsy Moth, Fall Cankerworm, and Certain Identified Pests. The total amount budgeted for FY 2020 is sufficient for this program.

ENCLOSED DOCUMENTS:
Attachment I- Mectinite Label
Attachment II- Safari 20 SG Label
Attachment III- IMA-jet Label
Attachment IV- CoreTect Label
Attachment V- Arsenal Label
Attachment VI- Garlon 3A Label
Attachment VII- Garlon 4 Label
Attachment VIII- Milestone Label
Attachment IX- Rodeo Label
Attachment X- Merit 2F Label
Attachment XI- BotaniGard 22WP Label
Attachment XII- Gypsy Moth Cumulative Defoliation in Virginia (1984-2009)
Attachment XIII- United States Forest Service Pest Alert, Hemlock Woolly Adelgid
Attachment XIV- United States Forest Service Pest Alert, Thousand Cankers Disease
Attachment XV- United States Forest Service Pest Alert, Sudden Oak Death
Attachment XVI- United States Forest Service Pest Alert, Asian Longhorned Beetle
Attachment XVII- United States Forest Service Pest Alert, Spotted Lanternfly
Attachment XVIII- United States Forest Service Pest Alert, Beech Bark Disease
Attachment XIX- i-Tree Eco Fact Sheet

Board Agenda Item
March 10, 2020

STAFF:
Rachel O. Flynn, Deputy County Executive
Randolph W. Bartlett, Director, Department of Public Works and Environmental Services (DPWES)
Brian Keightley, Director, Urban Forest Management Division, DPWES

Attachment I

MECTINITE™

Injected insecticide for two year control of listed insect and mite pests in deciduous, coniferous, and palm trees

ACTIVE INGREDIENT:	
Emamectin Benzoate[1]	4.0%
Other Ingredients:	96.0%
Total:	**100.0%**

[1]CAS No. 155569-91-8. Contains 0.36 lb. emamectin per gallon.

EPA Reg No. 74779-17 **EPA Est. No.** 65387-AR-002

KEEP OUT OF REACH OF CHILDREN

CAUTION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

See complete Precautionary Statements and Directions For Use inside booklet.

NET CONTENTS: 1 Quart (946 mL)

Manufactured for:

Rainbow Treecare™
Scientific Advancements

Rainbow Treecare Scientific Advancements
11571 K-Tel Dr.
Minnetonka, MN 55343

1-877-272-6747
www.treecarescience.com
AD040418

FIRST AID

IF SWALLOWED:	• Call poison control center or doctor immediately for treatment advice. Have person sip glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.
IF ON SKIN:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
IF IN EYES:	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIAN:

Early signs of intoxication include dilation of pupils, muscular incoordination, and muscular tremors. Vomiting within one-half hour of exposure can minimize toxicity following accidental ingestion of the product; rapidly after exposure (<15 minutes) administer repeatedly medical charcoal in a large quantity of water or ipecac. If toxicity from exposure has progressed to cause severe vomiting, the extent of resultant fluid and electrolyte imbalance should be gauged. Appropriate supportive parenteral fluid replacement therapy should be given, along with other required supportive measures (such as maintenance of blood pressure levels and proper respiratory functionality) as indicated by clinical signs, symptoms, and measurements. In severe cases, observations should continue for at least several days until clinical condition is stable and normal. Since emamectin benzoate is believed to enhance GABA activity in animals, it is probably wise to avoid drugs that enhance GABA activity (barbiturates, benzodiazepines, valproic acid) in patients with potentially toxic emamectin benzoate exposure.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

HOT LINE NUMBER

For 24-Hour Medical Emergency Assistance (Human or Animal)
call **1-800-222-1222.**
For Chemical Emergency Assistance (Spill, Leak, Fire or Accident)
call **CHEMTREC at 1-800-424-9300.**

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves (Category C) such as barrier laminate; butyl rubber ≥14 mils; nitrile rubber ≥14 mils; or neoprene rubber ≥14 mils.
- Shoes and socks
- Protective eyewear

ENVIRONMENTAL HAZARDS:

This product is highly toxic to fish, mammals, and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater. This product is highly toxic to bees exposed to direct treatment or residues on blooming trees.

PHYSICAL OR CHEMICAL HAZARDS:

Do not use or store near heat or open flame. Do not mix or allow to come into contact with an oxidizing agent. Hazardous chemical reaction may occur.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of Rainbow Treecare Scientific Advancements (RAINBOW) or Seller.

To the extent permitted by applicable law, Buyer and User agree to hold RAINBOW and Seller harmless for any claims relating to such factors.

RAINBOW warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. To the extent permitted by applicable law: (1) this warranty does not extend to the use of the product contrary to label instructions or under conditions not reasonably foreseeable to or beyond the control of Seller or RAINBOW, and (2) Buyer and User assume the risk of any such use. TO THE EXTENT PERMITTED BY APPLICABLE LAW, RAINBOW MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.

To the extent permitted by applicable law, in no event shall RAINBOW be liable for any incidental, consequential or special damages resulting from the use or handling of this product.

TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF RAINBOW AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF RAINBOW OR SELLER, THE REPLACEMENT OF THE PRODUCT.

RAINBOW and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of RAINBOW.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

IMPORTANT: Read entire label before using this product. Failure to follow label instructions may result in poor control or tree injury. Failure to follow label directions may cause injury to people, animals, and environment.

PRODUCT INFORMATION

Mectinite is for control of mature and immature insect and mite pests of deciduous, coniferous, and palm trees including, but not limited to, those growing in residential and commercial landscapes, parks, plantations, seed orchards, and forested sites (in private, municipal, state, tribal and national areas). Mectinite contains the active ingredient emamectin benzoate and is formulated to translocate in the tree's vascular system when injected. This product must be placed into active sapwood and will actively control pests for up to two years.

Mectinite is designed for use with tree injection devices that meet the label and dose requirements for the control of listed pests of trees. Follow manufacturer's directions for equipment use.

Dosages are based on the Diameter (in inches) of the tree at Breast Height ("DBH"). DBH is the outside bark diameter of the trunk at 4.5 feet (1.37m) above the ground on the uphill side of the tree. For the purposes of determining breast height, the ground includes the duff layer that may be present, but does not include unincorporated woody debris that may rise above the ground line. The diameter is determined by measuring the circumference of the tree at DBH, and dividing circumference (in inches) by three (3). To determine DBH for multi-stemmed woody ornamentals, measure the DBH for each stem or branch and add together for the total DBH per tree.

Placement of Application/Injection Sites: Inject at the base of the tree. Inject into the stem within 12" of the soil, into the trunk flare or into tree roots exposing them by shallow excavation. Make applications into intact, healthy sapwood. Do not inject into injured areas or areas with decay.

Number of Injection Sites: Work around the tree, spacing injection sites approximately every 4 to 8 inches of tree's circumference or according to the manufacturer's recommendation for the application device.

Drill Depth: Drill through the bark then 5/8" to 1-5/8" (hardwoods) or 1-5/8" to 2" (conifers) into the sapwood with the appropriate sized drill bit. Use clean, sharp drill bits. Precautions should be taken to avoid diseased areas and transferring infected tissues to other injection sites.

Resinous Conifers: In resinous conifers, such as pine and spruce, start the injection immediately after drilling into the sapwood. A prolonged delay may reduce uptake on account of resin flow into opening.

WHEN TO TREAT

Mectinite contains the active ingredient emamectin benzoate which is a glycoside insecticide. It is active against immature and adult stages of arthropods. The primary route of toxicity is through ingestion.

ENVIRONMENTAL CONDITIONS: Uptake of Mectinite is dependent upon the tree's transpiration. Transpiration is dependent on a number of abiotic and biotic factors, such as soil moisture, soil and ambient temperature, and time of day. For uptake, apply when soil is moist, soil temperatures are above 45 ° F, ambient temperatures are between 40 ° F to 90 ° F, and during the 24 hour period when transpiration is greatest, typically before 2:00 p.m. Applications to drought or heat stressed trees may result in injury to tree tissue, poor treatment and subsequent control. Avoid treating trees that are moisture stressed or suffering from herbicide damage.

MONITOR TREE HEALTH and PEST INFESTATIONS: Effective injection treatment is favored by a full canopy (i.e., leaves) and healthy vascular system. Once these tissues are compromised by pest damage (larval galleries, defoliation, leaf mining, etc.) an effective and uniform application of Mectinite may be difficult to achieve and subsequent control may be poor. For optimum results, treat at least 2 to 3 weeks before pests historically infest the host tree. As a result of systemic movement and longevity of Mectinite in trees, this interval may be extended much earlier to 6 months should tree dormancy, adverse weather, management, asynchronous life cycle of pests, etc., allow earlier application timing.

Mectinite may also be effective as a remedial treatment against some pests, such as those with slower development or if multiple life stages are susceptible to Mectinite. Pests that attack the stem and branches such as clearwing borers may disrupt vascular tissue resulting in poor distribution in an infested tree. This includes the initial larval stages of pests, such as flat-headed borers and clearwing borers, that attack the stem and branches, which may disrupt vascular tissue resulting in poor distribution of the product in an infested tree. However, control may be achieved if larvae come into contact or feed on Mectinite treated tissues.

USE RATES

Use as formulated or dilute with equivalent 1 to 3 volumes of water or more, as necessary.

Tree Diameter (DBH) (Inches)	**Low** (mL product/ tree)	**Medium** (mL product/ tree)	**Medium - High** (mL product/ tree)	**High** (mL product/ tree)
4 to 6	15	25	50	-
7 to 9	20	40	80	-
10 to 12	30	55	110	165
13 to 15	35	70	140	210
16 to 18	42	85	170	225
19 to 21	50	100	200	300
22 to 24	-	115	230	345
25 to 27	-	130	260	390
28 to 30	-	145	290	435
31 to 33	-	160	320	480
34 to 36	-	175	350	525
37 to 39	-	190	380	570

(continued)

USE RATES (continued)

40 to 42	-	205	410	615
43 to 45	-	220	440	660
46 to 48	-	235	470	705
49 to 51	-	250	500	750
52 to 54	-	265	530	795
55 to 57	-	280	560	840
58 to 60	-	295	590	885
61 to 63	-	310	620	930
64 to 66	-	325	650	975
67 to 69	-	340	680	1020
70 to 72	-	355	710	1065

The use of low, medium, medium-high and high rates are based on the professional judgment of the applicator as to what constitutes a low, medium or high infestation. Higher rates tend to provide longer residual and control of more difficult to control insects. See **Target Pest** table for additional information in choosing the amount of product to apply.

ADDITIONAL DIRECTIONS FOR APPLICATION IN TREES			
Tree Tissue	**Target Pest**	**Application Rate Range[1]**	**Comments**
Seed and Cone	**Pine Coneworm** (*Dioryctria spp.*) **Cone Beetle[2]** (*Conopthora spp.*) **Pine Cone Seed Bug** (suppression of *Leptoglossus* and *Tetyra spp.* in the year of treatment)	Medium to High	For optimal control apply in the fall for early season pests or at least 30 days before insect attack.
Bud and Leaf	**Aphid[2]** **Bagworm** **Conifer Mites[2]** **Fall Webworm** **Japanese Beetle** **Gypsy Moth** **Honeylocust Plant Bug** **Leafminers** (such as Lepidoptera, Coleoptera, Hymenoptera) **Mimosa Webworm** **Oak Worm** **Pine Needle Scale** **Red Palm Mite** **Sawfly** (such as Elm, Pine) **Tent Caterpillars** (such as Eastern, Forest, Pacific, and Western) **Western Spruce Budworm** **Winter Moth**	Low to High	Apply at least 2-3 weeks before the pest has historically been present. Consult with local extension agent for when this will occur in your area.

[1]Use medium to high rates for remedial and longer residual control
[2]Not registered for use in California

(continued)

ADDITIONAL DIRECTIONS FOR APPLICATION IN TREES (continued)			
Shoot, Stem Trunk, and Branch	**Clearwing Borers** (such as Ash and Sequoia Pine Pitch Tube Moth) **Flatheaded Borers** (such as adult and larvae of Bronze Birch Borer[2], Emerald Ash Borer, and Two-lined Chestnut Borer[2])	Low to High	For optimal control apply at least 30 days before historical egg hatch or adult flight and to trees whose vascular tissue is not damaged. If vascular tissue is damaged or plugged by insect galleries, nematodes or fungi, uniform treatment and control may not be achieved.
	Ambrosia Beetles **Cynipid Gall Wasp[2]** **Roundheaded Borers** (excluding Asian longhorn beetles) **Pinewood Nematode**	Medium to High	

[1]Use medium to high rates for remedial and longer residual control
[2]Not registered for use in California

COMPATIBILITY

Do not mix Mectinite before injection with other products such as insecticides, fungicides, plant growth regulators, surfactants, adjuvants, and fertilizers whose labels indicate that it should not be mixed with Mectinite. If applicator has no prior experience with a particular tank mix, check physical compatibility by making a small clear jar test using correct proportions to be tank mixed. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

RESTRICTION

Do not apply to trees that may be harvested for food consumption by humans or used in animal feed.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.
Pesticide Storage: Store in a cool, dry place, away from children and pets. Keep from freezing.

Pesticide Disposal: Waste resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Non-refillable container. Do not reuse or refill this container. Offer for recycling if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, if allowed by state and local authorities. Stay out of smoke from burning container.

Rainbow Treecare™
Scientific Advancements

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GROUP	4A	INSECTICIDE

Safari®
20 SG INSECTICIDE



FOR FOLIAR AND SYSTEMIC INSECT CONTROL IN ORNAMENTAL PLANTS AND VEGETABLE TRANSPLANTS IN ENCLOSED STRUCTURES.

FOR GREENHOUSE, NURSERY, INTERIOR PLANTSCAPE AND OUTDOOR LANDSCAPE USE ONLY

Active Ingredient:	
Dinotefuran, [N-methyl-N′-nitro-N″-((tetrahydro-3-furanyl)methyl)guanidine]	20%
Other Ingredients	80%
Total:	100%

EPA Reg. No. 86203-11-59639
EPA Est. 67545-AZ-01

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE BELOW FOR ADDITIONAL PRECAUTIONARY STATEMENTS.

FIRST AID

If on skin or clothing: Take off contaminated clothing.
Rinse skin immediately with plenty of water for 15-20 minutes.
Call a poison control center or doctor for further treatment advice.

If swallowed: Call poison control center or doctor immediately for treatment advice.
Do not induce vomiting unless told to do so by the poison control center or doctor.
Have person sip a glass of water if able to swallow.
Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes.
Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
Call a poison control center or doctor for further treatment advice.

(continued)

FIRST AID (continued)

If inhaled: Move person to fresh air.
If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.
Call poison control center or doctor for further treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact **800-892-0099** for emergency medical treatment information.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed or absorbed through skin. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Causes moderate eye irritation. Remove and wash contaminated clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:
- Long-sleeved shirt and long pants
- Shoes plus socks

USER SAFETY REQUIREMENTS

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions exist for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

Users should:
- Wash hands with soap and water before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in water adjacent to treated areas. Do not dispose of equipment washwaters or rinsate into a natural drain or water body.

This product is toxic to honey bees. The persistence of residues and potential residual toxicity of dinotefuran in nectar and pollen suggests the possibility of

SPECIMEN

chronic toxic risk to honey bee larvae and the eventual instability of the hive.

- This product is toxic to bees exposed to residues for more than 38 hours following treatment.
- Do not apply this product to blooming, pollen-shedding or nectar-producing parts of plants if bees may forage on the plants during this time period, unless the application is made in response to a public health emergency declared by appropriate state or federal authorities.

Dinotefuran and its degradate, MNG, have the properties and characteristics associated with chemicals detected in groundwater. The high water solubility of dinotefuran, and its degradate, MNG, coupled with its very high mobility, and resistance to biodegradation indicates that this compound has a strong potential to leach to the subsurface under certain conditions as a result of label use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

PHYSICAL OR CHEMICAL HAZARDS

Do not use, pour, spill or store near heat or open flame.

SPRAY DRIFT ADVISORY

Do not apply under conditions involving possible drift to food, forage or other plantings that might be damaged or the crop thereof rendered for sale, use or consumption.

PROTECTION OF POLLINATORS

APPLICATION RESTRICTIONS EXIST FOR THIS PRODUCT BECAUSE OF RISK TO BEES AND OTHER INSECT POLLINATORS. FOLLOW APPLICATION RESTRICTIONS FOUND IN THE DIRECTIONS FOR USE TO PROTECT POLLINATORS.

Look for the bee hazard icon in the Directions for Use for each application site for specific use restrictions and instructions to protect bees and other insect pollinators.

This product can kill bees and other insect pollinators.

Bees and other insect pollinators will forage on plants when they flower, shed pollen or produce nectar.

Bees and other insect pollinators can be exposed to this pesticide from:

- Direct contact during foliar applications, or contact with residues on plant surfaces after foliar applications.
- Ingestion of residues in nectar and pollen when the pesticide is applied as a seed treatment, soil, tree injection, as well as foliar applications.

(continued)

PROTECTION OF POLLINATORS (continued)

When Using This Product Take Steps To:

- Minimize exposure of this product to bees and other insect pollinators when they are foraging on pollinator attractive plants around the application site.
- Minimize drift of this product onto beehives or to off-site pollinator attractive habitat. Drift of this product onto beehives or off-site to pollinator attractive habitat can result in bee kills.

Information on protecting bees and other insect pollinators may be found at the Pesticide Environmental Stewardship website at: http://pesticidestewardship.org/PollinatorProtection/Pages/default.aspx. Pesticide incidents (for example, bee kills) should immediately be reported to the State/Tribal lead agency. For contact information for your State, go to: www.aapco.org/officials.html. Pesticide incidents should also be reported to the National Pesticide Information Center at: www.npic.orst.edu or directly to EPA at: beekill@epa.gov.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS, AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS.

FOR COMMERCIALLY GROWN ORNAMENTALS NOT UNDER CONTRACT FOR POLLINATION SERVICES BUT ARE ATTRACTIVE TO POLLINATORS

- **Do not apply this product while bees are foraging.**
- **This product is toxic to bees exposed to residue for more than 38 hours following treatment.**
- **Do not apply this product to blooming, pollen-shedding or nectar-producing parts of plants if bees may forage on the plants during this time period, unless the application is made in response to a public health emergency declared by appropriate state or federal authorities.**

Do not apply Safari® 20 SG Insecticide while bees are foraging. Do not apply *Safari* 20 SG Insecticide to plants that are flowering. Only apply after all flower petals have fallen off.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS
Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, greenhouses and handlers of agricultural insecticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

EXCEPTION: If product is drenched or soil-injected, workers may enter the area at any time if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is:
- Coveralls
- Shoes plus socks
- Chemical-resistant gloves (made of waterproof material)

NON-AGRICULTURAL USE REQUIREMENTS
The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Do not allow others to enter treated areas until sprays have dried.

CONDITIONS OF SALE
Valent U.S.A. Corporation warrants that this product in its unopened package conforms to the chemical description on the label and is reasonably fit for the purposes set forth on the label when used according to directions under normal use conditions to the crops specified. To the extent consistent with applicable law, there are no other warranties, expressed or implied, concerning the use of this product other than indicated on the label. To the extent consistent with applicable law, this warranty does not extend to the handling or use of this product contrary to label instructions or under abnormal conditions or conditions not reasonably foreseeable to seller, and buyer assumes all risk of any such use.

APPLICATION INFORMATION
- Applications of *Safari* 20 SG Insecticide in residential areas may be made by commercially licensed applicators.

Application to Ornamental Plants:
- *Safari* 20 SG Insecticide can be applied as a foliar spray, a broadcast spray, a soil drench, soil injection and via chemigation for insect control in ornamental plants in greenhouses, nurseries, outdoor landscapes and interior plantscapes.
- *Safari* 20 SG Insecticide is a systemic product and will be taken up by the root system and translocated upward throughout the plant. When applied as a foliar spray, the product offers translaminar and locally systemic control of foliar pests.
- When applied to the soil, *Safari* 20 SG Insecticide will be translocated more quickly in herbaceous plants than in woody shrubs and trees. Speed of insect control will range from as little as one day for small herbaceous plants in containers, to several weeks in large trees growing in the landscape.
- Do not apply more than a total of 2.7 lbs of product (0.54 lb active ingredient) per acre per year for all application types.
- **Do not apply this product, by any application method, to linden, basswood or other *Tilia* species.**

Application to Vegetable Transplants:
- *Safari* 20 SG Insecticide can be applied as a foliar spray or a broadcast spray for insect control in vegetable transplants.
- Do not apply more than 1.34 lbs (0.268 lbs ai) per acre of nursery per year.

MIXING INSTRUCTIONS:
Safari 20 SG Insecticide Alone: Add half of the required amount of water to the mix tank. With the agitator running, add the desired amount of *Safari* 20 SG Insecticide to the tank. Continue agitation while adding the remainder of the water. Begin application of the solution after *Safari* 20 SG Insecticide has completely dispersed into the mix water. Maintain agitation until all of the mixture has been applied.

Safari 20 SG Insecticide + Tank Mixtures: Add half of the required amount of water to the mix tank. Start the agitator running before adding any tank mix partners. In general, add tank mix partners in this order: products packaged in water-soluble packaging, wettable powders, wettable granules (dry flowables), liquid flowables, liquids, emulsifiable concentrates, and surfactants/adjuvants. Always allow each tank mix partner to become fully dispersed before adding the next product. Provide sufficient agitation while adding the remainder of the water. Maintain agitation until all the mixture has been applied.

NOTE: When using *Safari* 20 SG Insecticide in tank mixtures, add all products in water-soluble packaging to the tank before any other tank mix partner, including *Safari* 20 SG Insecticide. Allow the water-soluble packaging to completely dissolve and the product(s) to completely disperse before adding any other tank mix partner to the tank.

If using *Safari* 20 SG Insecticide in a tank mixture, observe all directions for use, crop/sites, use rates, dilution ratios, precautions, and limitations which appear on the tank mix product label. Do not exceed

label dosage rate, and follow the most restrictive label precautions and limitations. Do not mix this product with any product that prohibits such mixing. Tank mixtures or other applications of products referenced on this label are permitted only in those states in which the referenced products are labeled.

Compatibility

IMPORTANT: The safety of all potential tank mixes has not been tested on all crops. Before applying any tank mixture not specifically listed on this label, confirm the safety to the target crop.

Safari 20 SG Insecticide is compatible with most commonly used pesticides, crop oils, adjuvants, and nutritional sprays. However, since it is not possible to test all possible mixtures, pre-test to assure the physical compatibility and lack of phytotoxic effect of any proposed mixtures with *Safari* 20 SG Insecticide. To determine the physical compatibility of *Safari* 20 SG Insecticide with other products, use a jar test, as described below:

Using a quart jar, add the proportionate amounts of the products to 1 quart of water. Add wettable powders and water dispersible granular products first, then liquid flowables, and emulsifiable concentrates last. After thoroughly mixing, let stand for at least 5 minutes. If the combination remains mixed or can be remixed readily, it is physically compatible. Once compatibility has been proven, use the same procedure for additional required ingredients to the spray tank.

RESISTANCE MANAGEMENT

Safari 20 SG Insecticide contains a Group 4A insecticide. Insect biotypes with acquired resistance to Group 4A may eventually dominate the insect population if Group 4A insecticides are used repeatedly in the same crop or in successive years as the primary method of control for a targeted species. This may result in partial or total loss of control of those species by *Safari* 20 SG Insecticide or other Group 4A insecticides.

To delay the development of insecticide resistance in greenhouse, nursery and interiorscape use sites, strongly consider the following guidelines:

- Do not apply *Safari* 20 SG Insecticide or other Group 4A insecticides to consecutive generations of the same insect pest species.
- Do not drench soil media with *Safari* 20 SG Insecticide or other Group 4A insecticides more than one time per crop cycle or three months, whichever is shorter.
- Do not make more than two foliar or broadcast sprays of *Safari* 20 SG Insecticide or other Group 4A insecticides to a single crop during a two-month period.
- Do not make more than one soil drench and one foliar or broadcast spray with *Safari* 20 SG Insecticide or other Group 4A insecticides during a two-month period.

(continued)

RESISTANCE MANAGEMENT (continued)

- Base insecticide use on a comprehensive IPM program.
- Monitor treated insect populations for loss of field efficacy.
- Contact your local extension specialist, certified crop advisors, and/or manufacturers for insecticide resistance management and/or IPM guidelines for the specific site and resistant pest problems.
- For further information or to report suspected resistance, you may contact Valent U.S.A. Corporation, at toll free number: 1-800-898-2536.

APPLICATION PROCEDURES AND SPRAY EQUIPMENT

Ground Application: Select spray nozzles that will provide accurate and uniform spray deposition. Use spray nozzles that provide medium-sized droplets and reduce drift. To help insure accuracy, calibrate sprayer before each use. For information on spray equipment and calibration, consult nozzle manufacturers and/or State Extension Service specialists.

Apply *Safari* 20 SG Insecticide using sufficient water volume to provide thorough and uniform coverage. In situations where a dense canopy exists and/or pest pressure is high, use greater water volumes. The use of a spray adjuvant may improve spray coverage. Do not apply under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur.

Applications to ornamental plants, and vegetable transplants: *Safari* 20 SG Insecticide can be applied using many different types of application equipment. Apply in sufficient water to ensure good coverage of ornamental plants. Tank mixing with a surfactant will produce better coverage when making applications to plants with hard to wet foliage such as holly or pine. If concentrate or mist type spray equipment is used, apply the same amount of product on the sprayed area as would be used in a dilute solution. To assure optimum effectiveness, the product must be placed where the growing portion of the target plant can absorb the active ingredient. Applications can be made to foliage or as a soil drench.

RESTRICTIONS

- With the exception of non-livestock animals, do not graze treated areas or use clippings from treated areas for feed or forage.
- Prevent runoff or puddling of irrigation water following application.
- Keep children and pets off treated areas until spray has dried.
- Do not apply to areas that are water logged or saturated, or frozen, which will not allow penetration into the root zone of the plant.

APPLICATION THROUGH IRRIGATION SYSTEMS (CHEMIGATION):

Safari 20 SG Insecticide may be applied by injection into an irrigation system, either alone or in combina-

tion with other pesticides or chemicals that are registered for application through irrigation systems. Dilution ratios are normally 1:100 to 1:200, depending on the system. Apply this product only through microirrigation (individual spaghetti tube), drip irrigation, overhead irrigation, or motorized calibrated irrigation equipment (Ornamentals). Do not apply through any other type of irrigation system. Lack of effectiveness can result from non-uniform distribution of treated water. If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers, or other experts. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make adjustments when necessary.

Using Water from Public Water Systems:
DO NOT APPLY *SAFARI* 20 SG INSECTICIDE THROUGH ANY IRRIGATION SYSTEM PHYSICALLY CONNECTED TO A PUBLIC WATER SYSTEM.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days per year. *Safari* 20 SG Insecticide may be applied through irrigation systems which may be supplied by a public water system only if the water from the public water system is discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and to top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. Before beginning chemigation, always make sure that the air gap exists and that there is no blockage of the overflow of the reservoir tank.

Any irrigation system using water supplied from a public water system must also meet the following requirements:

Operating Instructions for Irrigation Systems:
1. The system must be calibrated to uniformly apply the rates specified. If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers, or other experts.
2. The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
3. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
4. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
5. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
6. The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
7. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
8. Do not apply when wind speed favors drift beyond the area intended.

Calibration and Application Instructions:
Apply *Safari* 20 SG Insecticide under the schedule specified in the specific use instructions, not according to the irrigation schedule unless the events coincide. In general, set the equipment to apply the minimum amount of water per acre. Run the system at 86 - 90% of the manufacturer's maximum rated travel speed.

The following calibration and application techniques are provided for user reference, but do not constitute a warranty of fitness for application through sprinkler irrigation equipment. Check with State and local regulatory agencies for potential use restrictions before applying any agricultural chemical through sprinkler irrigation equipment.

MINIMIZING SPRAY DRIFT
As with all crop protection products, it is important to minimize off-target movement. Do not allow spray to drift onto adjacent land, crops, or aquatic areas. To minimize spray drift:
1. Make applications when wind velocity favors on-target product deposition (approximately 3 to 10 mph). Do not apply when wind velocity exceeds 10 mph. Do not apply when wind gusts approach 10 mph.
2. Risk of exposure to sensitive aquatic areas can be reduced by not applying when wind direction is toward the aquatic area.
3. Do not cultivate or plant crops within 25 feet of the aquatic area as to allow growth of a vegetative filter strip.
4. Do not make applications during temperature inversions. Inversions are characterized by stable air and increasing temperatures with increased height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.
5. Use the largest droplet size consistent with good pest control. Small droplets are more prone to spray drift and can be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible, and by not using excessive spray boom pressure.

6. Apply as close to target plants as practical to obtain a good spray pattern for adequate coverage. Do not apply more than 10 ft above the crop canopy.
7. For aerial applications, mount spray boom on the aircraft so as to minimize drift caused by wing tip vortices. Use minimum practical boom length and do not use boom that exceeds 75% of wing span or rotor diameter.

Air Assisted (Air Blast) Tree and Vine Sprayers (Ornamentals Only):
Air assisted tree and vine sprayers carry droplets into the canopy of trees and vines via a radially or laterally directed air stream. In addition to the general drift management principles already described, the following specific practices will further reduce the potential for drift:

1. Adjust deflectors and aiming devices so that spray is only directed into the canopy.
2. Block off upward pointed nozzles when there is no overhanging canopy.
3. Use only enough air volume to penetrate the canopy and provide good coverage. Use a minimum of 50 gallons finished spray per acre.
4. Do not allow spray to go beyond the edge of the cultivated area. Spray the outside row only from outside the planting.

VEGETABLE TRANSPLANTS (IN ENCLOSED STRUCTURES)
FOLIAR OR BROADCAST SPRAY APPLICATION
For foliar insect control on vegetable transplants grown in enclosed structures.

Crop	Pest	Product Rate (By Weight)	Remarks
Cucurbits (Transplants only) Cantaloupe Cucumber Melons Squash Fruiting Vegetables Eggplant Peppers Tomato Head and Stem Brassica Broccoli Brussels Sprouts Cabbage Cauliflower Kohlrabi	Aphids Leafminers Mealybugs Thrips (suppression) Whiteflies including: Silverleaf/ Sweetpotato (B and Q Biotypes)	3.5 - 7.0 oz per 100 gal 7 - 14 oz per Acre 0.16 - 0.32 oz per 1,000 sq ft (0.09 to 0.18 lbs ai per Acre)	Do not make more than one application per crop. Apply only to cucurbits and brassica being grown as transplants and before transplants are sold. 100 gals of spray mix will treat 20,000 sq ft of area when using a typical high volume sprayer. If using a low volume sprayer, adjust concentration to apply the same amount of product per unit area.
Leafy Vegetables (Transplants only) (Excluding *Brassica* spp.)	Aphids Leafminers Mealybugs Thrips (suppression) Whiteflies including: Silverleaf/ Sweetpotato (B and Q Biotypes)	3.5 - 5.5 oz per 100 gal 7 - 11 oz per Acre 0.16 - 0.25 oz per 1,000 sq ft (0.09 to 0.134 lbs ai per Acre)	Do not make more than one application per crop. Apply only to leafy vegetables being grown as transplants and before transplants are sold. 100 gals of spray mix will treat 20,000 sq ft of area when using a typical high volume sprayer. If using a low volume sprayer, adjust concentration to apply the same amount of product per unit area.

One (1) level teaspoon contains 2.4 grams and 1 cup (8 fl oz) contains 4.0 oz by weight of *Safari* 20 SG Insecticide.

Begin applications when first pest activity is noticed or when insects reach threshold levels per University/Extension recommendations. Time application before a damaging population becomes established.

Restriction:
Do not apply more than 1.34 lbs (0.268 lbs ai) per acre of nursery per year.

To delay the development of resistance: Do not apply *Safari* 20 SG Insecticide or other Group 4A insecticides to consecutive generations of the same insect species without switching to a different mode of action. Do not make more than two sprays of *Safari* 20 SG Insecticide or other Group 4A insecticides to a single crop. Refer to "Resistance Management" section of label for further guidelines.

ORNAMENTAL PLANTS – FOLIAR OR BROADCAST SPRAY APPLICATION – OUTDOOR



For foliar insect control on ornamental plants in nurseries and outdoor landscapes (commercial, industrial, recreational and residential).

Crop	Pest	Product Rate	Remarks
Ornamental plants including: Shrubs Bedding Plants Flowering Plants Foliage Plants Ground Covers Evergreens Ornamental Trees Non-Bearing Fruit Trees Non-Bearing Nut Trees Non-Bearing Vines	Adelgids including: Hemlock Woolly Aphids (suppression) Japanese Beetles (adults) Lacebugs including: Azalea, Hawthorne Leaf Beetles, Viburnum Leafhoppers including: Glassy-Winged Sharpshooter, Potato Leafminers including: Serpentine Mealybugs including: Citrus, Long-Tailed, Madeira, Obscure, Pink Hibiscus Psyllids including: Asian Citrus Root Weevils (adults) including: Black Vine, Diaprepes Scale (Armored and Soft) including: Cryptomeria, Cycad Aulacaspis, Elongate Hemlock, Euonymus, Florida Red, Florida Wax, Tea Thrips including: Chilli (suppression) Whiteflies including: Giant, Greenhouse, Silverleaf/ Sweetpotato (B and Q Biotypes)	**Foliar Spray** 1/4 to 1/2 lb per 100 gallons (4 to 8 oz per 100 gallons) (0.05 to 0.1 lbs ai per 100 gallons) 8 - 16 oz per Acre (0.1 to 0.2 lbs ai/A) 0.2 - 0.4 oz per 1,000 sq ft For treatment of small areas: 1/2 - 1.0 tsp per gallon	Make first application just before pest populations reach an economic threshold. If necessary, make a second application after 14 - 21 days. Tank mixing with a surfactant may improve control of pests such as whitefly, mealybug and scale. Confirm plant safety of tank mix in small area before using on a commercial scale. 100 gals of spray mix will treat 20,000 sq ft of area when using a typical high volume sprayer. If using a low volume sprayer, adjust concentration to apply the same amount of product per unit area.

One (1) level teaspoon contains 2.4 grams and 1 cup (8 fl oz) contains 4.0 oz by weight of *Safari* 20 SG Insecticide.

Make first application just before pest populations reach an economic threshold. If necessary, make a second application after 14-21 days.

Restrictions:
Not for use on house plants grown inside private residences.

Do not apply more than 2.7 lbs (0.54 lbs ai) per acre of nursery or landscape per year.

To delay the development of resistance: Do not apply *Safari* 20 SG Insecticide or other Group 4A insecticides to consecutive generations of the same insect species without switching to a different mode of action. Do not make more than two sprays of *Safari* 20 SG Insecticide or other Group 4A insecticides to a single crop. Refer to "Resistance Management" section of label for further guidelines.

ORNAMENTAL PLANTS – FOLIAR OR BROADCAST SPRAY APPLICATION – INDOOR

For foliar insect control on ornamental plants in greenhouses, interior plantscapes, lath and shadehouses.

Crop	Pest	Product Rate	Remarks
Ornamental plants including: Shrubs Bedding Plants Flowering Plants Foliage Plants Ground Covers Evergreens Ornamental Trees Non-Bearing Fruit Trees Non-Bearing Nut Trees Non-Bearing Vines	Adelgids including: Hemlock Woolly Aphids (suppression) Japanese Beetles (adults) Lacebugs including: Azalea, Hawthorne Leaf Beetles, Viburnum Leafhoppers including: Glassy-Winged Sharpshooter, Potato Leafminers including: Serpentine Mealybugs including: Citrus, Long-Tailed, Madeira, Obscure, Pink Hibiscus Psyllids including: Asian Citrus Root Weevils (adults) including: Black Vine, Diaprepes Scale (Armored and Soft) including: Cryptomeria, Cycad Aulacaspis, Elongate Hemlock, Euonymus, Florida Red, Florida Wax, Tea Thrips including: Chilli (suppression) Whiteflies including: Giant, Greenhouse, Silverleaf /Sweetpotato (B and Q Biotypes)	**Foliar Spray** 1/4 to 1/2 lb per 100 gallons (4 to 8 oz per 100 gallons) (0.05 to 0.1 lbs ai per 100 gallons) 8 - 16 oz per Acre (0.1 to 0.2 lbs ai/A) 0.2 - 0.4 oz per 1,000 sq ft For treatment of small areas: 1/2 - 1.0 tsp per gallon	Make first application just before pest populations reach an economic threshold. If necessary, make a second application after 14 - 21 days. Tank mixing with a surfactant may improve control of pests such as whitefly, mealybug and scale. Confirm plant safety of tank mix in small area before using on a commercial scale. 100 gals of spray mix will treat 20,000 sq ft of area when using a typical high volume sprayer. If using a low volume sprayer, adjust concentration to apply the same amount of product per unit area.

One (1) level teaspoon contains 2.4 grams and 1 cup (8 fl oz) contains 4.0 oz by weight of *Safari* 20 SG Insecticide.

Make first application just before pest populations reach an economic threshold. If necessary, make a second application after 14 - 21 days.

Restrictions:
Not for use on house plants grown inside private residences.

Do not apply more than 2.7 lbs (0.54 lbs ai) per acre of nursery or landscape per year.

To delay the development of resistance: Do not apply *Safari* 20 SG Insecticide or other Group 4A insecticides to consecutive generations of the same insect species without switching to a different mode of action. Do not make more than two sprays of *Safari* 20 SG Insecticide or other Group 4A insecticides to a single crop. Refer to "Resistance Management" section of label for further guidelines.

ORNAMENTAL PLANTS – PESTS CONTROLLED BY *SAFARI* 20 SG INSECTICIDE WHEN APPLIED TO THE SOIL

Adelgids including: Hemlock Woolly Aphids including: Crepe Myrtle Green Peach Melon Bagworms Flatheaded Borers including: Alder Emerald Ash Flatheaded Appletree Fungus Gnats (larvae) Lacebugs including: Azalea Hawthorne Leaf Beetles including: Viburnum Leafhoppers including: Glassy-Winged Sharpshooter Potato	Leafminers including: Boxwood Serpentine Mealybugs Citrus Longtailed Madeira Obscure Pink Hibiscus Root Psyllids including: Asian Citrus Root Weevils (larvae and adults) including: Black Vine Diaprepes Roundheaded Borers (excluding Asian Longhorned)	Scales (Armored and Soft) including: Azalea Bark Calico Cottony Cushion Cottony Maple Cryptomeria Cycad Aulacaspis Duplachionaspis Elongate Hemlock Euonymus False Oleander Fig (Ficus) Wax Fletcher Florida Red Florida Wax Lecanium Oystershell Poplar (Aspen) Pine Needle Tea Tuliptree	Thrips including: Chilli (suppression) Gynaikothrips uzeli (suppression) Western Flower (suppression) Whiteflies including: Ficus Giant Greenhouse Silverleaf/Sweetpotato (B and Q Biotypes) White Grubs including: Oriental Beetle

ORNAMENTAL PLANTS – APPLICATION TO SOIL: For systemic insect control on containerized and field grown (in-ground) ornamental plants in nurseries, greenhouses, interior plantscapes, lath and shadehouses, and outdoor landscapes (commercial, industrial, recreational and residential), when applied via soil drench, soil injection, micro-irrigation (spaghetti tube or emitter), drip irrigation, overhead irrigation, ebb and flood irrigation equipment or motorized irrigation equipment.

<table>
<tr><th>Crop</th><th colspan="2">Product Rate (By Weight)</th><th>Remarks</th></tr>
<tr><td rowspan="11">Ornamental plants including:
Shrubs
Bedding Plants
Flowering Plants
Foliage Plants
Ground Covers
Evergreens
Ornamental Trees
Non-Bearing Fruit Trees
Non-Bearing Nut Trees
Non-Bearing Vines</td><td colspan="2">Containerized Plants
Soil Media Drench
3/4 to 1-1/2 pounds per 100 gallons
12 to 24 ounces per 100 gallons
1.5 - 3.0 teaspoons per gallon</td><td rowspan="11">Only apply to moist soil media. Do not apply to dry or saturated media.
Do not apply media drench until roots from transplanted plugs or liners have extended at least half way to the edge of pots.
Do not leach treated soil media for at least 7 days after application or performance may be reduced.
Heavy rainfall or excessive irrigation following application may decrease performance.
Higher rates will be needed to control insects on woody plants than on herbaceous plants.
Poinsettia: For optimal control of whiteflies, treat plants 1 - 3 weeks after pinch. Late season drenches will take longer to provide effective control.</td></tr>
<tr><td colspan="2">Media Drench Volume for Individual Pots</td></tr>
<tr><td>Pot diameter (inches)</td><td>Fl oz of dilute solution per pot</td></tr>
<tr><td>4</td><td>2</td></tr>
<tr><td>5</td><td>3</td></tr>
<tr><td>6</td><td>4</td></tr>
<tr><td>7</td><td>5</td></tr>
<tr><td>8</td><td>6</td></tr>
<tr><td colspan="2">For larger pot volumes, apply 3 - 4 fl oz of dilute solution (0.11 to 0.22 g product per 4 fl oz water) per gallon of potting media. Use a drench volume that is sufficient to wet soil media without resulting in overflow or runoff through drain holes in pot.</td></tr>
<tr><td colspan="2">Containerized Plants
Media Drench Volume for Plants in Raised Beds, Benches, Bedding Flats, Plug and Liner Trays:
Apply sufficient dilute solution to wet soil media without loss of liquid from bottom of bed or liner.</td></tr>
</table>

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ORNAMENTAL PLANTS – APPLICATION TO SOIL (continued)

<table>
<tr><th>Crop</th><th colspan="2">Product Rate (By Weight)</th><th>Remarks</th></tr>
<tr><td rowspan="8">Ornamental plants including:
Shrubs
Bedding Plants
Flowering Plants
Foliage Plants
Ground Covers
Evergreens
Ornamental Trees
Non-Bearing Fruit Trees
Non-Bearing Nut Trees
Non-Bearing Vines</td><td colspan="2">Containerized Plants
Ebb and Flood Irrigation</td><td rowspan="3">Bring several pots to field capacity, let soil dry and then measure amount of water required to bring pots back to field capacity. Multiply the average volume of water required to rehydrate one pot by the number of pots to be treated. Add this volume of water to the minimum amount of water needed to flood the area to be treated. Re-use any returned volume in subsequent irrigation of same plants.

For pot diameter greater than 8”, use 3.7 - 7.5 ounces of Safari 20 SG Insecticide per 1,000 gallons of potting soil media.</td></tr>
<tr><td>Pot diameter (inches)</td><td>Ounces per 1,000 pots</td></tr>
<tr><td>4</td><td>1.9 - 3.7</td></tr>
<tr><td>5</td><td>2.8 - 5.6</td></tr>
<tr><td>6</td><td>3.7 - 7.5</td></tr>
<tr><td>7</td><td>4.7 - 9.3</td></tr>
<tr><td>8</td><td>5.6 - 11.2</td></tr>
<tr><td colspan="2">Chemigation of individual containers using a micro-irrigation system (spaghetti tube)</td><td rowspan="3">Use typical injection ratio for injectors (e.g. 1:100, which equals 1 part injector tank solution: 100 parts irrigation water). Do not mix more than 24 oz of Safari 20 SG Insecticide per gallon of injector tank water, or some product may settle out of solution. Calibrate irrigation system to deliver 3 - 4 fl oz of dilute solution per gallon of potting media.</td></tr>
<tr><td>Injection Ratio</td><td>Ounces per gallon of injector tank water</td></tr>
<tr><td>1:100</td><td>12 - 24</td></tr>
</table>

(continued)

ORNAMENTAL PLANTS – APPLICATION TO SOIL (continued)

Crop	Product Rate (By Weight)	Remarks
Ornamental plants including: Shrubs Bedding Plants Flowering Plants Foliage Plants Ground Covers Evergreens Ornamental Trees Non-Bearing Fruit Trees Non-Bearing Nut Trees Non-Bearing Vines	**Field Grown (In-Ground) Shrubs** 3 - 6 grams (1.25 - 2.5 level teaspoons) per foot of height 1.0 - 2.1 ounces per 10 feet of height	When applied to the soil, *Safari* 20 SG Insecticide is taken up by actively growing trees and shrubs. Speed of control will be dependent on plant size, plant health, environmental conditions and how actively pests are feeding. In actively growing plants, control may be evident within 1 - 3 weeks after application depending on plant size. Time applications to coincide with when most vulnerable pest life stage is present on plants. Control may be less effective when applied to dry, saturated, or frozen soil, or at times when plants are not actively taking up water from soil. If possible, irrigate dry soils 1 - 3 days before application, or apply irrigation within 3 days after application. Heavy rainfall or inadequate irrigation immediately following application may decrease performance. Use higher labeled rates for broadleaf evergreens with dense foliage (ex. hollies), and with very large trees. **Soil Drench:** Mix required dose in water and uniformly apply to soil around base of shrub or tree. Pull back mulch before drenching. Apply 1 - 4 pints of drench solution per foot of height (shrubs) or inch of trunk diameter (trees). Adjust drench volume based on soil type, soil moisture and thickness of mulch so that product is moved into root zone. To enhance soil penetration in heavy soils and sloping terrain, dig shallow holes around tree or shrub, and apply drench solution in holes. Lower drench volumes may be less effective in dry soils or when applied over heavy mulch unless there is adequate rainfall or irrigation after application to move product into root zone.

(continued)

ORNAMENTAL PLANTS – APPLICATION TO SOIL (continued)

Crop	Product Rate (By Weight)	Remarks
Ornamental plants including: Shrubs Bedding Plants Flowering Plants Foliage Plants Ground Covers Evergreens Ornamental Trees Non-Bearing Fruit Trees Non-Bearing Nut Trees Non-Bearing Vines	**Field Grown (In-Ground) Trees (Less than 24" diameter at breast height)** 3 - 12 grams (1.25 - 5.0 level teaspoons) per inch of trunk diameter at breast height (DBH) 1.05 - 4.2 ounces per 10 inches of trunk diameter at breast height (DBH) For multi-stem trees, base rate on cumulative inches of diameter of all stems at breast height.	**Soil Injection:** Mix required dose in water and make at least four injections per shrub or tree with a low-pressure applicator. Use same amount of solution per hole. Injections can be made using the following methods: Grid System – Space injections on a 2.5 ft center extending to drip line. Circle System – Make injections in concentric circles extending inward from drip line. Basal System – Space injections evenly around trunk no more than 24" out from the base. *Safari* 20 SG Insecticide may be soil injected with low volume (e.g. Kioritz injector) or high volume injection equipment. Inject 1 - 32 fl oz of dilute solution per foot of height or inch of trunk diameter depending on application equipment. Make shallow injections where feeder roots are most concentrated.
	Field Grown (In-Ground) Trees (24" diameter or greater at breast height) 6 - 12 grams (2.5 - 5.0 level teaspoons) per inch of trunk diameter at breast height (DBH) 2.1 - 4.2 ounces per 10 inches of trunk diameter at breast height (DBH) For multi-stem trees, base rate on cumulative inches of diameter of all stems at breast height.	
	Hedges 0.25 - 1.0 oz per foot of hedge height per 100 linear feet of hedge row	Apply in enough water to wet the lower 12" of trunk and surrounding soil surface. Apply in a one foot wide band over base of trunk and soil down center of hedgerow. To improve performance, rake back mulch before application.

(continued)

ORNAMENTAL PLANTS – APPLICATION TO SOIL (continued)

<table>
<tr><th>Crop</th><th colspan="2">Product Rate (By Weight)</th><th>Remarks</th></tr>
<tr><td rowspan="9">Ornamental plants including:
Shrubs
Bedding Plants
Flowering Plants
Foliage Plants
Ground Covers
Evergreens
Ornamental Trees
Non-Bearing Fruit Trees
Non-Bearing Nut Trees
Non-Bearing Vines</td><td colspan="2">Field Grown Nursery Stock
Banded spray application to soil surface (2.7 lbs per acre)</td><td rowspan="8">Apply as a uniform band in row over root zone and lower 6 - 12” of trunk. Apply from peak adult flight to peak egg hatch.
Apply in at least two gallons of water per 1,000 linear feet. Irrigate after application to move product into soil profile.
Control any weeds in treated area prior to application, or performance may be reduced.
Adjust rates accordingly for other row spacing. Irrigate after application to move Safari 20 SG Insecticide to the root zone.</td></tr>
<tr><td>Row spacing in feet</td><td>Ounces per 1,000 linear feet of row</td></tr>
<tr><td>3</td><td>3</td></tr>
<tr><td>4</td><td>4</td></tr>
<tr><td>5</td><td>5</td></tr>
<tr><td>6</td><td>6</td></tr>
<tr><td>7</td><td>7</td></tr>
<tr><td>8</td><td>8</td></tr>
<tr><td colspan="2">Broadcast spray to soil of plant beds 2.7 lbs per acre</td><td>Apply over the top of ornamental plant beds in a water volume sufficient to move product to soil surface. If necessary, irrigate after application to move product off of foliage and into upper root zone of soil. May be less effective on large woody shrubs than on herbaceous annuals and perennials.</td></tr>
<tr><td colspan="4">Important Notes:
One (1) level teaspoon contains 2.4 grams, and 1 cup (8 fl oz) contains 4.0 oz by weight of Safari 20 SG Insecticide.
For all soil applications, including chemigation, retreatments may be made after 7 days but do not apply more than 2.7 lbs (0.54 lbs ai) per acre of nursery or landscape per year.
Restrictions:
Do not apply more than 2.7 lbs (0.54 lbs ai) per acre of nursery or landscape per year.
To delay the development of resistance in greenhouses, nurseries and interiorscapes, do not make more than one soil application per crop cycle or three months, whichever is shorter. Refer to “Resistance Management” section of the label for additional guidelines.</td></tr>
</table>

ORNAMENTAL PLANTS

BASAL TRUNK SPRAYS IN TREES AND LARGE SHRUBS

For systemic insect control in containerized and field grown (in-ground) ornamental trees and shrubs in nurseries, interior plantscapes, lath and shadehouses and outdoor landscapes (commercial, industrial, recreational and residential) when applied as a trunk spray.

Crop	Pest	Product Rate (By weight)	Remarks
Shrubs Ornamental Trees Non-Bearing Fruit Trees Non-Bearing Nut Trees	Adelgids including Hemlock Woolly Flatheaded Borers including Emerald Ash Flatheaded Appletree Roundheaded Borers (Excluding Asian Longhorned) Scales including Calico Whiteflies including Fig (Ficus)	12 - 24 oz per gallon Depending on bark type and thickness, one gallon of spray solution will typically cover 65 - 85" of cumulative trunk diameter (1.5 - 2.0 fl oz per inch of trunk diameter) when applied to trunk between soil surface and 4.5 feet above soil surface.	When sprayed on the trunk, *Safari* 20 SG Insecticide will be absorbed through the bark and into the vascular system, and then transported throughout the tree. Speed of control will be dependent on tree size, tree health, environmental conditions and how actively pests are feeding. In actively transpiring trees, control may be evident within 1-3 weeks after application. Spray bark on root flare (buttress roots) and on trunk between soil surface and 4-5 feet above the soil surface. Adjust nozzle to uniformly distribute spray over the entire circumference of the tree trunk and buttress roots. Wet bark just to the point of saturation and run off onto soil. Apply ONLY with a low volume sprayer operated at less than 20 PSI to prevent tree damage, bounce back and drift of spray droplets. Time applications to coincide with when most vulnerable pest life stage is present on plants. **Do not apply to wet bark, during rainfall or if rain is expected within 12 hours.** Control may be less effective in trees with thick bark, and at times when trees are not actively growing or transpiring.

One (1) level teaspoon contains 2.4 grams, and 1 cup (8 fl oz) contains 4.0 oz by weight of *Safari* 20 SG Insecticide.

Restrictions:
Do not apply more than 2.7 lbs (0.54 lbs a.i.) per acre of nursery or landscape per year.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage, disposal or cleaning of equipment.
Pesticide Storage: Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Store in a cool dry place. Do not store diluted spray. For help with any spill, leak, fire or exposure involving this material, call day or night 1-800-892-0099.
Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.
Container Handling: Nonrefillable container: Do not reuse or refill the container. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

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Manufactured for
Valent U.S.A. Corporation
P.O. Box 8025
Walnut Creek CA 94596-8025
Made in U.S.A.
Form 1510-E
EPA Reg. No. 86203-11-59639
EPA Est. 67545-AZ-01

Information contained in this booklet is accurate at the time of printing. Since product testing is a continuous process, please read and follow the directions on the product label for the most current directions and precautionary statements.

Always check with your state to verify state registration status or call 800-89-VALENT (898-2536).

For state registration and/or supplemental labels, please call or visit us online.
Products That Work, From People Who Care® | **valentpro.com** | 800-89-VALENT (898-2536)
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IMA-jet

Systemic Insecticide for Micro-Infusion®

SYSTEMIC INSECTICIDE

Micro-injectable Systemic Insecticide for use with the Arborjet Injection System in the Management of Specific Insect Pests of Forests, Trees, Landscape Ornamentals and Interior Plantscapes.

ACTIVE INGREDIENT:
Imidacloprid 1-[(6-chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine.....5.0%
OTHER INGREDIENTS.....95.0%
TOTAL.....100.0%

Net Contents: See Individual Container EPA Reg No. 74578-1 • EPA Est. No. 74578 - MA-001

KEEP OUT OF REACH OF CHILDREN

CAUTION!

STOP - READ THE ENTIRE LABEL BEFORE USE

Precaución al usuario: Si usted no puede leer o entender inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente. To the user: If you cannot read or understand English, do not use this product until the label has been fully explained to you.

Manufactured by: ARBORJET INC.: 781-935-9070 99 Blueberry Hill Road, Woburn, MA 01801

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS:
CAUTION: Harmful if swallowed. Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.

Personal Protective Equipment (PPE):
Wear long-sleeved shirt and long pants, socks, shoes, and chemical resistant gloves. Remove and wash contaminated clothing before reuse.

FIRST AID

IF SWALLOWED:

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to by a poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING:

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or a doctor for further treatment advice.

IF IN EYES:

- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or a doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact the Infotrac Chemical Emergency Response System at **1-800-535-5053**.

Note to Physician: No specific antidote is available. Treat the patient symptomatically.

ENVIRONMENTAL HAZARDS:
This pesticide is highly toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate. This product is highly toxic to honeybees exposed to direct treatment or residues on blooming trees and shrubs.

PHYSICAL OR CHEMICAL HAZARDS:
Do not use or store near heat or open flame. Do not mix or allow coming in contact with oxidizing agents. Hazardous chemical reaction may occur.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

IMPORTANT: Read the entire label before use. Failure to follow label directions may result in poor control or plant injury. Failure to follow label directions may cause injury to people, animals and environment.

Do not apply this product, by any application method, to linden, basswood or other Tilia species in the State of Oregon.

APPLICATION TO TREES AND ORNAMENTALS

IMA-jet is a systemic insecticide used to control a variety of insect pests of ornamental or forest trees. Pests controlled include aphids, whiteflies, soft scales, adelgids, gall forming wasps, leafhoppers, lace bugs, mealybugs, psyllids, serpentine leafminers, sawflies, thrips and leaf feeding beetles. Use IMA-jet as directed in trees in residential, business and commercial areas, golf courses, airports, cemeteries, parks, street trees, playgrounds, athletic fields, commercial forestry production, seed orchard trees, nurseries, and in private, municipal, state, federal, county and local recreational forests.

WHEN TO TREAT: For optimum results, apply IMA-jet prior to infestation. Also apply when insects are infesting and feeding upon the tree. IMA-jet insecticide moves upward into the tree's canopy from the application sites. Systemic activity occurs only after the active ingredient is translocated upward in the tree. This product must be applied below the bark into the sapwood (i.e., the vascular) tissues.

In the case of severe infestation, use the highest label rate for the targeted pest. In trees larger than 24" use the highest rate listed for that insect pest. Dosages are designed for insect control and retreatment is generally not necessary during the year after initial treatment. Monitor insect activity to establish a damage threshold for retreatment. Repeat applications as necessary.

The need for an application can be based on historical monitoring of the site, previous records or experiences, current season adult trapping and other methods. Due to potential foliar injury or poor (i.e. slow) uptake, do not apply to trees stressed by drought or extreme heat.

BASIC INJECTION PROCEDURE: This product must be placed into the tree's sapwood, the conductive tissue that moves water to the canopy. Make applications around the base of the tree. Inject into tree roots exposing them by careful excavation or, alternatively into the trunk flare or tissue immediately above the trunk flare, locating the injection site in the first few xylem (i.e., sapwood) elements. Drill holes through the bark and into the sapwood a minimum of 3/8" deep. When using the Arborjet Arborplug, drill a minimum of 5/8" deep into the sapwood.

CALCULATING APPLICATION RATE: The dosages and number of application sites are based on tree diameter.

To determine the application/dose rate per tree:

1) Measure the tree diameter in inches at chest height (54" from ground) to find the Diameter at Breast Height (DBH). (If measuring tree circumference, divide circumference by 3 to obtain the DBH in inches.)
2) Calculate the number of injection sites by dividing the DBH in inches by 2.
3) Multiply the tree DBH by the dosage rate (see table below for appropriate dosage rate) to calculate the total dose in milliliters per tree.
4) Divide the total dose by the number of injection sites to determine required dosage per injection site.

Example: For a tree with a DBH of 12 inches (or circumference of 36 inches) and 8 mL dosage rate:

1) DBH = 12" (circumference 36" ÷ 3 =12")
2) Divide DBH of 12" by 2 = 6 injection sites.
3) Multiply DBH of 12" by 8 mL = 96 mL total dose per tree.
4) Divide 96 mL by 6 injection sites = 16 mL per injection site to deliver the required dosage.

To apply the highest dosage rate to trees as specified in the table, "Applications for Use in Listed Trees and Ornamentals and Forest and Woodlands Areas," it may be necessary to increase the number of injection sites applied. In the example given in "Calculating Application Rate," if the total dose per tree applied is less than the calculated 96 mLs, the remaining dosage should be placed into a new injection site. Do not place injection sites closer than 2" apart. Treat Cycads (i.e. gymnosperms) using this method of application. In resinous conifers (such as pine and spruce), start the injection immediately after drilling. A prolonged delay may reduce uptake on account of resin flow. In palms (i.e., monocots), only one injection site is required: locate the application site 1-3' from the soil level and drill 4" deep into the stem.

APPLICATION EQUIPMENT: IMA-jet is designed for use with the Arborjet Tree Injection Systems or with other tree injection devices that meet the label requirements and are chemically resistant. For all injection systems, read carefully and follow manufacturer's directions for use.

APPLICATIONS FOR USE IN LISTED TREES AND ORNAMENTALS AND FOREST AND WOODLAND AREAS

(For flowering trees, make applications post bloom)

For trees less than 12" in diameter, use the lower rate for the targeted pest. If trees are severely infested, use the highest label rate specified for control of the targeted pest. For trees larger than 24" diameter, always use the highest label rate for the targeted pest.

CROP	PEST	DOSAGE
Trees & Ornamentals: Trees, Shrubs, Evergreens, Interior Plantscapes, Palms **Forest areas:** Non-urban Forests, Tree Plantations, Planted Christmas Trees, Parks, Rural Shelter Belts, Rangeland Trees and Woodland Trees including Conifers	Adelgids (including Hemlock Woolly Adelgid*), Aphids, Gall Wasps (including Erythrina Gall Wasp), Lacebugs, Leafhoppers, Leaf miners, Mealybugs, Psyllids, Soft scales, Thrips, Whiteflies	2.0 – 4.0 mL IMA-jet Systemic Insecticide per inch of cumulative trunk diameter at breast height (54" from the ground). Space injection holes approximately 6" apart, around the circumference of the tree.
Trees & Ornamentals: Trees, Shrubs, Evergreens, Interior Plantscapes, Palms **Forest areas:** Non-urban Forests, Trees Plantations, Planted Christmas Trees, Parks, Rural Shelter Belts, Rangeland Trees and Woodland Trees including Conifers	Adelgids (including Hemlock Woolly Adelgid*), Gall Wasps (including Erythrina Gall Wasp), Flatheaded Borers (including Bronze birch borer, Emerald ash borer) adults, Japanese Beetles (adults), Leaf Beetles (including elm leaf beetle), Leaf bugs (including leaf footed seed bugs), Leaf miners, Pine tip moth larvae, Roundheaded Borers (including Eucalyptus longhorned borer), Royal palm bug, Sawfly larvae, Soft scales, Thrips, Whiteflies	4.0 – 8.0 mL IMA-jet Systemic Insecticide per inch of cumulative trunk diameter at breast height (54" from the ground). Space injection holes approximately 6" apart, around the circumference of the tree.

*IMA-jet provides 1-2 years of residual control of Hemlock Woolly Adelgid. Trees infested with Hemlock Woolly Adelgid might require two applications before significant control is seen.

FOR USE UNDER USDA SUPERVISION ONLY

HOST TREES	PEST	DBH RANGE	DOSE RATE mL/DBH"
Elm, Maple, Birch, Willow, Box elder, Horse Chestnut, Buckeye, European Mountain Ash, Ash, Poplar, Albizia, London Plane, Hackberry and Sycamore	Asian Longhorned Beetle	2 - 23" 24" +	4.0 mL 8.0 mL

RESTRICTIONS

- Use as formulated. Do not mix with water.
- Keep children and pets away from treatment area until injection and uptake are complete.
- This product is not to be used on trees that will produce food within the year following treatment.
- Do not use on syrup-producing sugar maples where sap is harvested.

ARBORJET MICRO-INFUSION® PROCEDURES

Basic Arborjet Micro-Infusion® Procedures:

1. Determine the dosage based on target pest and tree diameter.

2. Pour concentrate into the medicament bottle and cap.

3. **For Tree I.V.:** pressurize the contents from 25 to 60 PSI and prime the lines by opening each injector valve slowly to purge the air; close the valve when liquid begins to flow, or **For Hydraulic Device:** pressurize the contents to 15 PSI and prime the lines by depressing the trigger and pulling back slowly on the dose-sizer.

4. Determine the number and placement of injection sites around the base of the tree. Drill through the bark then 5/8" into the sapwood using the appropriate sized drill bit. For best results, use clean and sharp Brad point drill bits.

5. Insert the Arborplug™ using the set tool and mallet. Use the #4 Arborplug (3/8" d) for most applications, including conifers. In hardwoods, you may also use smaller diameter Arborplugs including the #3 (9/32" d). Insert the VIPER needle into the Arborplug. To start the Tree I.V. infusion, open the needle valve. Close the valve and remove the VIPER needle upon completion of infusion. To inject with the Hydraulic Device, depress the trigger to apply the dose.

Alternative Arborjet STINGER Procedure:

6. Alternatively, insert the #2 (7/32" drill bit) STINGER injector tip 5/8" deep into the sapwood in the predrilled hole with a hand push or by gently tapping the injector tip into the sapwood with a mallet. Remove STINGERS upon completion of infusion process by pulling and twisting out counter-clockwise. Use a cleaner or an EPA registered disinfectant between trees when using the reusable STINGER tips.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE: Store bottles in a cool, dry place above 45° F. Store in original container out of reach of children, preferably in a locked storage area.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available, or puncture and dispose of empty bottle in a sanitary landfill.

NOTICE OF WARRANTY

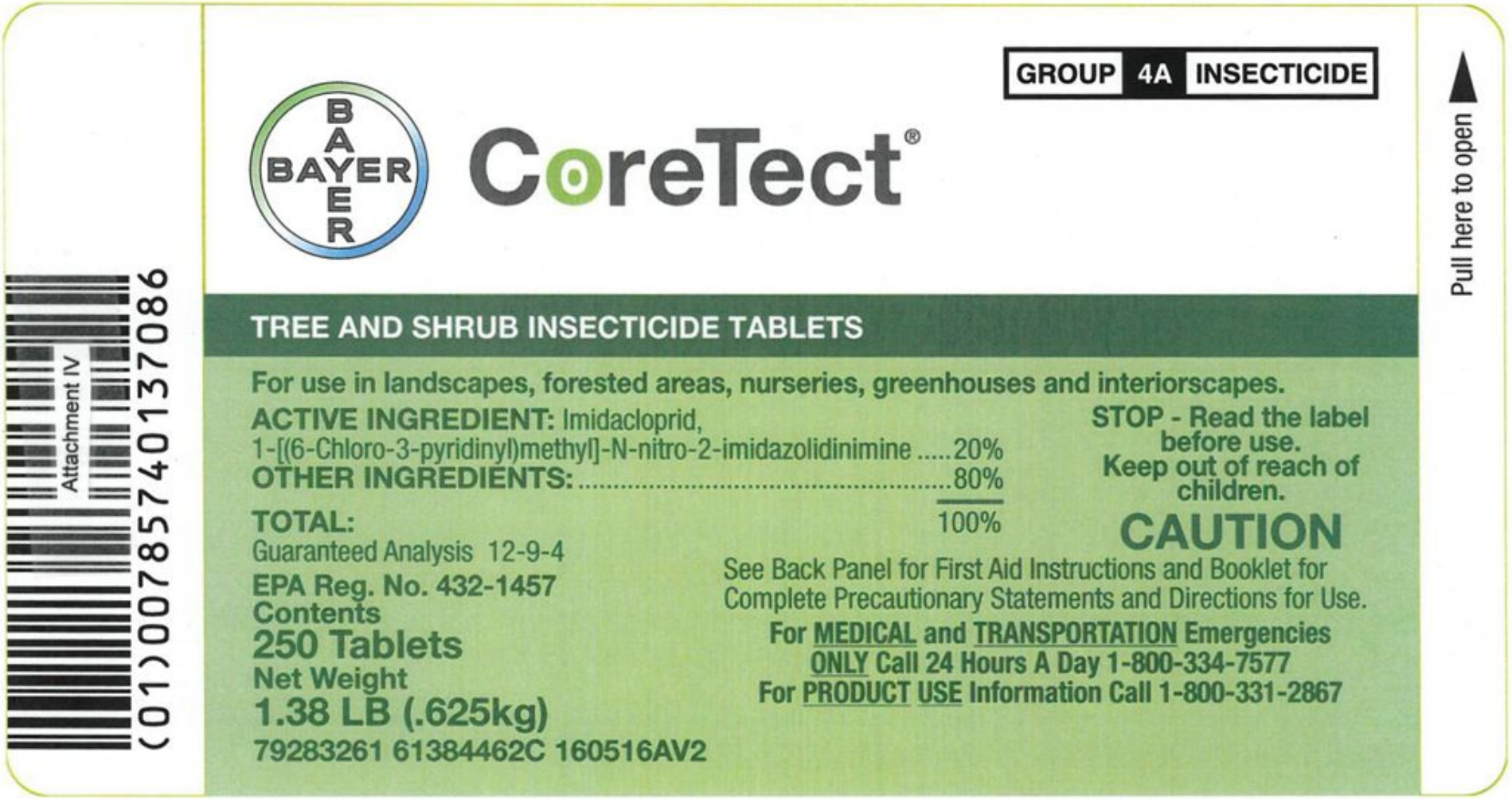
ARBORJET, Inc. makes no warranty of fitness of this product for any other purpose, beyond its uses under normal conditions in keeping with the statements made on this label. The buyer accepts and understands that failure to follow label directions is the responsibility of the buyer.

ARBORjet®
Revolutionary Plant Health Solutions

Micro-Infusion® is a registered trademark of Arborjet, Inc.

REV 7/2017

Attachment IV



GROUP 4A INSECTICIDE

CoreTect®

TREE AND SHRUB INSECTICIDE TABLETS

For use in landscapes, forested areas, nurseries, greenhouses and interiorscapes.

ACTIVE INGREDIENT: Imidacloprid,
1-[(6-Chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine 20%
OTHER INGREDIENTS: 80%

TOTAL: 100%

Guaranteed Analysis 12-9-4

EPA Reg. No. 432-1457

Contents

250 Tablets

Net Weight

1.38 LB (.625kg)

79283261 61384462C 160516AV2

STOP - Read the label before use.
Keep out of reach of children.

CAUTION

See Back Panel for First Aid Instructions and Booklet for Complete Precautionary Statements and Directions for Use.

For MEDICAL and TRANSPORTATION Emergencies
ONLY Call 24 Hours A Day 1-800-334-7577
For PRODUCT USE Information Call 1-800-331-2867

FIRST AID	
If on skin or clothing:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If in eyes:	• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
In case of emergency call toll free the Bayer Environmental Science Emergency Response Telephone No. 1-800-334-7577. Have a product container or label with you when calling a poison control center or doctor, or going for treatment.	
Note To Physician: No specific antidote is available. Treat the patient symptomatically.	

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing.

Personal Protective Equipment (PPE):

WPS USES: Applicators and Other Handlers who handle this product for any use covered by the Worker Protection Standard (40 CFR part 170) – must wear:

- Long-sleeved shirt and long pants
- Chemical resistant gloves made of any waterproof material such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC) or viton.
- Shoes plus socks

Non-WPS USES: Applicators and other handlers who handle this product for any use NOT covered by the Worker Protection Standard (40 CFR part 170) – in general, only agricultural plant uses are covered by the WPS, must wear:

- Long-sleeved shirt and pants
- Shoes plus socks
- Gloves

Follow manufacturer's instructions for cleaning/ maintaining personal protective equipment, PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations

User should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This product is highly toxic to aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds.

This chemical demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Resistance Management Recommendations

Some insects are known to develop resistance to insecticides after repeated use. As with any insecticide, the use of this product should conform to resistance management strategies established for the use area. CoreTect® contains a Group 4A insecticide. Insect biotypes with acquired or inherent resistance to Group 4A insecticides may eventually dominate the insect population if Group 4A insecticides are used repeatedly as the predominant method of control for targeted species.

The active ingredient in CoreTect is a member of the neonicotinoid chemical class. Insect pests resistant to other chemical classes have not shown cross-resistance to CoreTect.

Contact your Cooperative extension specialist, certified crop advisor and/or product manufacturer for additional insect resistance management recommendations.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirement specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Use CoreTect as directed on ornamental trees, shrubs, and plants on home lawns, business and office complexes, shopping complexes, multi-family residential complexes, golf courses, airports, cemeteries, parks, playgrounds, athletic fields, and municipal, city, state, national, and private wooded and forested areas.

Use Coretect as directed on ornamental trees, shrubs, and plants in interiorscapes, nurseries and greenhouses.

Restrictions:

- Do not apply more than 450 tablets per acre per calendar year (0.5 lb imidacloprid) to in ground plants.
- Apply only to ornamentals and non-bearing fruit trees. Non-bearing trees are defined as trees that will not bear fruit until at least 1 year after treatment.
- Restriction for Outdoor Use: Do not apply this product, by any application method, to linden, basswood, or other Tilia species.
- Do not apply tablets to saturated soils.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance.
It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
Exception: The Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.
PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is

- Long-sleeved shirt and long pants
- Chemical resistant gloves made of any waterproof material such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC) or viton
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep children and pets off treated area until dry.

LANDSCAPE, INTERIORSCAPES AND FORESTED AREAS*

CoreTect will control or significantly reduce populations of insects that attack containerized, newly-planted, and established trees. For trees and shrubs grown in landscapes and interiorscapes for more than one year, CoreTect will provide control of insects for up to one year. The decision to retreat plants in the second year after application should be based on the presence of pests.

CoreTect is formulated to provide consistent delivery of active ingredient over time. Release of active ingredient is dependent on presence of adequate soil moisture. For best results, irrigate the plant after treatment, and ensure that the plant receives regular irrigation for at least 2-3 months after treatment.

Treatment of containerized or balled and burlapped ornamentals at planting – While planting containerized ornamentals, place the prescribed number of CoreTect tablets in each planting hole directly underneath the root ball, or 1-4" deep into the root ball after the plant has been placed in the hole and the hole filled with soil. Do not apply tablets if the soil is saturated or if there is water present at the bottom of the planting hole.

Treatment of in-ground and permanently-containerized ornamentals – For best results on established ornamentals, place CoreTect as close to the fine absorptive roots as possible. For most deciduous trees and shrubs, an adequate number of these absorptive roots are located within 6-24" of the trunk, depending on tree size. Apply CoreTect 2-5" below the soil surface, next to the plant (ca. within 3-5" of newly planted trees or shrubs, or within 6-24" of well-established ornamentals). Ensure that the tablets are completely covered with soil after application.

For bushy coniferous trees and shrubs, numerous absorptive roots may be located near the drip-line. To apply CoreTect post-plant to plants with a definite drip-line, place tablets 2-5" below the

soil surface, evenly spaced around the tree and along the drip-line. Ensure that the tablets are completely covered with soil after application.

*Natural or planted stands of trees and excludes tree stands in agricultural production systems.

LANDSCAPE, INTERIORSCAPES AND FORESTED AREAS			
Sites	**Pest**	**Container size**	**Dose (# tablets per pot)**
Ornamental trees, shrubs, and ornamental plants in containers prior to, during or after planting into landscapes and interiorscapes	Adelgids (hemlock woolly adelgid) Aphids Flatheaded borers (excluding emerald ash borer) Leaf-feeding beetles (Japanese beetle and vine weevil adults) Leaf-feeding bugs (lace bugs, leaf bugs and plant bugs) Leafhoppers, planthoppers, sharpshooters (glassy-winged sharpshooter) and spittlebugs Leafminers Mealybugs	< 1 gallon 1 gallon 3 gallon 5 gallon 7 gallon 10 gallon Large containers (spaded, balled and burlapped, and pot-in-pot)	1 1-2 2-3 3-4 4-5 5-7 2-3 tablets per inch of trunk diameter or per foot of shrub height

continued

LANDSCAPE, INTERIORSCAPES AND FORESTED AREAS			
Sites	**Pest**	**Container size**	**Dose (# tablets per pot)**
Ornamental trees, shrubs, and ornamental plants in containers prior to, during or after planting into landscapes and interiorscapes	Pine tip moth larvae Psyllids Roundheaded borers (excluding Asian longhorned beetle) Royal palm bug Sawfly larvae Scales (Brown soft, Camellia, Cottony cushion, European elm, False oleander, Fletcher, Florida red, Florida wax, Green, Green shield, Hemispherical, Indian wax, Lecanium, Magnolia, Oystershell, Striped pine, Tea, Tortoise,Tuliptree, and White peach scales)	< 1 gallon 1 gallon 3 gallon 5 gallon 7 gallon 10 gallon Large containers (spaded, balled and burlapped, and pot-in-pot)	1 1-2 2-3 3-4 4-5 5-7 2-3 tablets per inch of trunk diameter or per foot of shrub height

continued

LANDSCAPE, INTERIORSCAPES AND FORESTED AREAS			
Sites	**Pest**	**Container size**	**Dose (# tablets per pot)**
Ornamental trees, shrubs, and ornamental plants in containers prior to, during or after planting into landscapes and interiorscapes	Thrips (foliage only) White grub, billbug, and root weevil larvae Whiteflies (including fig whitefly)	< 1 gallon 1 gallon 3 gallon 5 gallon 7 gallon 10 gallon Large containers (spaded, balled and burlapped, and pot-in-pot)	1 1-2 2-3 3-4 4-5 5-7 2-3 tablets per inch of trunk diameter or per foot of shrub height

continued

LANDSCAPE, INTERIORSCAPES AND FORESTED AREAS		
Sites	**Pest**	
Established or newly-planted ornamental trees and shrubs	Adelgids (including hemlock woolly adelgid) Aphids Leaf-feeding beetles (Japanese beetle and vine weevil adults) Leaf-feeding bugs (lace bugs, leaf bugs and plant bugs) Leafhoppers, planthoppers, sharpshooters (including glassy-winged sharpshooter) and spittlebugs Leafminers Mealybugs Pine tip moth larvae Psyllids Royal palm bug Sawfly larvae Soft scales Whiteflies	2-3 tablets per inch of trunk diameter or per foot of shrub height

continued

LANDSCAPE, INTERIORSCAPES AND FORESTED AREAS		
Sites	**Pest**	
Established or newly-planted ornamental trees and shrubs	Armored scales (including Camellia, False oleander, Florida red, Oystershell, Tea, and White peach scales) Flatheaded borers (excluding emerald ash borer) Roundheaded borers (excluding Asian longhorned beetle) Thrips (foliage only) White grub, billbug, and root weevil larvae	3 tablets per inch of trunk diameter or per foot of shrub height
Restriction: Do not apply this product, by any application method, to linden, basswood, or other Tilia species; do not apply more than 450 tablets per acre per calendar year (0.5 lb imidacloprid) to in-ground plants.		

NURSERY AND GREENHOUSE

Coretect will control or significantly reduce populations of insects that attack containerized, newly-planted and established trees and shrubs. For trees and shrubs grown in nurseries and greenhouses, Coretect will provide control of insects for up to one year. The decision to retreat plants in the second year after application should be based on the presence of pests.

Coretect is formulated to provide consistent delivery of active ingredient over time. Release of active ingredient is dependent on presence of adequate soil moisture. Irrigate moderately but thoroughly after application, allowing no leaching and runout from container for at least 3 irrigations or 10 days which ever is longer. Ensure that the plant receives regular irrigation for at least 2-3 months after treatment.

Treatment of containerized ornamental plants - For containerized, balled and burlapped, and pot-in-pot trees and shrubs, place the prescribed number of Coretect 1-4" deep into the media, and at least 2" from the outside edge of the container. Ensure that the tablet is completely covered with media after application.

Treatment of bare root seedlings, whips, sticks, cuttings, etc., at planting – Place the prescribed number of Coretect in each planting hole or slit, directly underneath to or next to the root system of the plant. Or, place the tablets 1-4" deep into the soil next to the plant (ca. within 2-5") after the plant has been planted and the root system covered with soil. Do not apply tablets if the soil is saturated or if there is water present at the bottom of the planting hole or slit.

Treatment of containerized or balled and burlapped trees and shrubs at planting – While planting containerized trees and shrubs, place the prescribed number of Coretect in each planting hole directly underneath the root ball, or 1-4" deep into the root ball after the plant has been placed

in the hole and the hole filled with soil. Do not apply tablets if the soil is saturated or if there is water present at the bottom of the planting hole.

Treatment of in-ground trees and shrubs – For best results on established trees and shrubs, place Coretect as close to the fine absorptive roots as possible. For most deciduous trees and shrubs, these and adequate number of these absorptive roots are located within 6-24" of the trunk, depending on tree size. Apply Coretect 2-5" below the soil surface, next to the plant (ca. within 3-5" of newly planted trees or shrubs, or within 6-24" of well-established ornamentals). Ensure that the tablets are completely covered with soil after application.

For bushy coniferous trees and shrubs, numerous absorptive roots may be located near the drip-line. To apply Coretect post-plant to plants with a definite drip-line, place tablets 2-5" below the soil surface, evenly spaced around the tree and along the drip-line. Ensure that the tablets are completely covered with soil after application.

NURSERY AND GREENHOUSE			
Crop	**Pest**	**Container size**	**Dose (# tablets per pot)**
Ornamental trees and shrubs (including non-bearing fruit and nut trees) in containers or in containers prior to planting, during or after planting into landscape environments	Adelgids Aphids Armored scales (suppression) Black vine weevil larvae Flatheaded borers (excluding emerald ash borer) Japanese beetle adults Lace bugs Leaf beetles Leafhoppers (including glassy-winged sharpshooter) Leafminers Mealybugs Pine tip moth larvae Psyllids	< 1 gallon 1 gallon 3 gallon 5 gallon 7 gallon 10 gallon Large containers, or spaded, balled and burlaped, and pot-in-pot ornamentals	1 1-2 2-3 3-4 4-5 5-7 2-3 tablets per inch of trunk diameter or per foot of shrub height

continued

NURSERY AND GREENHOUSE			
Crop	**Pest**	**Container size**	**Dose (# tablets per pot)**
Ornamental trees and shrubs (including non-bearing fruit and nut trees) in containers or in containers prior to planting, during or after planting into landscape environments	Roundheaded borers (excluding Asian longhorned beetle) Royal palm bugs Sawfly larvae Soft scales Thrips (foliage only) White grub larvae Whiteflies	< 1 gallon 1 gallon 3 gallon 5 gallon 7 gallon 10 gallon Large containers, or spaded, balled and burlaped, and pot-in-pot ornamentals	1 1-2 2-3 3-4 4-5 5-7 2-3 tablets per inch of trunk diameter or per foot of shrub height
Restriction for Outdoor Use: Do not apply this product, by any application method, to linden, basswood, or other Tilia species; do not apply more than 450 tablets per acre per calendar year (0.5 lb imidacloprid) to in-ground plants.			

NURSERY AND GREENHOUSE		
Crop	**Pest**	**Dose (# tablets)**
Newly-planted whips or seedling ornamentals (including non-bearing fruit and nut trees), less than 1" dbh, or less than 1 ft of shrub height	Adelgids Aphids Armored scales (suppression) Japanese beetle adults Lace bugs Leaf beetles Leafhoppers (including glassy-winged sharpshooter) Mealybugs Psyllids Soft scales Thrips (foliage feeding) White grub larvae Whiteflies	1 tablet per plant for preventative or first onset of infestation 2 tablets per plant - higher rate for heavy pest population

continued

NURSERY AND GREENHOUSE *(continued)*		
Crop	**Pest**	**Dose (# tablets)**
Newly-planted whips or seedling ornamentals (including non-bearing fruit and nut trees), less than 1" dbh, or less than 1 ft of shrub height	Black vine weevil larvae Flatheaded borers (excluding emerald ash borer) Leafminers Pine tip moth larvae Roundheaded borers (excluding Asian longhorned beetle) Royal palm bugs Sawfly larvae	2 tablets per plant
Restriction for Outdoor Use: Do not apply this product, by any application method, to linden, basswood, or other Tilia species; do not apply more than 450 tablets per acre per calendar year (0.5 lb imidacloprid) to in-ground plants.		

NURSERY AND GREENHOUSE		
Crop	**Pest**	**Dose (# tablets)**
Established or newly-planted ornamental trees and shrubs (greater than 1" dbh, or greater than 1 ft of shrub height)	Adelgids Aphids Armored scales (suppression) Black vine weevil larvae Flatheaded borers (excluding emerald ash borer) Japanese beetle adults Lace bugs Leaf beetles Leafhoppers (including glassy-winged sharpshooter) Leafminers Mealybugs Pine tip moth larvae Psyllids	2-3 tablets per inch of trunk diameter or per foot of shrub height

continued

NURSERY AND GREENHOUSE *(continued)*		
Crop	**Pest**	**Dose (# tablets)**
Established or newly-planted ornamental trees and shrubs (greater than 1" dbh, or greater than 1 ft of shrub height)	Roundheaded borers (excluding Asian longhorned beetle) Royal palm bugs Sawfly larvae Soft scales Thrips (foliage only) White grub larvae Whiteflies	2-3 tablets per inch of trunk diameter or per foot of shrub height
Restriction for Outdoor Use: Do not apply this product, by any application method, to linden, basswood, or other Tilia species; do not apply more than 450 tablets per acre per calendar year (0.5 lb imidacloprid) to in-ground plants.		

Guaranteed Analysis 12-9-4

Total Nitrogen (N) 12.00%
1.30% Ammoniacal Nitrogen
0.70% Other Water Soluble Nitrogen
10.00% Water Insoluble Nitrogen*
Available Phosphate (P2O5).....9.00%
Soluble Potash (K2O).....4.00%
Magnesium (Mg).....0.50%
0.50% Water Soluble Magnesium (Mg)
Sulfur (S).....3.40%
3.40% Combined Sulfur (S)
Molybdenum (Mo).....0.004%
F1559
Derived from: Isobutylidene Diurea, Ammonium Phosphate, Ammonium Sulfate, Sulfate of Potash, Magnesium Sulfate and Ammonium Molybdate
*10.00% Slowly Available Nitrogen from Isobutylidene Diurea.
F1559
CAUTION: The application of fertilizing materials containing Molybdenum (MO) may result in forage crops containing levels of Molybdenum (MO) which are toxic to ruminant animals.
*WIN (Water Insoluble Nitrogen) is stated on an unground basis. Powdered or ground samples will analyze at 3.00%.
Information regarding the contents and levels of metals in this product are available on the Internet at http://www.aapfco.org/metals.htm

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or dispose of in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Pesticide Storage: Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

Handle and open container in a manner as to prevent spillage. If the container is leaking, invert to prevent leakage. Refer to Precautionary Statements on label for hazards associated with the handling of this material. Do not walk through spilled material. Absorb spilled material with absorbing type compounds and dispose of as directed for pesticides above. In spill or leak incidents, keep unauthorized people away. You may contact the Bayer Environmental Science Emergency Response Team for decontamination procedures or any other assistance that may be necessary. The Bayer Environmental Science Emergency Response Telephone No. is 1-800-334-7577 or contact Chemtrec at 1-800-424-9300.

IMPORTANT: READ BEFORE USE

Read the entire Directions for Use, Conditions, Disclaimer of Warranties and Limitations of Liability before using this product. If terms are not acceptable, return the unopened product container at once. By using this product, user or buyer accepts the following Conditions, Disclaimer of Warranties and Limitations of Liability.

CONDITIONS: The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury or ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Bayer CropScience LP. All such risks shall be assumed by the user or buyer.

DISCLAIMER OF WARRANTIES: TO THE EXTENT CONSISTANT WITH APPLICABLE LAW, BAYER CROPSCIENCE LP MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, THAT EXTEND BEYOND THE STATEMENTS MADE ON THIS LABEL. No agent of Bayer CropScience LP is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. TO THE EXTENT CONSISTANT WITH APPLICABLE LAW, BAYER CROPSCIENCE LP DISCLAIMS ANY LIABILITY WHATSOEVER FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

LIMITATIONS OF LIABILITY: TO THE EXTENT CONSISTANT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES

RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, WHETHER IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, SHALL NOT EXCEED THE PURCHASE PRICE PAID, OR AT BAYER CROPSCIENCE LP'S ELECTION, THE REPLACEMENT OF PRODUCT.

Bayer (reg'd), the Bayer Cross (reg'd) and CoreTect® are registered trademarks of Bayer.

Produced for:
Bayer Environmental Science
A Division of Bayer CropScience LP
2 T. W. Alexander Drive
Research Triangle Park, NC 27709

Bayer

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GROUP 4A INSECTICIDE

CoreTect®

TREE AND SHRUB INSECTICIDE TABLETS

For use in landscapes, forested areas, nurseries, greenhouses and interiorscapes.

ACTIVE INGREDIENT:
Imidacloprid, 1-[(6-Chloro-3-pyridinyl) methyl]-N-nitro-2-imidazolidinimine 20%
OTHER INGREDIENTS: 80%

TOTAL: 100%

Guaranteed Analysis 12-9-4

EPA Reg. No. 432-1457

Contents
250 Tablets
Net Weight
1.38 LB (.625kg)

79283261
61384462C 160516AV2

STOP - Read the label before use.
Keep out of reach of children.

CAUTION

See Back Panel for First Aid Instructions and Booklet for Complete Precautionary Statements and Directions for Use.

For MEDICAL and TRANSPORTATION Emergencies ONLY Call 24 Hours A Day 1-800-334-7577
For PRODUCT USE Information Call 1-800-331-2867

Pull here to open

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing.

ENVIRONMENTAL HAZARDS

This product is highly toxic to aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds.

This chemical demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

61384551C 160516AV2

FIRST AID	
If on skin or clothing:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If in eyes:	• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
In case of emergency call toll free the Bayer Environmental Science Emergency Response Telephone No. 1-800-334-7577. Have a product container or label with you when calling a poison control center or doctor, or going for treatment.	
Note To Physician: No specific antidote is available. Treat the patient symptomatically.	

Produced for:
Bayer Environmental Science
A Division of Bayer CropScience LP
2 T. W. Alexander Drive
Research Triangle Park, NC 27709
Product of France

Bayer

Attachment V

ARSENAL®

herbicide

SPECIMEN

For control of undesirable vegetation growing within specified aquatic sites, forestry sites, pasture/rangeland, and nonagricultural lands; and for establishment and maintenance of wildlife openings, release of unimproved Bermudagrass and Bahiagrass, bareground weed control, and for use under certain paved surfaces

Active Ingredient:	
isopropylamine salt of imazapyr: (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1*H*-imidazol-2-yl]-3-pyridinecarboxylic acid)*	27.8%
Other Ingredients:	72.2%
Total:	100.0%

* Equivalent to 22.6% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1*H*-imidazol-2-yl]-3-pyridinecarboxylic acid or 2 pounds acid per gallon

EPA Reg. No. 241-346 **EPA Est. No.**

KEEP OUT OF REACH OF CHILDREN

CAUTION/PRECAUCIÓN

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

See inside for complete **First Aid**, **Precautionary Statements**, **Directions For Use**, **Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

In case of an emergency endangering life or property involving this product, call day or night 1-800-832-HELP (4357).

Net Contents:

BASF Corporation
26 Davis Drive
Research Triangle Park, NC 27709

BASF
The Chemical Company

FIRST AID	
If swallowed	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • **DO NOT** induce vomiting unless told to by a poison control center or doctor. • **DO NOT** give anything by mouth to an unconscious person.
If in eyes	• Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. • Remove contact lenses, if present, after first 5 minutes; then continue rinsing eyes. • Call a poison control center or doctor for treatment advice.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
If inhaled	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably by mouth to mouth, if possible. • Call a poison control center or doctor for further treatment advice.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information: 1-800-832-HELP (4357).	

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION. Harmful if swallowed. Avoid contact with eyes or clothing.

Personal Protective Equipment (PPE)

Some materials that are chemically resistant to this product are listed below. If you want more options, follow the instructions for **Category A** on an EPA chemical-resistance category selection chart.

Mixers, loaders, applicators, and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks

Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions are given for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. **DO NOT** reuse them.

Engineering Controls

Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(6)].

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands with plenty of soap and water before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Physical and Chemical Hazards

Spray solutions of **Arsenal® herbicide** must be mixed, stored, and applied only in stainless steel, fiberglass, plastic, and plastic-lined steel containers.

Thoroughly clean application equipment, including landing gear, immediately after use of this product. Prolonged exposure of this product to uncoated steel (except stainless steel) surfaces may result in corrosion and failure of the exposed part. The maintenance of an organic coating (paint) may prevent corrosion.

Environmental Hazards

This product is toxic to plants. Drift and runoff may be hazardous to plants in water adjacent to treated areas. **DO NOT** apply to water except as specified in this label. Treatment of aquatic weeds may result in oxygen depletion or loss because of decomposition of dead plants. This oxygen loss may cause suffocation of some aquatic organisms. **DO NOT** treat more than 1/2 of the surface area of the water in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow aquatic organisms to move into untreated areas. **DO NOT** contaminate water when disposing of equipment washwater or rinsate.

This pesticide is toxic to vascular plants and must be used strictly in accordance with the drift precautions on the label.

Directions For Use

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Arsenal® herbicide must be used only in accordance with the instructions on the label attached to the container. Keep containers closed to avoid spills and contamination.

DO NOT apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of **48 hours**.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material
- Protective eyewear

NONAGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

DO NOT enter or allow others to enter treated areas until sprays have dried.

STORAGE AND DISPOSAL

DO NOT contaminate water, food, or feed by storage or disposal.

Pesticide Storage

DO NOT store below 10° F.

Pesticide Disposal

Wastes resulting from the use of this product must be disposed of on-site or at an approved waste disposal facility.

Container Handling

Nonrefillable Container. DO NOT reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Triple rinse containers small enough to shake (capacity ≤ 5 gallons) as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Triple rinse containers too large to shake (capacity > 5 gallons) as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable Container. Refill this container with pesticide only. **DO NOT** reuse this container for any other purpose. Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

(continued)

STORAGE AND DISPOSAL *(continued)*

Container Handling *(continued)*

Triple rinse as follows: To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

When this container is empty, replace the cap and seal all openings that have been opened during use; return the container to the point of purchase or to a designated location. This container must only be refilled with a pesticide product. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged, or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling, if available, or dispose of container in compliance with state and local regulations.

In Case of Emergency

In case of large-scale spillage regarding this product, call:

- CHEMTREC 1-800-424-9300
- BASF Corporation 1-800-832-HELP (4357)

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- BASF Corporation 1-800-832-HELP (4357)

Steps to be taken in case material is released or spilled:

- Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal.
- Remove contaminated clothing and wash affected skin areas with soap and water.
- Wash clothing before reuse.
- Keep the spill out of all sewers and open bodies of water.

Product Information

Arsenal® herbicide is an aqueous solution to be mixed with water and a surfactant and applied as a spray solution to control undesirable vegetation growing within specified aquatic sites, forestry sites, pasture/rangeland and nonagricultural lands. Aquatic sites consist of standing and flowing water, estuarine/marine, wetland, and riparian areas. Nonagricultural lands include private, public and military lands as follows: uncultivated nonagricultural areas (including airports, highway, railroad and utility rights-of-way, and sewage disposal areas); uncultivated agricultural areas - noncrop producing (including farmyards, fuel storage areas, fence rows, nonirrigation ditchbanks, and barrier strips); industrial sites - outdoor (including lumberyards, pipeline and tank farms); and natural areas (including wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads, and trails). **Arsenal** may also be used for the release of unimproved Bermudagrass and Bahiagrass, for bareground weed control, and for use under certain paved surfaces.

Herbicidal Activity

Arsenal will control most annual and perennial grass and broadleaf weeds in addition to many brush and vine species with some residual control of undesirable species that germinate above the waterline. **Arsenal** is readily absorbed through emergent leaves and stems and is translocated rapidly throughout the plant with accumulation in the meristematic regions. For maximum activity, weeds should be growing vigorously at the time of application, and the spray solution should include a surfactant (see **Adjuvants** section for specific use directions). Treated plants stop growing soon after spray application. Chlorosis appears first in the newest leaves, and necrosis spreads from this point. In perennials, the herbicide is translocated into and kills underground or submerged storage organs, which prevents regrowth. Chlorosis and tissue necrosis may not be apparent in some plant species until 2 or more weeks after application. Complete kill of plants may not occur for several weeks. **Arsenal** applications are rainfast 1 hour after treatment.

Product Use and Restrictions

Applications may be made for control of undesirable vegetation growing within specified aquatic sites, forestry sites, pasture/rangeland and nonagricultural lands. Aquatic sites consist of standing and flowing water; estuarine/marine, wetland, and riparian areas; for control of most annual and perennial grass weeds, broadleaf weeds, vines and brambles, and hardwood brush and trees for forestry site preparation and release of conifers from woody and herbaceous competition. **Arsenal** may also be used for selective woody and herbaceous weed control in natural regeneration of certain conifers (see **Conifer Release Treatment**).

Nonagricultural lands include private, public and military lands as follows: uncultivated nonagricultural areas (including airports, highway, railroad and utility rights-of-way, and sewage disposal areas); uncultivated agricultural areas - noncrop producing (including farmyards, fuel storage areas, fence rows, nonirrigation ditchbanks, and barrier strips); industrial sites - outdoor (including lumberyards, pipeline and tank farms); and natural areas (including wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads, and trails).

Restrictions and Limitations

- **DO NOT** use on food crops.
- **DO NOT** apply this product within 1/2 mile upstream of an active potable water intake in flowing water (i.e. river, stream, etc.) or within 1/2 mile of an active potable water intake in a standing body of water, such as a lake, pond, or reservoir.
- **DO NOT** apply to water used for irrigation except as described in **Product Use and Restrictions** section of this label.
- Keep from contact with fertilizers, insecticides, fungicides, and seeds.
- **DO NOT** drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the treated soil may be washed or moved into contact with their roots.
- **DO NOT** use on lawns, walks, driveways, tennis courts, or similar areas.
- **DO NOT** side trim desirable vegetation with this product unless severe injury and plant death can be tolerated. Prevent drift of spray to desirable plants.
- Clean application equipment after using this product by thoroughly flushing with water.

Nonagricultural Lands and Forestry Sites

- **DO NOT** apply more than 1.5 lbs acid equivalent (ae) imazapyr (equivalent to 96 fl ozs of **Arsenal® herbicide**) per acre per year.

Pasture/Rangeland Sites

- For spot treatment only.
- **DO NOT** treat more than 1/10 of the available area to be grazed or cut for hay.
- **DO NOT** apply more than 0.75 lb ae imazapyr (equivalent to 48 fl ozs of **Arsenal**) per acre per year.

Aquatic Sites

- **DO NOT** apply more than 1.5 lbs ae imazapyr (equivalent to 96 fl ozs of **Arsenal**) per acre per year.
- **Public waters** - Application of **Arsenal** to water can only be made by federal or state agencies, such as Water Management District personnel, municipal officials, and the U.S. Army Corps of Engineers, or those applicators who are licensed or certified as aquatic pest control applicators and are authorized by the state or local government. Treatment to other than non-native invasive species is limited to only those plants that have been determined to be a nuisance by a federal or state government entity.
- **Permitting** - Consult local state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.
- **Private waters** - Applications may be made to private waters that are still, such as ponds, lakes, and drainage ditches where there is minimal or no outflow to public waters.
- **Aerial application** - Aerial application to aquatic sites is restricted to helicopter only.
- **Irrigation water** - Application to water used for irrigation that results in **Arsenal** residue greater than 1.0 ppb **MUST NOT** be used for irrigation purposes for 120 days after application or until **Arsenal** residue levels are determined by laboratory analysis or other appropriate means of analysis to be 1.0 ppb or less. When applications are made within 500 feet of an active irrigation intake, **DO NOT** irrigate for at least 24 hours following application to allow for dissipation.

Recreational Use of Water in Treatment Area

There are no restrictions on the use of water in the treatment area for recreational purposes, including swimming and fishing.

Livestock Use of Water in/from Treatment Area

There are no restrictions on livestock consumption of water from the treatment area.

Restrictions for Potable Water Intakes

DO NOT apply **Arsenal** directly to water within 1/2 mile upstream of an active potable water intake in flowing water (i.e. river, stream, etc.) or within 1/2 mile of an active potable water intake in a standing body of water such as a lake, pond, or reservoir. To make aquatic applications around and within 1/2 mile of active potable water intakes, the water intake must be turned off during application and for a minimum of 48 hours after application. These aquatic applications may be made only in cases where there are alternative water sources or holding ponds that would permit turning off an active potable water intake for a minimum period of 48 hours after applications.

NOTE: Existing potable water intakes that are no longer in use, such as those replaced by connections to wells or a municipal water system, are not considered to be active potable water intakes. This restriction does not apply to intermittent, inadvertent overspray of water in terrestrial use sites.

Quiescent or Slow-moving Waters

In lakes and reservoirs, **DO NOT** apply **Arsenal** within 1 mile of an active irrigation water intake during the irrigation season. Applications less than 1 mile from an active irrigation water intake may be made during the off-season if the irrigation intake will remain inactive for a minimum of 120 days after application or until **Arsenal** residue levels are determined by laboratory analysis or other appropriate means of analysis to be 1.0 ppb or less.

Precautions for Avoiding Injury to Nontarget Plants

Untreated desirable plants can be affected by root uptake of **Arsenal® herbicide** from treated soil. Injury or loss of desirable plants may result if **Arsenal** is applied on or near desirable plants, on areas where their roots extend, or in locations where the treated soil may be washed or moved into contact with their roots. When making application along shorelines where desirable plants may be present, use caution to avoid spray contact with their foliage or spray application to the soil in which they are rooted. Shoreline plants that have roots which extend into the water in an area where **Arsenal** has been applied generally will not be adversely affected by uptake of the herbicide from the water.

If treated vegetation is to be removed from the application site, **DO NOT** use the vegetative matter as mulch or compost on or around desirable species.

Managing Off-target Movement

Aerial Application

- Applicators are required to use a coarse or coarser droplet size (ASABE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater for release heights below 10 feet. Applicators are required to use a very coarse or coarser droplet size or, if specifically using a spinning atomizer nozzle, applicators are required to use a VMD of 475 microns or greater for release heights above 10 feet. Applicators must consider the effects of nozzle orientation and flight speed when determining droplet size.
- Applicators are required to use upwind swath displacement.
- The boom length must not exceed 60% of the wingspan or 90% of the rotor-blade diameter to reduce spray drift.
- Applications with wind speeds less than 3 mph and with wind speeds greater than 10 mph are prohibited.
- Applications into temperature inversions are prohibited.

Ground Boom Application

- Applicators are required to use a nozzle height below 4 feet above the ground or plant canopy and coarse or coarser droplet size (ASABE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater.
- Applications with wind speeds greater than 10 mph are prohibited.
- Applications into temperature inversions are prohibited.

Wind Erosion

Avoid treating powdery, dry, or light sandy soils when conditions are favorable for wind erosion. Under these conditions, the soil surface should first be settled by rainfall or irrigation.

Adjuvants

Postemergence applications of **Arsenal** require the addition of a spray adjuvant. When making aquatic applications, only spray adjuvants approved or appropriate for aquatic use must be used.

Nonionic Surfactant

Use a nonionic surfactant (NIS) at the rate of 0.25% volume/volume (v/v) or higher (see manufacturer's label) of the spray solution (0.25% v/v is equivalent to 1 quart in 100 gallons). For best results, select a nonionic surfactant with a hydrophilic-to-lipophilic balance (HLB) ratio between 12 and 17 with at least 70% surfactant in the formulated product. Alcohol, fatty acid, oil, ethylene glycol, or diethylene glycol should not be considered as surfactants to meet the above requirements.

Methylated Seed Oil or Vegetable Oil Concentrate

Instead of a surfactant, a methylated seed oil (MSO) or vegetable-based seed oil concentrate may be used at the rate of 1.5 to 2 pints per acre. When using spray volumes greater than 30 gallons per acre, mix MSO or vegetable-based seed oil concentrates at a rate of 1% of total spray volume, or alternatively use a nonionic surfactant as described above. Research indicates that these oils may aid in **Arsenal** deposition and uptake by plants under moisture or temperature stress.

Silicone-based Surfactant

See manufacturer's label for specific rates. Silicone-based surfactants may reduce the surface tension of the spray droplet allowing greater spreading on the leaf surface as compared to conventional nonionic surfactants. However, some silicone-based surfactants may dry too quickly, limiting herbicide uptake.

Invert Emulsions

Arsenal can be applied as an invert emulsion. The spray solution results in an invert (water-in-oil) spray emulsion designed to minimize spray drift and spray runoff, resulting in more herbicide on the target foliage. The spray emulsion may be formed in a single tank (batch mixing) or injected (in-line mixing). Consult the invert chemical label for proper mixing directions.

Other

An antifoaming agent, spray pattern indicator, or drift-reducing agent may be applied at the product labeled rate if necessary or desired.

Tank Mixes

Arsenal may be tank mixed with other herbicides.

Consult manufacturer's labels for specific rate restrictions and weeds controlled. Always follow the more restrictive label restrictions and precautions for all products used when making an application involving tank mixes.

Application Methods

Arsenal® herbicide may be selectively applied using low-volume directed application techniques or may be broadcast-applied using ground equipment, watercraft, or aircraft. Aerial applications to aquatic sites must be made by helicopter. In addition, **Arsenal** may also be applied using cut-stump, cut-stem, and frill or girdle treatment techniques within nonagricultural lands, pasture/rangeland, and aquatic sites; see **Aerial Application** and **Ground Application** sections for additional details.

Aerial Application

All precautions must be taken to minimize or eliminate spray drift. Both fixed-wing aircraft and helicopters can be used to apply **Arsenal** on nonagricultural lands, but only helicopters can be used for aquatic applications. **DO NOT** make applications by fixed-wing aircraft or helicopter unless appropriate buffer zones can be maintained to prevent spray drift out of the target area; or when treating open tracts of land, spray drift as a result of fixed-wing aircraft application can be tolerated. Aerial equipment designed to minimize spray drift, such as a helicopter equipped with a **Microfoil™ boom**, **Thru-Valve™ boom**, or raindrop nozzles, must be used and calibrated. Except when applying with a **Microfoil boom**, a drift control agent may be added at the specified label rate. **DO NOT** side trim with **Arsenal** unless death of treated tree can be tolerated.

Uniformly apply the specified amount of **Arsenal** in 2 to 30 gallons of water per acre. A foam-reducing agent may be added at the specified label rate, if needed.

Thoroughly clean application equipment, including landing gear, immediately after use of this product. Prolonged exposure of this product to uncoated steel (except stainless steel) surfaces may result in corrosion and failure of the exposed part. The maintenance of an organic coating (paint) may prevent corrosion.

Ground Application

Foliar Application

Low-volume Foliar Application

Use equipment calibrated to deliver 5 to 20 gallons of spray solution per acre. To prepare the spray solution, thoroughly mix in water 0.5% to 5% **Arsenal** plus surfactant; see the **Adjuvants** section of this label for specific use directions. A foam-reducing agent may be applied at the specified label rate, if needed. For difficult-to-control species (see **Aquatic Weed Control** and **Terrestrial Weed Control** sections for relative susceptibility of weed species), use the higher concentrations of herbicide and/or spray volumes, but **DO NOT** apply more than 3 quarts of **Arsenal** per acre in aquatic sites and nonagricultural lands and 1.5 quarts per acre in pasture/rangeland. Excessive wetting of foliage is not necessary.

For low-volume foliar application, select proper nozzles to avoid overapplication. Proper application is critical to ensure desirable results. Best results are achieved when spray covers the crown and approximately 70 percent of the plant. The use of an even, flat-fan tip with a spray angle of 40 degrees or less will aid in proper deposition.

Appropriate tip sizes include 4004E or 1504E. For a straight-stream and cone pattern, adjustable cone nozzles, such as 5500 X3 or 5500 X4, may be used. Attaching a rollover valve onto a Spraying Systems Model 30 gunjet or other similar spray gun allows for the use of both flat-fan and cone tips on the same gun.

Moisten, but **DO NOT** drench target vegetation causing spray solution to run off.

Low-volume Foliar Application with Backpack. For low-growing species, spray down on the crown, covering crown and penetrating approximately 70% of the plant.

For target species 4 to 8 feet tall, swipe the sides of target vegetation by directing spray to at least 2 sides of the plant in smooth vertical motions from the crown to the bottom. Make sure to cover the crown whenever possible.

For target species over 8 feet tall, lace sides of target vegetation by directing spray to at least 2 sides of the target in smooth zigzag motions from crown to bottom.

Low-volume Foliar Application with Hydraulic Handgun Application Equipment. Use the same technique as described for **Low-volume Foliar Application with Backpack**.

For broadcast application, simulate a gentle rain near the top of target vegetation allowing spray to contact the crown and penetrate the target foliage without falling to the understory. Herbicide spray solution that contacts the understory may result in severe injury or death of plants in the understory.

High-volume Foliar Application

For optimum performance when spraying medium-density to high-density vegetation, use equipment calibrated to deliver up to 100 gallons of spray solution per acre (GPA). Spray solutions exceeding 100 GPA may result in excessive spray runoff, causing increased ground cover injury and injury to desirable species.

To prepare the spray solution, thoroughly mix **Arsenal** in water and add a surfactant; see **Adjuvants** section for specific use directions and rates for surfactants. A foam-reducing agent may be added at the specified label rate, if needed. For difficult-to-control species (see **Aquatic Weed Control** and **Terrestrial Weed Control** sections for relative susceptibility of weed species), use the higher concentrations of herbicide and/or spray volumes, but **DO NOT** apply more than 3 quarts of **Arsenal** per acre in aquatic sites and nonagricultural lands and 1.5 quarts per acre in pasture/rangeland. Uniformly cover the foliage of the vegetation to be controlled, but **DO NOT** apply to runoff. Excessive wetting of foliage is not necessary.

Side Trimming

DO NOT side trim with **Arsenal® herbicide** unless severe injury or death of the treated tree can be tolerated. **Arsenal** is readily translocated and can result in death of the entire tree.

Cut-surface Treatment

Arsenal may be used to control undesirable woody vegetation by applying the **Arsenal** solution to the cambium area of freshly cut stump surfaces or to fresh cuts on the stem of target woody vegetation. Application can be made any time of the year except during periods of heavy sap flow in the spring. **DO NOT** overapply solution causing runoff from the cut surface.

Injury may occur to desirable woody plants if shoots extend from the same root system or their root systems are grafted to those of the treated tree.

Cut-surface Application with Dilute and Concentrate Solutions

Arsenal may be mixed as either a concentrate or dilute solution. The dilute solution may be used for application to the cut surface of the stump or to cuts on the stem of target woody vegetation. Concentrate solutions may be used for application to cuts on the stem. Use of the concentrate solution permits application to fewer cuts on the stem, especially for large-diameter trees. Follow application instructions for proper application techniques for each type of solution.

- To prepare a dilute solution, mix 8 to 12 fluid ounces of **Arsenal** with 1 gallon of water. A surfactant or penetrating agent may improve uptake through partially callused cambiums.
- To prepare a concentrate solution, mix 2 quarts of **Arsenal** with no more than 1 quart of water.

Cut-stump Treatment

Dilute Solution. Spray or brush the solution onto the cambium area of the freshly cut stump surface. Ensure that the solution thoroughly wets the entire cambium area (the wood next to the bark of the stump).

Cut-stem Treatment (injection, hack-and-squirt)

Dilute Solution. Using standard injection equipment, apply 1 milliliter (mL) of solution at each injection site around the tree with no more than 1-inch intervals between cut edges. Ensure that the injector completely penetrates the bark at each injection site.

Concentrate Solution. Using standard injection equipment, apply 1 mL of solution at each injection site. Make at least 1 injection cut for every 3 inches of diameter at breast height (DBH) on the target tree. For example, a 3-inch DBH tree will receive 1 injection cut, and a 6-inch DBH tree will receive 2 injection cuts. On trees requiring more than 1 injection site, place the injection cuts at approximately equal intervals around the tree.

Frill or Girdle Treatment

Using a hatchet, machete, or chainsaw, make cuts through the bark and completely around the tree to expose the cambium. The cut should angle downward extending into the cambium enough to expose at least 2 growth rings. Using a spray applicator or brush, apply a 25% to 100% solution of **Arsenal** into each cut until thoroughly wet. Avoid applying so much herbicide that runoff to the ground or water occurs.

Forestry Use

Site Preparation Treatment

Arsenal may be used to control labeled grass weeds, broadleaf weeds, vines and brambles, and woody brush and trees on forest sites in advance of regeneration for the following conifer crop species:

Common Name	**Scientific Name**	**Rate** (fl ozs/A)
Loblolly pine	*Pinus taeda*	48 to 80
Loblolly X pitch hybrid		
Longleaf pine	*Pinus palustris*	
Shortleaf pine	*Pinus echinata*	
Virginia pine	*Pinus virginiana*	
Slash pine	*Pinus elliottii*	40 to 64
Coastal redwood	*Sequoia sempervirens*	24 to 48
Douglas fir	*Pseudotsuga menziesii*	
Western hemlock	*Tsuga heterophylla*	
California red fir	*Abies magnifica*	24 to 40
California white fir	*Abies concolor*	
Jack pine	*Pinus banksiana*	24 to 32
Lodgepole pine	*Pinus contorta*	
Pitch pine	*Pinus rigida*	
Ponderosa pine	*Pinus ponderosa*	
Sugar pine	*Pinus lambertiana*	
White pine	*Pinus strobus*	
Black spruce	*Picea mariana*	
Red spruce	*Picea rubens*	
White spruce	*Picea glauca*	

Use the label rate of **Arsenal** per acre applied as a broadcast foliar spray for long-term control of labeled woody plants and residual control of herbaceous weeds. Within 4 to 6 weeks of treatment, grass and other herbaceous weeds will be controlled and may provide fuel to facilitate a site preparation burn, if desired, to control conifers or other species tolerant to the herbicide.

Apply the label rate of **Arsenal** per acre in 5 to 30 gallons total spray solution for helicopter applications or 5 to 100 gallons total spray solution for mechanical ground spray and backpack applications. Use a minimum of 0.5% by volume nonionic surfactant (NIS). Use the higher label rates of **Arsenal** and higher spray volumes when

controlling particularly dense or multilayered canopies of hardwood stands or difficult-to-control species.

In certain cases, tank mixes may be necessary for chemical control of conifers and other species tolerant to **Arsenal® herbicide**. Observe all precautions and restrictions on the product labels. Always follow the most restrictive label. Combinations with other products labeled for forest site preparation may kill certain plants such as legumes and blackberry, which are desirable for wildlife habitat.

Where quick initial brownout (deadening of foliage) is desired for burning, apply a tank mixture of 32 fl ozs to 64 fl ozs **Arsenal** with 16 fl ozs to 64 fl ozs glyphosate or 16 fl ozs to 48 fl ozs triclopyr ester per acre. For control of seedling pines, apply 32 fl ozs to 64 fl ozs **Arsenal** with 3 to 4 quarts glyphosate. For site preparation, rates less than 48 fl ozs **Arsenal** will provide suppression of hardwood brush and trees; some resprouting may occur.

DO NOT plant seedlings of black spruce (*Picea mariana*) or white spruce (*Picea glauca*) on sites broadcast-treated with **Arsenal** or into the treated zone of spot or banded applications for 3 months following application or injury may occur.

Herbaceous Weed Control

Use **Arsenal** for selective weeding in the following conifers:

Common Name	Scientific Name	Rate (fl ozs/A)
Loblolly pine	*Pinus taeda*	12 to 20
Loblolly X pitch hybrid		
Virginia pine	*Pinus virginiana*	
Longleaf pine[1]	*Pinus palustris*	8 to 12
Slash pine[1]	*Pinus elliottii*	
Douglas fir[1]	*Pseudotsuga menziesii*	

[1] Use of surfactant is not recommended.

Arsenal may be applied as a broadcast treatment, banded over tree rows, or as a directed spray for release of young conifers from herbaceous weeds. To prevent possibility of conifer injury, **DO NOT** apply **Arsenal** when conifers are under stress from drought, disease, animal or winter injury, planting shock, or other stresses reducing conifer vigor. Broadcast applications may be made by helicopter, ground, or backpack sprayer. For difficult-to-control weeds, use the higher labeled rates. Where herbaceous weeds have overtopped conifer seedlings, a nonionic surfactant may be added to improve weed control (except for slash pine, long-leaf pine, and Douglas fir), at a rate not to exceed 0.5% of spray solution volume. Some minor conifer growth inhibition may be observed when herbaceous weed control treatments are made during periods of active conifer growth.

Arsenal may also be applied using backpack or handheld sprayers to control herbaceous weeds around individual conifer seedlings. Mix 0.8 fl oz to 1.2 fl ozs **Arsenal** and 0.2 oz nonionic surfactant per gallon of water. Direct the spray to the weeds and minimize the amount applied to conifer foliage for best conifer tolerance. Ensure that maximum labeled rates per acre for previously listed crop species are not exceeded.

Arsenal may be tank mixed with sulfometuron to broaden the spectrum of weeds controlled. For loblolly pine, apply 8 fl ozs to 12 fl ozs **Arsenal** plus 1 oz to 2 ozs sulfometuron per acre. The application of **Arsenal** plus sulfometuron on other conifer species may cause growth suppression.

Conifer Release Treatment

Arsenal may be applied as a broadcast or directed spray application for suppression of labeled brush, tree, and herbaceous weed species. Directed spray applications may be made with low-volume applications in conifer stands of all ages by targeting the unwanted vegetation and avoiding direct application to the conifer. Ensure that maximum labeled rates per acre listed for the following crop species are not exceeded.

Broadcast Applications for release of the following conifers from hardwood competition:

Common Name	Scientific Name	Rate (fl ozs/A)
Loblolly pine[3]	*Pinus taeda*	24 to 40
Loblolly X pitch hybrid[3]		
Virginia pine[3]	*Pinus virginiana*	
Longleaf pine	*Pinus palustris*	24 to 32
Pitch pine	*Pinus rigida*	
Shortleaf pine	*Pinus echinata*	
Slash pine	*Pinus elliottii*	
White pine[1]	*Pinus strobus*	16 to 32
California red fir	*Abies magnifica*	16 to 24
California white fir	*Abies concolor*	
Lodgepole pine[2]	*Pinus contorta*	
Douglas fir[2]	*Pseudotsuga menziesii*	
Jack pine[2]	*Pinus banksiana*	12 to 24
Black spruce[2]	*Picea mariana*	
Red spruce[2]	*Picea rubens*	
White spruce[2]	*Picea glauca*	

[1] **DO NOT** make applications to white pine stands younger than three years old. To minimize potential white pine injury, release treatments should not be made prior to July 15.

[2] Applications should be made after formation of final conifer resting buds in the fall or height growth inhibition may occur.

[3] **Mid-rotation release:** For broadcast applications below the pine canopy in established stands of loblolly pine, loblolly X pitch hybrid, and Virginia pine, use 32 fl ozs to 64 fl ozs product per acre. For mid-rotation release of other species, use rates listed in chart above.

For slash pine and longleaf pine, broadcast release treatments over the top of pines for the purpose of woody plant control must be made after August 15 and only in stands 2 through 5 years old. For applications over the top of slash pine and longleaf pine, DO NOT add surfactant and use lower labeled rates on sandy soils.

Apply the label rate of **Arsenal® herbicide** per acre when making broadcast applications with helicopter or ground spray equipment. Refer to mixing and application instructions for proper spray volumes. A nonionic surfactant may be added at no more than 0.25% by volume.

Use the higher label rates of **Arsenal** when controlling particularly dense stands or difficult-to-control species.

Some minor conifer growth inhibition may be observed when release treatments are made during periods of active conifer growth. To minimize potential conifer height growth inhibition, **DO NOT** make broadcast applications to conifer stands except loblolly pine before the end of the second growing season. To minimize potential conifer height growth inhibition, broadcast release treatments may be made late in the growing season. To prevent possibility of conifer injury, **DO NOT** apply **Arsenal** when conifers are under stress from drought, disease, animal or winter injury, or other stresses reducing conifer vigor.

Arsenal may be used to release loblolly pine seedlings during the first growing season following planting or for one-year-old natural loblolly pine regeneration. For one-year-old loblolly pine release, apply 24 fl ozs to 40 fl ozs per acre of **Arsenal** after July 15. Rates below 32 fl ozs per acre are intended for hardwood growth suppression; expect hardwood resprouting.

Spot Treatment of Undesirable Hardwood Vegetation

Arsenal may be used as a directed foliar or cut-stem application to control undesirable brush and hardwoods in the management of stands of all ages for the conifer species listed in the broadcast application section above. Refer to mixing and application instructions in the directed foliar or cut-stem sections above for proper use rates, equipment, and application techniques. **DO NOT** exceed maximum labeled rates per acre listed for crop species. Cut-stem applications may be used for spot treatment of undesirable hardwoods in Ponderosa pine stands using 24 fl ozs or less of **Arsenal** per acre.

Avoid direct application to desired plant species or injury may occur. Injury may occur to nontarget or desirable hardwoods or conifers if they extend from the same root system, or their root systems are grafted to those of the treated tree, or their roots extend into the treated zone.

Late Rotation Vegetation Control in Western Conifer

In California, the Pacific Northwest and Inland Northwest, broadcast aerial applications of **Arsenal** up to 48 fl ozs per acre are permissible in conifer stands that are targeted for harvesting the year following treatment. Use minimum spray volume of 15 gallons per acre. Significant conifer injury or mortality must be expected. **DO NOT** use this treatment if conifer injury or mortality cannot be tolerated.

Bag and Spray Application for Conifer Release

In Douglas fir and Ponderosa pine stands, broadcast applications of **Arsenal** up to 32 fl ozs per acre are permissible when the trees are covered by bags prior to the application. The bags must prevent the spray mix from contacting the conifer foliage. On sites with coarse textured soils (e.g. decomposed granite, pumice, sandy or rocky sites) or low levels of soil organic matter (generally 5% or less), significant conifer growth inhibition and mortality is possible. **DO NOT** use this treatment on these types of sites if conifer growth inhibition and mortality cannot be tolerated.

Nonagricultural Land Use

Arsenal may be used for woody and herbaceous weed control in nonagricultural lands including private, public and military lands as follows: uncultivated nonagricultural areas (including airports, highway, railroad and utility rights-of-way, and sewage disposal areas); uncultivated agricultural areas - noncrop producing (including farmyards, fuel storage areas, fence rows, nonirrigation ditchbanks, and barrier strips); industrial sites - outdoor (including lumberyards, pipeline and tank farms); and natural areas (including wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads, and trails).

Applications to nonagricultural lands are not applicable to treatment of commercial timber or other plants grown for sale or other commercial use, or for commercial seed production, or for research purposes.

Brush Control

Use the specified rate of **Arsenal** with the preferred application technique for control of undesirable brush.

Tank Mixes and Application Rates for Low-volume Foliar Brush Control*

Target Vegetation	Arsenal Rate (% by volume)	Tank Mix
Mixed hardwoods without elm, locust, or pine	1.0 to 1.5	Surfactant
Mixed hardwoods containing elm, locust, and pine	0.5 to 1.0	**Accord®** at 2% to 3% by volume plus surfactant
Mixed hardwoods with locust and pine but no elm		**Krenite®** at 2% to 5% by volume plus surfactant
Mixed hardwoods with locust and elm but no pine		**Escort®** at 2 ozs/A **or** 2.3 grams/gal plus surfactant

* Tank mixes with 2,4-D or products containing 2,4-D have resulted in reduced **Arsenal** efficacy.

Backpack and Handheld Spray Mixing Guide

% solution	Product per gallon of mix (fl ozs)	Product per 4-gallon backpack (fl ozs)
0.25	0.3	1.3
0.5	0.6	2.6
1.0	1.3	5.1
2.0	2.6	10.2
3.0	3.8	15.4
5.0	6.4	25.6

Measuring Chart

128 fluid ounces	=	1 gallon
16 fluid ounces	=	1 pint
8 pints	=	1 gallon
4 quarts	=	1 gallon
2 pints	=	1 quart

Selective Control of Undesirable Weeds in Unimproved Bermudagrass and Bahiagrass

Arsenal® herbicide may be used on unimproved Bermudagrass and Bahiagrass turf such as roadsides, utility rights-of-way, and other nonagricultural lands. **Arsenal** application on established common and coastal Bermudagrass and Bahiagrass provides control of labeled broadleaf and grass weeds. Competition from these weeds is eliminated, releasing the Bermudagrass and Bahiagrass. Treatment of Bermudagrass with **Arsenal** results in a compacted growth habit and seedhead inhibition.

Uniformly apply with properly calibrated ground equipment using at least 10 gallons of water per acre.

Temporary yellowing of grass may occur when treatment is made after growth begins.

- **DO NOT** add surfactant in excess of the specified rate (1 fl oz per 25 gallons of spray solution).
- **DO NOT APPLY** to grass during its first growing season.
- **DO NOT APPLY** to grass under stress from drought, disease, insects, or other causes.

Dosage Rate and Timing

Bermudagrass. Apply **Arsenal** at 6 fl ozs to 12 fl ozs per acre when Bermudagrass is dormant. Apply **Arsenal** at 6 fl ozs to 8 fl ozs per acre after Bermudagrass has reached full greenup. Applications made during greenup will delay greenup. Include a surfactant in the spray solution.

For additional preemergence control of annual grass and small-seeded broadleaf weeds, add **Pendulum® AquaCap™ herbicide** at the rate of 3.1 to 6.3 pints per acre. Consult the **Pendulum AquaCap** label for weeds controlled and for other use directions and precautions.

For control of Johnsongrass in Bermudagrass turf, apply **Arsenal** at 8 fl ozs per acre, plus **Roundup® herbicide** at 12 fl ozs per acre, plus surfactant. For additional control of broadleaves and vines, **Garlon® 3A herbicide** may be added to the above mix at 1 to 2 pints per acre. Observe all precautions and restrictions on the **Garlon 3A** and **Roundup** labels.

Bahiagrass. Apply **Arsenal** at 4 fl ozs to 8 fl ozs per acre when Bahiagrass is dormant or after grass has initiated greenup but has not exceeded 25% greenup. Include a surfactant in the spray solution; see **Adjuvants** section for specific use directions for surfactants.

Weeds Controlled in Unimproved Bermudagrass and Bahiagrass

Common Name	Scientific Name
Bedstraw*	*Galium* spp.
Bishopweed*	*Ptilimnium capillaceum*
Buttercup*	*Ranunculus parviflorus*
Carolina geranium	*Geranium carolinianum*
Fescue	*Festuca* spp.
Foxtail	*Setaria* spp.
Little barley	*Hordeum pusillum*
Seedling Johnsongrass	*Sorghum halepense*
White clover	*Trifolium repens*
Wild carrot	*Daucus carota*
Yellow woodsorrel	*Oxalis stricta*

* Use not permitted in California unless otherwise directed by supplemental labeling.

Grass Growth and Seedhead Suppression

Arsenal may be used to suppress growth and seedhead development of certain turfgrass in unimproved areas. When **Arsenal** is applied to desirable turf, it may result in temporary turf damage and/or discoloration. Effects to the desirable turf may vary with environmental conditions. For optimum performance, apply before culm elongation. Applications may be made before or after mowing. If applied before mowing, allow at least 3 days of active growth before mowing. If applied after mowing, allow sufficient time for grass to recover before applying this product or injury may be amplified.

DO NOT APPLY to turf under stress (drought, cold, insect damage, etc.) or severe injury or death may occur.

Bermudagrass. Apply **Arsenal** at 6 fl ozs to 8 fl ozs per acre from early greenup to before seedhead initiation. **DO NOT** add surfactant for this application.

Cool-season Unimproved Turf. Apply **Arsenal** at 2 fl ozs per acre plus 0.25% nonionic surfactant. For increased suppression, **Arsenal** may be tank mixed with products such as **Embark® growth regulator** (8 fl ozs per acre). Tank mixes may increase injury to desired turf. Consult each product label for labeled turf species and other use directions and precautions. Tank mixes with 2,4-D or products containing 2,4-D may decrease the effectiveness of **Arsenal**.

Total Vegetation Control where Bare Ground is Desired

Arsenal® herbicide is an effective herbicide for pre-emergence or postemergence control of many annual and perennial broadleaf and grass weeds where bare ground is desired. **Arsenal** is particularly effective on hard-to-control perennial grasses. **Arsenal** at 1.5 to 6 pints per acre can be used alone or in tank mix with herbicides approved for use in bare ground. The degree and duration of control are dependent on **Arsenal** rate used, tank mix partner, volume of carrier, soil texture, rainfall, and other conditions.

Consult manufacturer's labels for specific rates and weeds controlled. Always follow the more restrictive label restrictions and precautions for all products used when making an application involving tank mixes.

Applications of **Arsenal** may be made any time of the year. Use equipment calibrated to deliver desired gallons per acre spray volume and uniformly distribute the spray pattern over the treated area.

Postemergence Application. Always use a spray adjuvant (see **Adjuvants** section of this label) when making a postemergence application. For optimum performance on tough-to-control annual grass weeds, apply **Arsenal** at a total volume of 100 gallons per acre or less. For quicker burndown or brownout of target weeds, **Arsenal** may be tank mixed with **Roundup® herbicide**. Tank mixes with 2,4-D or products containing 2,4-D may reduce the performance of **Arsenal**. Always follow the most restrictive label restrictions and precautions for all products used when tank mixing.

Spot Treatment. Arsenal may be used as a follow-up treatment to control escapes or weed encroachment in a bareground situation. To prepare the spray solution, thoroughly mix in each gallon of water 0.5% to 5% **Arsenal** plus an adjuvant. For increased burndown, include **Roundup** as a tank mixture. For added residual weed control or to increase the weed spectrum, add **Pendulum® AquaCap™ herbicide**, **Overdrive® herbicide**, or diuron. Always follow the most restrictive label restrictions and precautions for all products used when tank mixing.

Control of Undesirable Weeds under Paved Surfaces

Arsenal can be used under asphalt, pond liners, and other paved areas, **ONLY** in industrial sites or where the pavement has a suitable barrier along the perimeter that prevents encroachment of roots of desirable plants.

Use **Arsenal** only where the area to be treated has been prepared according to good construction practices. If rhizomes, stolons, tubers, or other vegetative plant parts are present in the site, remove them by scalping with a grader blade to a depth sufficient to ensure their complete removal.

Follow **Arsenal** applications with paving as soon as possible. **DO NOT** apply where **Arsenal** may contact the roots of desirable trees or other plants.

Arsenal is not to be used under pavement on residential properties, such as driveways or parking lots, or for use in recreational areas, such as under bike or jogging paths, golf cart paths, or tennis courts, or where landscape plantings could be anticipated.

Injury or death of desirable plants may result if **Arsenal** is applied where roots are present or where roots may extend into the treated area. Roots of trees and shrubs may extend a considerable distance beyond the branch extremities (drip line).

Apply to the soil surface only when final grade is established. **DO NOT** move soil following **Arsenal** application.

Apply **Arsenal** in sufficient water (at least 100 gals per acre) to ensure thorough and uniform wetting of the soil surface, including shoulder areas. Add **Arsenal** at a rate of 3 quarts per acre (2.2 fluid ounces per 1000 square feet) to clean water in the spray tank during filling operation. Agitate before spraying.

If soil is not moist before treatment, incorporation of **Arsenal** is needed for herbicide activation. Incorporate **Arsenal** into the soil to a depth of 4 to 6 inches using a rototiller or disc. Rainfall or irrigation of 1 inch will also provide uniform incorporation. **DO NOT** allow treated soil to wash or move into untreated areas.

Spot Treatment and Crack-and-crevice Treatment

Use **Arsenal** as an initial or follow-up treatment to control weed escapes or weed encroachment in a bareground situation, including cracks and crevices in paved surfaces such as roadways, runways, and parking areas.

Grass Pasture and Rangeland Spot Treatment Weed Control

For control of undesirable vegetation in grass pasture and rangeland, **Arsenal** may be applied as a spot treatment at a rate of 2 to 48 fluid ounces of product per treated acre using any of the described ground application methods. Spot applications to grass pasture and rangeland may not exceed more than 1/10 of the area to be grazed or cut for hay. See appropriate sections of this label for specific use directions for the application method and vegetation control desired. **DO NOT** apply more than 48 fluid ounces of **Arsenal** per acre per year.

Grazing and Haying Restrictions

- There are no grazing restrictions following **Arsenal** application.
- **DO NOT** cut forage grass for hay for 7 days after **Arsenal** application.

Rangeland Use Instructions

Arsenal® herbicide may be applied to rangeland for control of undesirable vegetation to achieve one or more of the following vegetation management objectives:

- Control of undesirable (nonnative, invasive, and noxious) plant species
- Control of undesirable vegetation to aid in the establishment of desirable rangeland plant species
- Control of undesirable vegetation to aid in the establishment of desirable rangeland vegetation following a fire
- Control of undesirable vegetation to reduce wildfire fuel
- Release of existing desirable rangeland plant communities from the competitive pressure of undesirable plant species
- Control of undesirable vegetation for wildlife habitat improvement

To ensure the protection of threatened and endangered plants when applying **Arsenal** to rangeland:

- Federal agencies must follow NEPA regulations to ensure protection of threatened and endangered plants.
- State agencies must work with the Fish and Wildlife Service or the Service's designated state conservation agency to ensure protection of threatened and endangered plants.
- Other organizations or individuals must operate under a habitat conservation plan if threatened or endangered plants are known to be present on the land to be treated.

See the appropriate section(s) of this label for specific use directions for the desired rangeland vegetation management objective.

Arsenal must only be applied to a given rangeland acre as specific weed problems arise. Long-term control of undesirable weed species ultimately depends on the successful use of land management practices that promote the growth and sustainability of desirable rangeland plant species.

Rotational Crop Instructions

Rotational crops may be planted 12 months after applying **Arsenal** at the specified pasture and rangeland rate. Following 12 months after an **Arsenal** application and before planting any crop, a successful field bioassay must be completed. The field bioassay consists of a test strip of the intended rotational crop planted in the previously treated area in the grass pasture/rangeland and grown to maturity. The test strip should include low areas and knolls and include variations in soil type and pH within the treated area. If no crop injury is evident in the test strip, the intended rotational crop may be planted the following year.

Use of **Arsenal** in accordance with label directions is expected to result in normal growth of rotational crops in most situations; however, various environmental and agronomic factors make it impossible to eliminate all risks associated with the use of this product and, therefore, rotational crop injury is always possible.

Aquatic Weed Control

Arsenal may be applied for control of floating and emergent undesirable vegetation (see **Aquatic Weeds Controlled** and **Terrestrial Weeds Controlled**) in or near bodies of water that may be flowing, nonflowing, or transient. **Arsenal** may be applied to aquatic sites that include lakes, rivers, streams, ponds, seeps, drainage ditches, canals, reservoirs, swamps, bogs, marshes, estuaries, bays, brackish water, transitional areas between terrestrial and aquatic sites, riparian sites, and seasonal wet areas. See **Product Use and Restrictions** section of this label for restrictions and instructions on aquatic uses.

Read and observe the following directions if aquatic sites are present in nonagricultural lands and are part of the intended treatment area.

Arsenal must be applied to the emergent foliage of the target vegetation and has little-to-no activity on submerged aquatic vegetation. **Arsenal** concentrations resulting from direct application to water are not expected to be of sufficient concentration or duration to control target vegetation. Apply **Arsenal** to maximize spray interception by target vegetation while minimizing the amount of overspray that enters the water.

Arsenal does not control plants that are completely submerged or have a majority of their foliage under water.

Arsenal may be applied with surface or helicopter application equipment in a minimum of 2 gallons of water per acre. When applying by helicopter, follow directions under the **Aerial Application** section of this label; otherwise, refer to the **Ground Application** section when using surface equipment.

Applications to moving bodies of water should be made while traveling upstream to prevent concentration of this herbicide in water. **DO NOT** apply to bodies of water or portions of bodies of water where emergent and/or floating weeds do not exist.

When applying to target vegetation that covers a large percentage of the surface area of impounded water, treating the area in strips may avoid oxygen depletion because of decaying vegetation. Oxygen depletion may result in the suffocation of some sensitive aquatic organisms. If oxygen depletion is a concern, treat no more than 1/2 of the surface area of the water in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow aquatic organisms to move into untreated areas.

Avoid washoff of sprayed foliage by spray boat or recreational boat backwash for 1 hour after application.

Apply **Arsenal** at 1 to 3 quarts per acre depending on species present and weed density. **DO NOT** exceed the maximum label rate of 3 quarts per acre (1.5 lbs ae/A) per year. Use the higher labeled rates for heavy weed pressure. Consult **Aquatic Weeds Controlled** and **Terrestrial Weeds Controlled** for specific rates.

Arsenal® herbicide may be applied as a draw-down treatment in areas described above. Apply **Arsenal** to weeds after water has been drained and allow 14 days before reintroduction of water.

Weeds Controlled

Aquatic Weeds Controlled

Arsenal® herbicide will control the following target species as specified in the **Use Rates and Application Directions** column of the table. Rates are expressed in terms of product volume for broadcast applications and as a % solution for directed applications including spot treatments. **For % solution applications, DO NOT apply more than the equivalent of 3 quarts of Arsenal per acre.**

Common Name	Scientific Name	Use Rates and Application Directions
Floating Weeds		
*Floating heart	*Nymphodes* spp.	2 to 4 pints/A (0.5 to 1.0% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Frogbit	*Limnobium spongia*	1 to 2 pints/A (0.5% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Spatterdock	*Nuphar luteum*	Apply a tank mix of: 2 to 4 pints/A **Arsenal** + 4 to 6 pints/A glyphosate (0.5% **Arsenal** + 1.5% glyphosate) in 100 GPA water for best control. Ensure 100% coverage of actively growing emergent foliage.
*Water hyacinth	*Eichhornia crassipes*	1 to 2 pints/A (0.5% solution) applied in 100 GPA water to actively growing foliage.
*Water lettuce	*Pistia stratiotes*	1 to 2 pints/A (0.5% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
Emerged Weeds		
*Alligatorweed	*Alternanthera philoxeroides*	1 to 4 pints/A (0.5% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Arrowhead, duck-potato	*Sagittaria* spp.	1 to 2 pints/A (0.5% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Bacopa, lemon	*Bacopa* spp.	1 to 2 pints/A (0.5% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Parrot feather	*Myriophyllum aquaticum*	Foliage must be above water for sufficient **Arsenal** uptake. Apply 2 to 4 pints/A **Arsenal** to actively growing emergent foliage.
*Pennywort	*Hydrocotyle* spp.	1 to 2 pints/A (0.5% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Pickerelweed	*Pontederia cordata*	2 to 3 pints/A (1% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Taro, wild Coco yam Dasheen Elephant's ear	*Colocasia esculentum*	4 to 6 pints/A (1.5% solution) applied in 100 GPA with a high quality sticker adjuvant. Ensure good coverage of actively growing emergent foliage.

*** Use not permitted in California unless otherwise directed by supplemental labeling.**

(continued)

Aquatic Weeds Controlled *(continued)*

Common Name	Scientific Name	Use Rates and Application Directions
Emerged Weeds *(continued)*		
*Water chestnut	*Trappa natans*	4 to 6 pints/A (1.5% solution) applied in 100 GPA with a high quality sticker adjuvant. Ensure good coverage of actively growing emergent foliage.
*Water lily	*Nymphaea odorata*	2 to 3 pints/A (1% solution) applied in 100 GPA water mix. Ensure 100% coverage of actively growing emergent foliage.
*Water primrose	*Ludwigia uruguayensis*	4 to 6 pints/A (1.5% solution). Ensure 100% coverage of actively growing emergent foliage.
Terrestrial/Marginal Weeds		
*Aquatic nightshade Soda apple	*Solanum tampicense*	2 pints/A applied to foliage
*Bamboo, Japanese	*Phyllostachys* spp.	3 to 4 pints/A applied to foliage when plant is actively growing; before setting seedhead. More foliage will result in greater herbicide uptake, resulting in greater root kill.
Beach, vitex	*Vitex rotundifolia*	5% solution + 1% MSO foliar spray 17% solution stem injection (hack and squirt)
Brazilian pepper Christmasberry	*Schinus terebinthifolius*	2 to 4 pints/A applied to foliage
Cattail	*Typha* spp.	2 to 4 pints/A (1% solution) applied to actively growing green foliage after full leaf elongation. Lower rates will control cattail in the North; higher rates are needed in the South.
Chinese tallow tree	*Sapium sebiferum*	16 to 24 fl ozs/A applied to foliage
Cogongrass	*Imperata cylindrica*	Burn foliage, till area; then fall-spray 2 quarts/A **Arsenal® herbicide** + MSO applied to new growth.
Cordgrass, prairie	*Spartina* spp.	4 to 6 pints/A applied to actively growing foliage
*Cutgrass	*Zizaniopsis miliacea*	4 to 6 pints/A applied to actively growing foliage
*Elephant grass Napier grass	*Pennisetum purpureum*	3 pints/A applied to actively growing foliage
*Flowering rush	*Butomus umbellatus* L.	2 to 3 pints/A applied to actively growing foliage
Giant reed Wild cane	*Arundo donax*	4 to 6 pints/A applied in spring to actively growing foliage
*Golden bamboo	*Phyllostachys aurea*	3 to 4 pints/A applied to foliage when plant is actively growing; before setting seedhead. More foliage will result in greater herbicide uptake, resulting in greater root kill.
Junglerice	*Echinochloa colonum*	3 to 4 pints/A applied to actively growing foliage
Knapweed	*Centaurea* spp.	**Russian knapweed:** 2 to 3 pints/A + 1 quart/A MSO fall-applied after senescence begins
Knotweed, Japanese	*Polygonum cuspidatum* *Fallopia japonica*	3 to 4 pints/A applied postemergence to actively growing foliage

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(continued)

Aquatic Weeds Controlled *(continued)*

Common Name	Scientific Name	Use Rates and Application Directions
Terrestrial/Marginal Weeds *(continued)*		
Melaleuca Paperbark tree	*Melaleuca quinquenervia*	• **Established stands** - Apply 6 pints/A **Arsenal® herbicide** + 6 pints/A glyphosate + spray adjuvant. For best results, use 4 quarts/A MSO as an adjuvant. • **Ground foliar application** - Uniformly apply to ensure 100% coverage. • **Broadcast foliar control** - Apply aerially in a minimum of 2 passes at 10 gallons/A applied cross treatment. • **Spot treatment** - Use a 25% **Arsenal** + 25% solution of glyphosate + 1.25% MSO in water applied as a frill or stump treatment.
*Nutgrass Kili'p'opu	*Cyperus rotundus*	2 pints/A **Arsenal** + 1 quart/A MSO applied early postemergence
*Nutsedge	*Cyperus* spp.	2 to 3 pints/A postemergence to foliage or preemergence incorporated; nonincorporated preemergence applications will not control.
Phragmites Common reed	*Phragmites australis*	4 to 6 pints/A applied to actively growing green foliage after full leaf elongation. Ensure 100% coverage. If stand has a substantial amount of old stem tissue, mow or burn; allow to regrow to approximately 5 feet tall before treatment. Lower rates will control phragmites in the North; higher rates are needed in the South.
*Poison hemlock	*Conium maculatum*	2 pints/A **Arsenal** + 1 quart/A MSO applied preemergence to early postemergence to rosette before flowering
Purple loosestrife	*Lythrum salicaria*	1 pint/A applied to actively growing foliage
Reed canarygrass	*Phalaris arundinacea*	3 to 4 pints/A applied to actively growing foliage
Rose, swamp	*Rosa palustris*	2 to 3 pints/A applied to actively growing foliage
Russian olive	*Elaeagnus angustifolia*	2 to 4 pints/A (1% solution) applied to foliage
Saltcedar Tamarisk	*Tamarix* spp.	**Aerial application** - 2 quarts **Arsenal** + 0.25% v/v NIS applied to actively growing foliage during flowering. **Spot treatment** - Use 1% solution of **Arsenal** + 0.25% v/v NIS and spray to wet foliage. After application, wait at least 2 years before disturbing treated saltcedar. Earlier disturbance can reduce overall control.
Smartweed	*Polygonum* spp.	2 pints/A applied early postemergence
Sumac	*Rhus* spp.	2 to 3 pints/A applied to foliage
Swamp morningglory Kangkong Water spinach	*Ipomoea aquatica*	1 to 2 pints/A **Arsenal** + 1 quart/A MSO applied early postemergence
Torpedo grass	*Panicum repens*	4 pints/A (1.0 to 1.5% solution). Ensure good coverage to actively growing foliage.
*White top Hoary cress	*Cardaria draba*	1 to 2 pints/A applied in spring to foliage during flowering
Willow	*Salix* spp.	2 to 3 pints/A **Arsenal** applied to actively growing foliage. Ensure good coverage.

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Terrestrial Weed Control

In terrestrial sites, **Arsenal® herbicide** will provide preemergence or postemergence control with residual control of the following target vegetation species at the rates listed. Residual control refers to control of newly germinating seedlings in both annuals and perennials. In general, annual weeds may be controlled by preemergence or postemergence applications of **Arsenal**. For established biennials and perennials, postemergence applications of **Arsenal** will provide the best control.

The rates shown below refer to broadcast applications and indicate the relative sensitivity of these weeds. The relative sensitivity should be referenced when preparing low-volume spray solutions (see **Low-volume Foliar Application** section of **Ground Application**); low-volume applications may provide control of the target species with less **Arsenal** per acre than is shown for the broadcast treatments. Use **Arsenal** only in accordance with the specific use directions on this label and the leaflet label.

Use the relative sensitivity of the species listed following to determine the relative risk of nontarget plant injury if any of the species listed following are considered to be desirable within the area to be treated.

Resistant Biotypes. Naturally occurring biotypes (a plant within a given species that has a slightly different but distinct genetic makeup from other plants of the same species) of some weeds listed on this label may not be effectively controlled. If naturally occurring resistant biotypes are present in an area, tank mix **Arsenal** or apply sequentially with an appropriate registered herbicide having a different mode of action to ensure control.

Terrestrial Weeds Controlled

Common Name	Scientific Name	Growth Habit[2]
Grass Weeds		
Apply 2 to 3 pts/A[1]		
Annual bluegrass	*Poa annua*	A
Broadleaf signalgrass	*Brachiaria platyphylla*	A
Canada bluegrass	*Poa compressa*	P
Downy brome	*Bromus tectorum*	A
Fescue	*Festuca* spp.	A/P
Foxtail	*Setaria* spp.	A
Italian ryegrass	*Lolium multiflorum*	A
Johnsongrass[4]	*Sorghum halepense*	P
Kentucky bluegrass	*Poa pratensis*	P
Napier grass[5]	*Pennisetum purpureum*	P
Orchardgrass	*Dactylis glomerata*	P
Paragrass	*Brachiaria mutica*	P
Quackgrass	*Agropyron repens*	P

(continued)

Terrestrial Weeds Controlled *(continued)*

Common Name	Scientific Name	Growth Habit[2]
Grass Weeds *(continued)*		
Apply 2 to 3 pts/A[1] *(continued)*		
Sandbur	*Cenchrus* spp.	A
Smooth brome	*Bromus inermis*	P
Vaseygrass	*Paspalum urvillei*	P
Wild oats	*Avena fatua*	A
Witchgrass	*Panicum capillare*	A
Apply 3 to 4 pts/A[1]		
Barnyardgrass	*Echinochloa crus-galli*	A
Beardgrass	*Andropogon* spp.	P
Bluegrass, annual	*Poa annua*	A
Bulrush[5]	*Scirpus validus*	P
Cheat	*Bromus secalinus*	A
Cogongrass	*Imperata cylindrica*	P
Crabgrass	*Digitaria* spp.	A
Crowfootgrass	*Dactyloctenium aegyptium*	A
Fall panicum	*Panicum dichotomiflorum*	A
Goosegrass	*Eleusine indica*	A
Itchgrass	*Rottboellia exaltata*	A
Lovegrass[4]	*Eragrostis* spp.	P
Maidencane[5]	*Panicum hemitomon*	A
Panicum, browntop	*Panicum fasciculatum*	A
Panicum, Texas	*Panicum texanum*	A
Prairie threeawn	*Aristida oligantha*	P
Sandbur, field	*Cenchrus incertus*	A
Signalgrass	*Brachiaria platyphylla*	A
Wild barley	*Hordeum* spp.	A
Woolly cupgrass	*Eriochloa villosa*	A
Apply 4 to 6 pts/A[1]		
Bahiagrass	*Paspalum notatum*	P
Bermudagrass[3, 4]	*Cynodon dactylon*	P
Big bluestem	*Andropogon gerardii*	P
Dallisgrass	*Paspalum dilatatum*	P
Feathertop	*Pennisetum villosum*	P
Guineagrass	*Panicum maximum*	P
Saltgrass[3]	*Distichlis stricta*	P
Sand dropseed	*Sporobolus cryptandrus*	P
Sprangletop	*Leptochloa* spp.	A
Timothy	*Phleum pratense*	P
Wirestem muhly	*Muhlenbergia frondosa*	P

[1] Use higher rate where heavy or well-established infestations occur.
[2] Growth Habit: A = Annual, B = Biennial, P = Perennial
[3] Use a minimum of 75 GPA.
[4] Use higher labeled rates.
[5] Use not permitted in California unless otherwise directed by supplemental labeling.

Terrestrial Weeds Controlled *(continued)*

Common Name	Scientific Name	Growth Habit[2]
Broadleaf Weeds		
Apply 2 to 3 pts/A[1]		
Burdock	*Arctium* spp.	B
Carolina geranium	*Geranium carolinianum*	A
Carpetweed	*Mollugo verticillata*	A
Clover	*Trifolium* spp.	A/P
Common chickweed	*Stellaria media*	A
Common ragweed	*Ambrosia artemisiifolia*	A
Dandelion	*Taraxacum officinale*	P
Dogfennel	*Eupatorium capillifolium*	A
Filaree	*Erodium* spp.	A
Fleabane	*Erigeron* spp.	A
Hoary vervain	*Verbena stricta*	P
Indian mustard	*Brassica juncea*	A
Kochia	*Kochia scoparia*	A
Lambsquarters	*Chenopodium album*	A
Lespedeza[3]	*Lespedeza* spp.	P
Miner's lettuce	*Montia perfoliata*	A
Mullein	*Verbascum* spp.	B
Nettleleaf goosefoot	*Chenopodium murale*	A
Oxeye daisy	*Chrysanthemum leucanthemum*	P
Pepperweed	*Lepidium* spp.	A
Pigweed	*Amaranthus* spp.	A
Puncturevine	*Tribulus terrestris*	A
Russian thistle	*Salsola kali*	A
Smartweed	*Polygonum* spp.	A/P
Sorrell	*Rumex* spp.	P
Sunflower	*Helianthus* spp.	A
Sweet clover	*Melilotus* spp.	A/B
Tansymustard	*Descurainia pinnata*	A
Western ragweed	*Ambrosia psilostachya*	P
Wild carrot	*Daucus carota*	B
Wild lettuce	*Lactuca* spp.	A/B
Wild parsnip	*Pastinaca sativa*	B
Wild turnip	*Brassica campestris*	B
Woollyleaf bursage	*Franseria tomentosa*	P
Yellow woodsorrel	*Oxalis stricta*	P

(continued)

Terrestrial Weeds Controlled *(continued)*

Common Name	Scientific Name	Growth Habit[2]
Broadleaf Weeds *(continued)*		
Apply 3 to 4 pts/A[1]		
Broom snakeweed[4]	*Gutierrezia sarothrae*	P
Bull thistle	*Cirsium vulgare*	B
Burclover	*Medicago* spp.	A
Chickweed, mouseear	*Cerastium vulgatum*	A
Clover, hop	*Trifolium procumbens*	A
Cocklebur	*Xanthium strumarium*	A
Cudweed	*Gnaphalium* spp.	A
Desert camelthorn	*Alhagi pseudalhagi*	P
Dock	*Rumex* spp.	P
Fiddleneck	*Amsinckia intermedia*	A
Goldenrod	*Solidago* spp.	P
Henbit	*Lamium amplexicaule*	A
Knotweed, prostrate	*Polygonum aviculare*	A/P
Pokeweed	*Phytolacca americana*	P
Purslane	*Portulaca* spp.	A
Pusley, Florida	*Richardia scabra*	A
Rocket, London	*Sisymbrium irio*	A
Rush skeletonweed[4]	*Chondrilla juncea*	B
Saltbush	*Atriplex* spp.	A
Shepherdspurse	*Capsella bursa-pastoris*	A
Spurge, annual	*Euphorbia* spp.	A
Stinging nettle[4]	*Urtica dioica*	P
Velvetleaf	*Abutilon theophrasti*	A
Yellow starthistle	*Centaurea solstitialis*	A
Apply 4 to 6 pts/A[1]		
Arrowwood	*Pluchea sericea*	A
Canada thistle	*Cirsium arvense*	P
Giant ragweed	*Ambrosia trifida*	A
Gray rabbitbrush	*Chrysothamnus nauseosus*	P
Little mallow	*Malva parviflora*	B
Milkweed	*Asclepias* spp.	P
Primrose	*Oenothera kunthiana*	P
Silverleaf nightshade	*Solanum elaeagnifolium*	P
Sowthistle	*Sonchus* spp.	A
Texas thistle	*Cirsium texanum*	P

[1] Use higher rate where heavy or well-established infestations occur.
[2] Growth Habit: A = Annual, B = Biennial, P = Perennial
[3] Use not permitted in California unless otherwise directed by supplemental labeling.
[4] For best results, early postemergence applications are required.

Terrestrial Weeds Controlled *(continued)*

Common Name	Scientific Name	Growth Habit[2]
Vines and Brambles		
Apply 1 pt/A		
Field bindweed	*Convolvulus arvensis*	P
Hedge bindweed	*Calystegia sepium*	A
Apply 2 to 3 pts/A[1]		
Wild buckwheat	*Polygonum convolvulus*	P
Apply 3 to 4 pts/A[1]		
Greenbriar	*Smilax* spp.	P
Honeysuckle[3]	*Lonicera* spp.	P
Morningglory	*Ipomoea* spp.	A/P
Poison ivy	*Rhus radicans*	P
Redvine	*Brunnichia cirrhosa*	P
Wild rose[3]	*Rosa* spp.	P
including:		
Multiflora rose	*Rosa multiflora*	P
Macartney rose	*Rosa bracteata*	P
Apply 4 to 6 pts/A[1]		
Trumpetcreeper	*Campsis radicans*	P
Virginia creeper	*Parthenocissus quinquefolia*	P
Wild grape	*Vitis* spp.	P

[1] Use higher rate where heavy or well-established infestations occur.
[2] Growth Habit: A = Annual, B = Biennial, P = Perennial
[3] Use higher labeled rates.

Common Name	Scientific Name	Growth Habit[2]
Brush Species		
Apply 2 to 4 pts/A[1]		
Brazilian peppertree	*Schinus terebinthifolius*	P
Chinese tallow tree Popcorn tree	*Sapium sebiferum*	P
Russian olive	*Elaeagnus angustifolia*	P
Sumac	*Rhus* spp.	P
Willow	*Salix* spp.	P
Apply 4 to 6 pts/A[1]		
Alder	*Alnus* spp.	P
American beech	*Fagus grandifolia*	P
Ash[3]	*Fraxinus* spp.	P
Aspen	*Populus* spp.	P
Autumn olive	*Elaeagnus umbellata*	P
Bald cypress	*Taxodium distichum*	P
Bigleaf maple	*Acer macrophyllum*	P
Birch[3]	*Betula* spp.	P
Black gum[4]	*Nyssa sylvatica*	P
Black oak	*Quercus kelloggii*	P
Boxelder	*Acer negundo*	P
Ceanothis	*Ceanothis* spp.	P
Cherry[3, 4]	*Prunus* spp.	P

(continued)

Terrestrial Weeds Controlled *(continued)*

Common Name	Scientific Name	Growth Habit[2]
Brush Species *(continued)*		
Apply 4 to 6 pts/A[1]		
Chinaberry	*Melia azedarach*	P
Chinquapin	*Castanopsis chrysophylla*	P
Cottonwood	*Populus trichocarpa* *P. deltoides*	P
Cypress	*Taxodium* spp.	P
Dogwood[3]	*Cornus* spp.	P
Elm[5]	*Ulmus* spp.	P
Eucalyptus	*Eucalyptus* spp.	P
Hawthorn	*Crataegus* spp.	P
Hickory[3]	*Carya* spp.	P
Huckleberry	*Gaylussacia* spp.	P
Lyonia spp.		
including:		
Fetterbush	*Lyonia lucida*	
Staggerbush	*Lyonia mariana*	P
Madrone	*Arbutus menziesii*	P
Maple	*Acer* spp.	P
Melaleuca	*Melaleuca quinquenervia*	P
Mulberry[3, 6]	*Morus* spp.	P
Oak[7]	*Quercus* spp.	P
Persimmon[4]	*Diospyros virginiana*	P
Poison oak	*Rhus diversiloba*	P
Poplar	*Populus* spp.	P
Privet	*Ligustrum vulgare*	P
Red alder	*Alnus rubra*	P
Red maple	*Acer rubrum*	P
Saltcedar	*Tamarix pentandra*	P
Sassafras	*Sassafras albidum*	P
Sourwood[4]	*Oxydendrum arboreum*	P
Sweetgum	*Liquidambar styraciflua*	P
Sycamore	*Platanus occidentalis*	P
Tanoak[3]	*Lithocarpus densiflorus*	P
Titi[8]	*Cyrilla racemiflora*	P
Tree of heaven	*Ailanthus altissima*	P
Vaccinium spp.		
including:		
Blueberry	*Vaccinium* spp.	
Sparkleberry	*Vaccinium arboreum*	P
Water willow[9]	*Justicia americana*	P
Yellow poplar[3]	*Liriodendron tulipifera*	P

[1] Use higher rate where heavy or well-established infestations occur.
[2] Growth Habit: A = Annual, B = Biennial, P = Perennial
[3] Use higher labeled rates.
[4] Best control with applications before formation of fall leaf color
[5] Tank mix with glyphosate
[6] Degree of control may be species dependent.
[7] For water oak (*Quercus nigra*), laurel oak (*Q. laurifloria*), willow oak (*Q. phellos*), and live oak (*Q. virginiana*), use higher labeled rates.
[8] Suppression only
[9] **Use not permitted in California unless otherwise directed by supplemental labeling.**

Conditions of Sale and Warranty

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and must be followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION ("BASF") or the Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer.

BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above.

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TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BASF AND THE SELLER DISCLAIM ANY LIABILITY FOR CONSEQUENTIAL, EXEMPLARY, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

BASF and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty** which may be varied only by agreement in writing signed by a duly authorized representative of BASF. 1108

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BASF Corporation
26 Davis Drive
Research Triangle Park, NC 27709

The Chemical Company

Specimen Label

Dow AgroSciences

Garlon® 3A

SPECIALTY HERBICIDE

®Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

For the control of woody plants, broadleaf weeds in range and pasture, forests and non-crop areas, including manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, fence rows, non-irrigation ditch banks, and around farm buildings; and applications to grazed areas, and establishment and maintenance of wildlife openings, and in Christmas tree plantations and aquatic sites.

For use in New York State, comply with Section 24(c) Special Local Need labeling for Garlon 3A, SLN NY-110005.

GROUP	4	HERBICIDE

Active Ingredient:	
Triclopyr: 2-[(3,5,6-trichloro-2-pyridinyl)oxy] acetic acid, triethylamine salt	44.4%
Other Ingredients	55.6%
Total	100.0%

Acid equivalent: triclopyr - 31.8% - 3 lb/gal

Precautionary Statements

Hazard to Humans and Domestic Animals

EPA Reg. No. 62719-37

DANGER

Corrosive • Causes Irreversible Eye Damage • Harmful If Swallowed Or Absorbed Through Skin • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reaction In Some Individuals

Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Protective eyewear
- Chemical resistant gloves (≥14 mils) such as butyl rubber, natural rubber, neoprene rubber or nitrile rubber

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240(d)(4-6)), the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

First Aid

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person. Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

Note to Applicator: Allergic skin reaction is not expected from exposure to spray mixtures of Garlon 3A herbicide when used as directed.

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage.

Environmental Hazards

Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Under certain conditions, treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants, which may contribute to fish suffocation. This loss can cause fish suffocation. Therefore, to minimize this hazard, do not treat more than one-third to one-half of the water area in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Consult with the State agency for fish and game before applying to public water to determine if a permit is needed.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Physical or Chemical Hazards

Combustible. Do not use or store the product near heat or open flame.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read all Directions for Use carefully before applying.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Shoes plus socks
- Protective eyewear
- Chemical-resistant gloves (≥14 mils) such as butyl rubber, natural rubber, neoprene rubber or nitrile rubber

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for Agricultural Pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Entry Restrictions for Non-WPS Uses: For applications to non-cropland areas, do not allow entry into areas until sprays have dried, unless applicator and other handler PPE is worn.

Storage and Disposal

Do not contaminate water, food, or feed by storage and disposal. Open dumping is prohibited.
Pesticide Storage: Store above 28°F or agitate before use.
Pesticide Disposal: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Nonrefillable containers 5 gallons or less:
Container Handling: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable containers 5 gallons or larger:
Container Handling: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

Nonrefillable containers 5 gallons or larger:
Container Handling: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Product Information

Use Garlon® 3A specialty herbicide for the control of woody plants and broadleaf weeds in range and pasture, forests and non-crop areas including manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, fence rows, non-irrigation ditch banks, and around farm buildings, and applications to grazed areas, and establishment and maintenance of wildlife openings, and in Christmas tree plantations and aquatic sites.
Obtain Required Permits: Consult with appropriate state or local water authorities before applying this product to public waters. State or local public agencies may require permits.

Use Precautions

It is permissible to treat non-irrigation ditch banks, seasonally dry wetlands (such as flood plains, deltas, marshes, swamps, or bogs), and transitional areas between upland and lowland sites.

When making applications to control unwanted plants on banks or shorelines of moving water sites, minimize overspray to open water.

Use Restrictions

For use in New York State, comply with Section 24(c) Special Local Need labeling for Garlon 3A, SLN NY-110005.

Chemigation: Do not apply this product through any type of irrigation system.

Do not apply Garlon 3A directly to, or otherwise permit it to come into direct contact with, grapes, tobacco, vegetable crops, flowers, or other desirable broadleaf plants. Do not permit spray mists containing Garlon 3A to drift onto such plants.

Do not apply to salt water bays or estuaries.

Do not apply directly to un-impounded rivers or streams.

Do not apply on ditches or canals currently being used to transport irrigation water or that will be used for irrigation within 4 months following treatment. It is permissible to treat irrigation and non-irrigation ditch banks.

Do not apply where runoff water may flow onto agricultural land as injury to crops may result.

Do not apply with a mistblower.

Water treated with Garlon 3A may not be used for irrigation purposes for 120 days after application or until residue levels of Garlon 3A are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

Seasonal Irrigation Waters: Garlon 3A may be applied during the off-season to surface waters that are used for irrigation on a seasonable basis provided that there is a minimum of 120 days between applying Garlon 3A and the first use of treated water for irrigation purposes, or until residue levels of Garlon 3A are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

Irrigation Canals/Ditches: Do not apply Garlon 3A to irrigation canals/ditches unless the 120-day restriction on irrigation water usage can be observed or residue levels of Garlon 3A are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

Maximum Use Rates

- Apply no more than 6 lb ae of triclopyr (2 gallons of Garlon 3A) per acre per year on aquatic sites.
- Apply no more than 2 lb ae of triclopyr (2/3 gallon of Garlon 3A) per acre per growing season on range and pasture sites, including rights-of-way, fence rows or any area where grazing or harvesting of hay is allowed.
- On forestry sites, Garlon 3A may be used at rates up to 6 lb ae of triclopyr (2 gallons of Garlon 3A) per acre per year.
- For all terrestrial use sites other than range, pasture, forestry sites, and grazed/hayed areas, the maximum application rate is 9 lb ae of triclopyr (3 gallons of Garlon 3A) per acre per year.

Precautions for Potable Water Intakes for Emerged Aquatic Weed Control
See chart below for specific setback distances near functioning potable water intakes. **Note:** Existing potable water intakes which are no longer in use, such as those replaced by potable water wells or connections to a municipal water system, are not considered to be functioning potable water intakes. These setback restrictions do not apply to terrestrial applications made adjacent to potable water intakes.

	Garlon 3A Application Rate			
Area Treated	**2 qt/acre**	**4 qt/acre**	**6 qt/acre**	**8 qt/acre**
(acres)	**Setback Distance (ft)**			
4	0	200	400	500
>4 - 8	0	200	700	900
>8 - 16	0	200	700	1000
>16	0	200	900	1300

To apply Garlon 3A around and within the distances noted above from a functioning potable water intake, the intake must be turned off until the triclopyr level in the intake water is determined to be 0.4 parts per million (ppm) or less by laboratory analysis or immunoassay.

Recreational Use of Water in Treatment Area: There are no restrictions on use of water in the treatment area for recreational purposes, including swimming and fishing.

Livestock Use of Water from Treatment Area: There are no restrictions on livestock consumption of water from the treatment area.

Grazing and Haying Restrictions

Grazing green forage:
- There are no grazing restrictions for livestock or dairy animals on treated areas.

Haying (harvesting of dried forage)
- Do not harvest hay for 14 days after application.

Slaughter Restrictions: During the season of application, withdraw livestock from grazing treated grass at least 3 days before slaughter.

Avoiding Injurious Spray Drift

Make applications only when there is little or no hazard from spray drift. Small quantities of spray, which may not be visible, may seriously injure susceptible plants. Do not spray when wind is blowing toward susceptible crops or ornamental plants that are near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movement, lapse conditions, or temperature inversions (stable air). If the smoke layers or indicates a potential of hazardous spray drift, do not spray.

Aerial Application: For aerial application on rights-of-way or other areas near susceptible crops, apply through a Microfoil† or Thru-Valve boom†, or use an agriculturally labeled drift control additive. Other drift reducing systems or thickened sprays prepared by using high viscosity inverting systems may be used if they are made as drift-free as mixtures containing agriculturally labeled thickening agents or applications made with the Microfoil or Thru-Valve boom. Keep spray pressures low enough to provide coarse spray droplets. Spray boom should be no longer than 3/4 of the rotor length. Do not use a thickening agent with the Microfoil or Thru-Valve booms, or other systems that cannot accommodate thick sprays. Spray only when the wind velocity is low (follow state regulations). Avoid application during air inversions. If a spray thickening agent is used, follow all use recommendations and precautions on the product label.

†Reference within this label to a particular piece of equipment produced by or available from other parties is provided without consideration for use by the reader at its discretion and subject to the reader's independent circumstances, evaluation, and expertise. Such reference by Dow AgroSciences is not intended as an endorsement of such equipment, shall not constitute a warranty (express or implied) of such equipment, and is not intended to imply that other equipment is not available and equally suitable. Any discussion of methods of use of such equipment does not imply that the reader should use the equipment other than is advised in directions available from the equipment's manufacturer. The reader is responsible for exercising its own judgment and expertise, or consulting with sources other than Dow AgroSciences, in selecting and determining how to use its equipment.

Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications:

1. The distance of the outer most operating nozzles on the boom must not exceed 3/4 the length of the rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they must be observed.

The applicator should be familiar with and take into account the information covered in the following Aerial Drift Reduction Advisory. [This information is advisory in nature and does not supersede mandatory label requirements.]

Aerial Drift Reduction Advisory

Information on Droplet Size: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

Controlling Droplet Size:
- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length: For some use patterns, reducing the effective boom length to less than 3/4 of the rotor length may further reduce drift without reducing swath width.

Application Height: Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment: When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind: Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions: Applications should not occur during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

Ground Equipment: To aid in reducing spray drift, Garlon 3A should be used in thickened (high viscosity) spray mixtures using an agriculturally labeled drift control additive, high viscosity invert system, or equivalent as directed by the manufacturer. With ground equipment, spray drift can be reduced by keeping the spray boom as low as possible; by applying 20 gallons or more of spray per acre; by keeping the operating spray pressures at the lower end of the manufacturer's recommended pressures for the specific nozzle type used (low pressure nozzles are available from spray equipment manufacturers); and by spraying when wind velocity is low (follow state regulations). In hand-gun applications, select the minimum spray pressure that will provide adequate plant coverage (without forming a mist). Do not apply with nozzles that produce a fine-droplet spray.

High Volume Leaf-Stem Treatment: To minimize spray drift, do not use pressure exceeding 50 psi at the spray nozzle and keep sprays no higher than brush tops. An agriculturally labeled thickening agent may be used to reduce drift.

Weed Resistance Management:

Triclopyr, the active ingredient in this product, is a Group 4 herbicide based on the mode of action classification system of the Weed Science Society of America. Any weed population may contain or develop plants resistant to Group 4 herbicides. Resistant weeds may dominate the weed population if these herbicides are used repeatedly in the same field. Such resistant weed plants may not be effectively managed using Group 4 herbicides but may be effectively managed utilizing other herbicides alone or in mixtures from a different herbicide Groups that are labeled for control of these weeds and/or by using cultural or mechanical practices. However, a herbicide mode of action classification by itself may not adequately address specific weeds that are resistant to specific herbicides. Consult your local company representative, state cooperative

extension service, professional consultants or other qualified authorities to determine appropriate actions for treating specific resistant weeds.

Best Management Practices:

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is recommended. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistant weeds. Scouting after a herbicide application is important because it can facilitate the early identification of weed shifts and/or weed resistance and thus provide direction on future weed management practices. One of the best ways to contain resistant weed populations is to implement measures to avoid allowing weeds to reproduce by seed or to proliferate vegetatively. Cleaning equipment between sites and avoiding movement of plant material between sites will greatly aid in reducing the spread of resistant weed seed.

Plants Controlled

Woody Plant Species

alder
arrowwood
ash
aspen
Australian pine
bear clover (bearmat)
beech
birch
blackberry
blackgum
Brazilian pepper
cascara
ceanothus
cherry
chinquapin
choke cherry
cottonwood
crataegus (hawthorn)
Douglas fir
dogwood
elderberry
elm
gallberry
hazel
hornbean
kudzu[1]
locust
madrone
maples
mulberry
oaks
persimmon
pine
poison ivy
poison oak
poplar
salt-bush (*Baccharis* spp.)
salt cedar[2]
salmonberry
sassafras
scotch broom
sumac
sweetbay magnolia
sweetgum
sycamore
tanoak
thimbleberry
tulip poplar
waxmyrtle
western hemlock
wild rose
willow
winged elm

[1]For complete control, re-treatment may be necessary.
[2]Use cut surface treatments for best results.

Annual and Perennial Broadleaf Weeds

bindweed
burdock
Canada thistle
chicory
curly dock
dandelion
field bindweed
lambsquarter
Mexican petunia
plantain
purple loosestrife
ragweed
smartweed
Spanish needles/ common beggarthicks
tansy ragwort
tropical soda apple
vetch
wedelia
wild lettuce

Purple Loosestrife (*Lythrum salicaria*)
Purple loosestrife can be controlled with foliar applications of Garlon 3A. For broadcast applications, use a minimum of 4 1/2 to 6 lb ae of triclopyr (6 to 8 quarts of Garlon 3A) per acre. Apply Garlon 3A when purple loosestrife is at the bud to mid-flowering stage of growth. Follow-up applications for control of regrowth should be made the following year in order to achieve increased control of this weed species. For all applications, a non-ionic surfactant should be added to the spray mixture. Follow all directions and use precautions on the label of the surfactant. Thorough wetting of the foliage and stems is necessary to achieve satisfactory control. A minimum spray volume of 50 gallons per acre is neededfor ground broadcast applications.

If using a backpack sprayer, a spray mixture containing 1% to 1.5% Garlon 3A or 5 to 7.6 fl oz of Garlon 3A per 4 gallons of water should be used. All purple loosestrife plants should be thoroughly wetted.

Application Methods

Use Garlon 3A at rates of 3/4 to 9 lb ae of triclopyr (1/4 to 3 gallons of Garlon 3A) per acre to control broadleaf weeds and woody plants. In all cases, use the amount specified in enough water to give uniform and complete coverage of the plants to be controlled. Use only water suitable for spraying. Use an agriculturally labeled non-ionic surfactant for all foliar applications. When using surfactants, follow the use directions and precautions listed on the surfactant manufacturer's label. Use the higher concentrations of surfactant in the spray mixture when applying lower spray volumes per acre. The order of addition to the spray tank is water, spray thickening agent (if used), additional herbicide (if used), and Garlon 3A. Surfactant should be added to the spray tank last or as recommended on the product label. If combined with emulsifiable concentrate herbicides, moderate continuous adequate agitation is required.

Before using any recommended tank mixtures, read the directions and all use precautions on both labels. **Note:** If tank mixing with Rodeo® herbicide, mix the Garlon 3A with at least 75% of the total spray volume desired and ensure that Garlon 3A is well mixed before adding the Rodeo to avoid incompatibility.

For best results, apply when woody plants and weeds are actively growing. When hard to control species such as ash, blackgum, choke cherry, elm, maples, oaks, pines, or winged elm are prevalent and during applications made in late summer when the plants are mature and during drought conditions, use the higher rates of Garlon 3A alone or in combination with Tordon® 101 Mixture specialty herbicide. (Tordon 101 Mixture is a restricted use pesticide. See product label.) Tordon 101 Mixture is not registered for use in the states of California and Florida.

When using Garlon 3A in combination with 2,4-D 3.8 lb amine, like DMA 4 IVM, or low volatile ester herbicides, generally the higher rates should be used for satisfactory brush control.

Use the higher dosage rates when brush approaches an average of 15 feet in height or when the brush covers more than 60% of the area to be treated. If lower rates are used on hard to control species, resprouting may occur the year following treatment.

On sites where easy to control brush species dominate, rates less than those listed may be effective. Consult State or Local Extension personnel for such information.

Foliage Treatment With Ground Equipment
High Volume Foliage Treatment
For control of woody plants, use Garlon 3A at the rate of 3 to 9 lb ae of triclopyr (1 to 3 gallons of Garlon 3A) per 100 gallons of spray solution, or Garlon 3A at 3/4 to 3 lb ae of triclopyr (1 to 4 quarts of Garlon 3A) may be tank mixed with 2,4-D amine, like DMA 4 IVM, or low volatile ester or Tordon 101 Mixture and diluted to make 100 gallons of spray solution. Apply at a volume of 100 to 400 gallons of total spray per acre depending upon size and density of woody plants. Coverage should be thorough to wet all leaves, stems, and root collars. (See Use Precautions and Restrictions.) Do not exceed maximum allowable use rates per acre (see table below). Tordon 101 Mixture is not registered for use in the states of California and Florida.

Maximum Labeled Rate versus Spray Volume per Acre

Total Spray Volume (gal/acre)	Maximum Rate of Garlon 3A		
	Range and Pasture Sites[1] (gal/100 gal of spray)	Forestry Sites[2] (gal/100 gal of spray)	Other Non-Cropland Sites[3] (gal/100 gal of spray)
400	Do not use	0.5	0.75
300	Do not use	0.67	1
200	Do not use	1	1.5
100	0.67	2	3
50	1.33	4	6
40	1.67	5	7.5
30	2.33	6.65	10
20	3.33	10	15
10	6.67	20	30

[1]Do not exceed the maximum use rate of 2 lb ae of triclopyr (2/3 gal of Garlon 3A)/acre/year.
[2]Do not exceed the maximum use rate of 6 lb ae of triclopyr (2 gal of Garlon 3A)/acre/year.
[3]Do not exceed the maximum use rate of 9 lb ae of triclopyr (3 gal of Garlon 3A)/acre/year on non-cropland use sites other than rangeland, pasture, forestry, and grazed/hayed areas.

Low Volume Foliage Treatment
To control susceptible woody plants, apply up to 15 lb ae of triclopyr (5 gallons of Garlon 3A) in 10 to 100 gallons of finished spray. The maximum volume of the finish spray applied to an acre is limited by the maximum use rate per site type (See Maximum Use Rates section - Range and Pasture, Grazing, Haying sites 2 lb ae, Forestry sites 6 lb ae, and all other sites 9 lb ae triclopyr).The spray concentration of Garlon 3A and total spray volume per acre should be adjusted according to the size and density of target woody plants and kind of spray equipment used. With low volume sprays, use sufficient spray volume to obtain uniform coverage of target plants including the surfaces of all foliage, stems, and root collars (see General Use Precautions and Restrictions). For best results, a surfactant should be added to all spray mixtures. Match equipment and delivery rate of spray nozzles to height and density of woody plants. When treating tall, dense brush, a truck mounted spray gun with spray tips that deliver up to 2 gallons per minute at 40 to 60 psi may be required. Backpack or other types of specialized spray equipment with spray tips that deliver less than 1 gallon of spray per minute may be appropriate for short, low to moderate density brush.

Tank Mixing: As a low volume foliar spray, up to 9 lb ae of triclopyr (3 gallons of Garlon 3A) may be applied in tank mix combination with Tordon K or Tordon 101 Mixture in 10 to 100 gallons of finished spray. The maximum volume of the finish spray applied to an acre is limited by the maximum use rate per site type (See Maximum Use Rates section - Range and Pasture, Grazing, Haying sites 2 lb ae, Forestry sites 6 lb ae, and all other sites 9 lb ae triclopyr). Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

When applying this product in tank mix combination, follow all applicable use directions, precautions and limitations on each manufacturer's label. **Note:** If tank mixing with Rodeo® herbicide, mix the Garlon 3A with at least 75% of the total spray volume desired and ensure that Garlon 3A is well mixed before adding the Rodeo to avoid incompatibility.

Broadcast Applications With Ground Equipment
Apply using equipment that will assure uniform coverage of the spray volumes applied. To improve spray coverage, add an agriculturally labeled non-ionic surfactant as described later under Directions for Use. See Maximum Labeled Rate versus Spray Volume per Acre table above for relationship between mixing rate, spray volume and maximum application rate.

Woody Plant Control
Foliage Treatment: Use 6 to 9 lb ae of triclopyr (2 to 3 gallons of Garlon 3A) in enough water to make 20 to 100 gallons of total spray per acre or 1 1/2 to 3 lb ae of triclopyr (1/2 to 1 gallon of Garlon 3A) may be combined with 2,4-D amine, like DMA 4 IVM, or low volatile esters or Tordon 101 Mixture in sufficient water to make 20 to 100 gallons of total spray per acre. Tordon 101 Mixture is not registered for use in the states of California and Florida.

Broadleaf Weed Control
Use Garlon 3A at rates of 1 to 4 1/2 lb ae of triclopyr (1/3 to 1 1/2 gallons of Garlon 3A) in a total volume of 20 to 100 gallons of water per acre. Apply any time during the growing season. Garlon 3A at 1 to 3 lb ae of triclopyr (1/3 to 1 gallon of Garlon 3A) may be tank mixed with Tordon K, Tordon 101 Mixture or 2,4-D amine, like DMA 4 IVM, or low volatile herbicides to improve the spectrum of activity. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

Aerial Application (Helicopter Only)
Aerial sprays should be applied using suitable drift control. (See Use Precautions and Restrictions.) Add an agriculturally labeled non-ionic surfactant as described under Directions for Use. See Maximum Labeled Rate versus Spray Volume per Acre table above for relationship between mixing rate, spray volume and maximum application rate.

Foliage Treatment (Non-Grazed Rights-of-Way)
Non-grazed areas: Use 6 to 9 lb ae of triclopyr (2 to 3 gallons of Garlon 3A) or 3 to 4 1/2 lb ae of triclopyr (1 to 1 1/2 gallons of Garlon 3A) in a tank mix combination with 2,4-D amine, like DMA 4 IVM, or low volatile esters or Tordon 101 Mixture, and apply in a total spray volume of 10 to 30 gallons per acre. Use the higher rates and volumes when plants are dense or under drought conditions. Tordon 101 Mixture is not registered for use in the states of California and Florida.

Interspersed areas in non-grazed rights-of-ways that may be subject to grazing may be spot treated if the treated area comprises no more than 10% of the total grazable area.

Cut Surface Treatments
Individual plant treatments such as basal bark and cut surface applications may be used on any use site listed on this label at a maximum use rate of 2.67 gallons of Garlon 3A (8 lb ae of triclopyr) per acre. These types of applications are made directly to ungrazed parts of plants and, therefore, are not restricted by the grazing maximum rate of 2/3 of a gallon of Garlon 3A (2 lb ae of triclopyr) per acre.

To control unwanted trees of hardwood species such as elm, maple, oak and conifers in labeled sites, apply Garlon 3A, either undiluted or diluted in a 1 to 1 ratio with water, as directed below.

With Tree Injector Method
Apply by injecting 1/2 milliliter of undiluted Garlon 3A or 1 milliliter of the diluted solution through the bark at intervals of 3 to 4 inches between centers of the injector wound. The injections should completely surround the tree at any convenient height. **Note: No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is injected directly into plants.**

With Hack and Squirt Method
Make cuts around the tree trunk at a convenient height with a hatchet or similar equipment so that the cuts overlap slightly and make a continuous circle around the trunk. Spray 1/2 milliliter of undiluted Garlon 3A or 1 milliliter of the diluted solution into the pocket created between the bark and the inner stem/trunk by each cut.

With Frill or Girdle Method
Make a single girdle through the bark completely around the tree at a convenient height. The frill should allow for the herbicide to remain next to the inner stem and absorb into the plant. Wet the cut surface with undiluted or diluted solution.

Both of the above methods may be used successfully at any season except during periods of heavy sap flow of certain species - for example, maples.

Stump Treatment
Spray or paint the cut surfaces of freshly cut stumps and stubs with undiluted Garlon 3A. The cambium area next to the bark is the most vital area to wet.

Forest Management Applications
For best control from broadcast applications of Garlon 3A, use a spray volume which will provide thorough plant coverage. Recommended spray volumes are usually 10 to 25 gallons per acre by air or 10 to 100 gallons per acre by ground. To improve spray coverage of spray volumes less than 50 gallons per acre, add an agriculturally labeled non-ionic surfactant as described under Directions for Use. Application systems should be used to prevent hazardous drift to off-target sites. Nozzles or additives that produce larger droplets of spray may require higher spray volumes to maintain brush control.

Forest Site Preparation (Not for Conifer Release)
Use up to 6 lb ae of triclopyr (2 gallons of Garlon 3A) and apply in a total spray volume of 10 to 30 gallons per acre or Garlon 3A at 3 to 4 1/2 lb ae of triclopyr (1 to 1 1/2 gallons of Garlon 3A) may be used with Tordon 101 Mixture or 2,4-D low volatile ester in a tank mix combination in a total spray volume of 10 to 30 gallons per acre. Use a non-ionic agricultural surfactant for all foliar applications as described under Directions for Use. Tordon 101 Mixture is not registered for use in the states of California and Florida.

Note: Conifers planted sooner than one month after treatment with Garlon 3A at less than 4 lb ae of triclopyr (1 1/3 gallons of Garlon 3A) per acre or sooner than two months after treatment at 4 to 6 lb ae of triclopyr (1 1/3 to 2 gallons of Garlon 3A) per acre may be injured. When tank mixtures of herbicides are used for forest site preparation, labels for all products in the mixture mustbe consulted and the longest recommended waiting period before planting observed.

Directed Spray Applications for Conifer Release
To release conifers from competing hardwoods such as red maple, sugar maple, striped maple, sweetgum, red and white oaks, ash, hickory, alder, birch, aspen, and pin cherry, mix 3 to 6 lb ae of triclopyr (1 to 2 gallons of Garlon 3A) in enough water to make 100 gallons of spray mixture. To improve spray coverage, add an agriculturally labeled non-ionic surfactant as described under Directions for Use. The spray mixture should be directed onto foliage of competitive hardwoods using knapsack or backpack sprayers with flat fan nozzles or equivalent any time after hardwoods have reached full leaf size, but before autumn coloration. The majority of treated hardwoods should be less than 6 feet in height to ensure adequate spray coverage. Care should be taken to direct spray away from contact with conifer foliage, particularly foliage of desirable pines.

Note: Spray may cause temporary damage and growth suppression where contact with conifers occurs; however, injured conifers should recover and grow normally. Over-the-top spray applications can kill pines.

Broadcast Applications for Conifer Release in the Northeastern United States
To release spruce, fir, red pine and white pine from competing hardwoods, such as red maple, sugar maple, striped maple, alder, birch (white, yellow or gray), aspen, ash, pin cherry and *Rubus* spp. and perennial and annual broadleaf weeds, use Garlon 3A at rates of 1 1/2 to 3 lb ae of triclopyr (2 to 4 quarts of Garlon 3A) per acre alone or with 2,4-D amine, like DMA 4 IVM, or 2,4-D ester to provide no more than 4 lb ae per acre

from both products. Apply in late summer or early fall after conifers have formed their over wintering buds and hardwoods are in full leaf and prior to autumn coloration.

Broadcast Applications for Douglas-Fir Release in the Pacific Northwest and California

To release Douglas-fir from susceptible competing vegetation such as broadleaf weeds, alder, blackberry or Scotch broom, apply Garlon 3A at 1 to 1 1/2 lb ae of triclopyr (1 1/3 to 2 quarts of Garlon 3A) per acre alone or in combination with 4 lb per acre of atrazine. Mix all sprays in a water carrier with a non-ionic surfactant. Apply in early spring after hardwoods begin growth and before Douglas fir bud break ("early foliar" hardwood stage) or after Douglas fir seasonal growth has "hardened off" (set winter buds) in late summer, but while hardwoods are still actively growing. When treating after Douglas fir bud set, apply prior to onset of autumn coloration in hardwood foliage. **Note:** Treatments applied during active Douglas fir shoot growth (after spring bud break and prior to bud set) may cause injury to Douglas fir trees.

Christmas Tree Plantations

Use Garlon 3A for the control of woody plants and annual and perennial broadleaf weeds in established Christmas tree plantations. For best results, apply when woody plants and weeds are actively growing. Garlon 3A does not control weeds which have not emerged at the time of application. If lower rates are used on hard to control woody species, resprouting may occur the year following treatment. Brush over 8 feet tall is difficult to treat efficiently using hand equipment such as backpack or knapsack sprayers. When treating large brush or trees or hard to control species such as ash, blackgum, choke cherry, elm, hazel, madrone, maples, oaks or sweetgum, and for applications made during drought conditions or in late summer when the leaves are mature, use the higher rates of Garlon 3A or use cut surface application methods. For foliar applications, apply in enough water to give uniform and complete coverage of the plants to be controlled. Applications made under drought conditions may provide less than desirable results.

Use Precautions:

- Newly seeded turf (alleyways, etc.) should be mowed two or three times before any treatment with Garlon 3A.

Use Restrictions:

- Do not use on newly seeded grass until well established as indicated by vigorous growth and development of secondary root system and tillering
- Do not reseed Christmas tree areas treated with Garlon 3A for a minimum of three weeks after application.
- Do not use Garlon 3A if legumes, such as clover, are present and injury cannot be tolerated.

Spray Preparation

The order of addition to the spray tank is water, drift control agent (if used), non-ionic agricultural surfactant and Garlon 3A. Continue moderate agitation while mixing and spraying. Use a non-ionic agricultural surfactant for all applications. When using surfactants, follow use directions and precautions listed on the manufacturer's label. Use the higher recommended concentrations of surfactant in the spray mixture when applying lower spray volumes per acre. **Note:** If tank mixing with Rodeo herbicide, mix the Garlon 3A with at least 75% of the total spray volume desired and ensure that Garlon 3A is well mixed before adding the Rodeo to avoid incompatibility.

Application

Apply in late summer or early autumn after terminal growth of Christmas trees has hardened of, but before leaf drop of, target weeds. Apply at a rate of 3/4 to 1 3/4 lb ae of triclopyr (2 to 5 pints of Garlon 3A) per acre as a foliar spray directed toward the base of Christmas trees. Use sufficient spray volume to provide uniform coverage of target plants (20 to 100 gallons per acre). **Do not apply with 2,4-D.** Application rates of Garlon 3A directed for Christmas trees will only suppress some well established woody plants that are greater than 2 to 3 years old (see table below). Broadcast sprays may also be applied in bands between the rows of planted trees. Use spray equipment that will assure uniform coverage of the desired spray volume.

Spray solution from Garlon 3A can cause needle and branch injury to Christmas trees. To minimize injury to Christmas trees, direct sprays so as to minimize contact with foliage. Blue spruce, white spruce, balsam fir and Frasier fir are less susceptible to injury than white pine and Douglas fir.

Restriction: Apply Garlon 3A only to established Christmas trees that were planted at least one full year prior to application.

Application Rates and Species Controlled:

Garlon 3A		
2 pints/acre (3/4 lb ae of triclopyr)	3 to 4 pints/acre (1 1/2 lb ae of triclopyr)	5 pints/acre (1 3/4 lb ae of triclopyr)
clover dandelion dock, curly lambsquarters lespedeza plantain, broadleaf plantain, buckhorn ragweed, common vetch	bindweed, field (TG) blackberry[1] chicory (s) fireweed ivy, ground lettuce, wild oxalis poison ivy smartweed (TG) thistle, Canada (TG) violet, wild Virginia creeper[1]	arrowwood (SDL) aspen beech (SDL) birch (SDL) chinquapin cottonwood (SDL) elderberry grape, wild mulberry (SDL) poplar (SDL) sassafras (SDL) sumac (SDL) sycamore (SDL)

(TG) Top growth control, retreatment may be necessary
(S) Suppression
(SDL) Seedlings less than 2 to 3 years old
[1]Use 4 pint per acre rate

Directed Applications

To control hardwoods such as red maple, sugar maple, striped maple, sweetgum, red and white oaks, ash, alder, birch, aspen, and pin cherry, mix 4 to 20 fl oz of Garlon 3A in enough water to make 3 gallons of spray mixture. For directed applications, do not exceed 6 lb ae of triclopyr (2 gallons of Garlon 3A) per acre per year. To improve coverage, add a non-ionic agricultural surfactant to the spray. This spray mixture should be directed onto foliage of competitive hardwoods using knapsack or backpack sprayers with flat fan nozzles or equivalent any time after hardwoods have reached full leaf size, but before autumn coloration (when plants are actively growing). The majority of treated hardwoods should be less than 8 feet in height to ensure adequate spray coverage. **Note:** To prevent Christmas tree injury, care should be taken to direct spray away from contact with Christmas tree foliage.

Cut Surface Treatments

When treating large brush or trees or hard to control species such as ash, blackgum, choke cherry, elm, hazel, madrone, maples, oaks, salt cedar or sweetgum, and for applications made during drought conditions or in late summer when the leaves are mature, use cut surface treatments. (See directions for Cut Surface Treatments in preceding section of this label.)

Wetland Sites in Forests and Non-Crop Areas

Garlon 3A may be used within forests and non-crop sites to control target vegetation in and around standing water sites, such as marshes, wetlands, and the banks of ponds and lakes and transition areas between upland and lowland sites.

For control of woody plants and broadleaf weeds in these sites, follow use directions and application methods on this label for forestry and non-cropland sites.

Use Precautions:

Minimize overspray to open water when treating target vegetation in and around non-flowing, quiescent or transient water. When making applications to control unwanted plants on banks or shorelines of flowing water, minimize overspray to open water. **Note:** Consult local public water control authorities before applying this product in and around public water. Permits may be required to treat such areas.

Terms and Conditions of Use

If terms of the following Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. To the extent permitted by law, otherwise, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitations of Remedies.

Warranty Disclaimer

Dow AgroSciences warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. To the extent permitted by law, Dow AgroSciences MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperature, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Dow AgroSciences or the seller. All such risks shall be assumed by buyer.

Limitation of Remedies

To the extent permitted by law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Dow AgroSciences' election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used.

Dow AgroSciences shall not be liable for losses or damages resulting from handling or use of this product unless Dow AgroSciences is promptly notified of such loss or damage in writing. To the extent permitted by law, in no case shall Dow AgroSciences be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer, Inherent Risks of Use, and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Dow AgroSciences or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

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Produced for
Dow AgroSciences LLC
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Indianapolis, IN 46268

Label Code: D02-101-041
Replaced Label: D02-101-040
LOES Number: 010-00084

EPA accepted 02/25/16

Revisions:

1. Added Crop Group 4 Herbicide box MOA, Weed Resistance Management and Best Management Practices language.
2. Updated Active Ingredient section.
3. Updated the Hazard to Human and Domestic Animals section.
4. Updated language under Engineering Controls section.
5. Updated the User Safety Recommendations section.
6. Updated the Use Precautions and Use Restrictions sections.
7. Added the title for Maximum Use Rates section and updated section.
8. Added/updated the Grazing and Haying Restriction as follow:
   Grazing and Haying Restrictions
   Grazing green forage:
   - There are no grazing restrictions for livestock or dairy animals on treated areas.

   Haying (harvesting of dried forage)
   - Do not harvest hay for 14 days after application.

   Slaughter Restrictions: During the season of application, withdraw livestock from grazing treated grass at least 3 days before slaughter.
9. Removed all tank mix partner rates throughout the label.
10. Added the following sentence to direct users to the Maximum Use Rates section: The maximum volume of the finish spray applied to an acre is limited by the maximum use rate per site type (See Maximum Use Rates section - Range and Pasture, Grazing, Haying sites 2 lb ae, Forestry sites 6 lb ae, and all other sites 9 lb ae triclopyr).
11. Corrected 4 to 9 lb ae of triclopyr to 4 to 6 lb and update 3 gallons of Garlon 3A to 2 gallons.
12. Changed the word recommended to directed throughout the label.

Specimen Label

Dow AgroSciences

Garlon® 4

SPECIALTY HERBICIDE

®Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

For the control of woody plants and annual and perennial broadleaf weeds in non-crop industrial manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, forests and in the establishment and maintenance of wildlife openings. Use on these sites may include application to grazed areas.

Active Ingredient:
triclopyr: 3,5,6-trichloro-2-pyridinyloxyacetic acid, butoxyethyl ester 61.6%
Other Ingredients..... 38.4%
Total..... 100.0%

Contains petroleum distillates
Acid Equivalent: triclopyr - 44.3% - 4 lb/gal

Precautionary Statements

Hazards to Humans and Domestic Animals

EPA Reg. No. 62719-40

CAUTION

Causes Moderate Eye Irritation • Harmful If Swallowed • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reactions In Some Individuals

Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

Personal Protective Equipment (PPE)

Applicators and other handlers who handle this pesticide must wear:
- Long-sleeved shirt and long pants
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables are given, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the WPS (40 CFR 170.240(d)(4-6), the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:
- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

First Aid

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If swallowed: Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

Note to Physician: This product may pose an aspiration pneumonia hazard. Contains petroleum distillates.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

Environmental Hazards

This pesticide is toxic to fish. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Physical or Chemical Hazards

Combustible. Do not use or store the product near heat or open flame.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
Read all Directions for Use carefully before applying.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

The requirements in this box apply to forestry uses.

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:
- Coveralls
- Chemical-resistant gloves
- Shoes plus socks
- Protective eyewear

Non-Agricultural Use Requirements

The requirements in this box apply to all use sites on this label except for forestry uses.

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for Agricultural Pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Entry Restrictions for Non-WPS Uses: For applications to non-cropland areas, do not allow entry into areas until sprays have dried.

Storage and Disposal

Do not contaminate water, food, or feed by storage and disposal. Open dumping is prohibited.
Pesticide Storage: Store above 28°F or agitate before use.
Pesticide Disposal: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Nonrefillable containers 5 gallons or less:
Container Handling: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available.

Storage and Disposal (Cont.)

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable containers 5 gallons or larger:
Container Handling: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

Nonrefillable containers 5 gallons or larger:
Container Handling: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available.
Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Product Information

Use Garlon® 4 specialty herbicide for the control of woody plants and annual and perennial broadleaf weeds in non-crop industrial manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, forests and in the establishment and maintenance of wildlife openings. Use on these sites may include application to grazed areas.

Garlon 4 is an oil soluble, emulsifiable liquid product containing the herbicide triclopyr. Garlon 4 may be applied to woody or herbaceous broadleaf plants as a foliar spray or as a basal bark or cut stump application to woody plants. As a foliar spray, Garlon 4 controls only herbaceous plants that have emerged from the soil or woody plants that are in full leaf at the time of application. Small amounts of Garlon 4 can kill or injure many broadleaf plants. To prevent damage to crops and other desirable plants, follow all directions and precautions.

Use Precautions and Restrictions

In Arizona: The state of Arizona has not approved Garlon 4 for use on plants grown for commercial production; specifically forests grown for commercial timber production, or on designated grazing areas.

When applying this product in tank mix combination, follow all applicable use directions, precautions, and limitations on each manufacturer's label.

Chemigation: Do not apply this product through any type of irrigation system.

Apply no more than 1/2 gallon of Garlon 4 (2 lb ae of triclopyr) per acre per growing season on rights-of-way or any area where grazing or harvesting is allowed.

On forestry sites, Garlon 4 may be used at rates up to 6 quarts (6 lb ae of triclopyr) per acre per year.

Garlon 4 may be used at rates up to 8 quarts (8 lb ae of triclopyr) per acre per year on non-cropland industrial manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides and railroads, fence rows, non-irrigation ditch banks. Portions of grazed areas that intersect treated non-cropland, rights-of-way and forestry sites may be treated at up to 8 lb ae per acre if the area to be treated on the day of application comprises no more than 10% of the total grazable area.

Do not apply Garlon 4 directly to, or otherwise permit it to come into direct contact with, cotton, grapes, peanuts, soybeans, tobacco, vegetable crops, flowers, citrus, or other desirable broadleaf plants. Do not permit spray mists containing Garlon 4 to drift onto such plants.

It is permissible to treat non-irrigation ditch banks, seasonally dry wetlands (such as flood plains, deltas, marshes, swamps, or bogs) and transitional areas between upland and lowland sites where surface water is not present except in isolated pockets due to uneven or unlevel conditions. Do not apply to open water (such as lakes, reservoirs, rivers, streams, creeks, salt water bays, or estuaries).

Do not apply on ditches currently being used to transport irrigation water. Do not apply where runoff or irrigation water may flow onto agricultural land as injury to crops may result.

Do not apply this product using mist blowers unless a drift control additive, high viscosity inverting system, or equivalent is used to control spray drift.

Sprays applied directly to Christmas trees may result in conifer injury. When treating unwanted vegetation in Christmas tree plantations, care should be taken to direct sprays away from conifers.

Garlon 4 is formulated as a low volatile ester. However, the combination of spray contact with impervious surfaces, such as roads and rocks, and increasing ambient air temperatures, may result in an increase in the volatility potential for this herbicide, increasing a risk for off-target injury to sensitive crops such as grapes and tomatoes.

Grazing and Haying Restrictions
Except for lactating dairy animals, there are no grazing restrictions following application of this product.

- **Grazing Lactating Dairy Animals:** Do not allow lactating dairy animals to graze treated areas until the next growing season following application of this product.
- Do not harvest hay for 14 days after application.
- Portions of grazed areas that intersect treated non-cropland, rights-of-way and forestry sites may be treated at up to 8 lb ae per acre if the area to be treated on the day of application comprises no more than 10% of the total grazable area.

Slaughter Restrictions: During the season of application, withdraw livestock from grazing treated grass at least 3 days before slaughter.

Avoiding Injurious Spray Drift
Make applications only when there is little or no hazard from spray drift. Small quantities of spray, which may not be visible, may seriously injure susceptible plants. Do not spray when wind is blowing toward susceptible crops or ornamental plants that are near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movement, lapse conditions, or temperature inversions (stable air). If the smoke layers or indicates a potential of hazardous spray drift, do not spray.

Aerial Application: Garlon 4 may be aerially applied by fixed wing aircraft or helicopter. For aerial application on rights-of-way or other areas near susceptible crops, apply through a Microfoil† or Thru-Valve boom†, or use an agriculturally labeled drift control additive. Other drift reducing systems or thickened sprays prepared by using high viscosity inverting systems may be used if they are made as drift-free as mixtures containing agriculturally labeled thickening agents or applications made with the Microfoil or Thru Valve boom. Do not use a thickening agent with the Microfoil or Thru Valve booms, or other systems that cannot accommodate thick sprays. Spray only when the wind velocity is low (follow state regulations). Avoid application during air inversions. If a spray thickening agent is used, follow all use directions and precautions on the product label.

†Reference within this label to a particular piece of equipment produced by or available from other parties is provided without consideration for use by the reader at its discretion and subject to the reader's independent circumstances, evaluation, and expertise. Such reference by Dow AgroSciences is not intended as an endorsement of such equipment, shall not constitute a warranty (express or implied) of such equipment, and is not intended to imply that other equipment is not available and equally suitable. Any discussion of methods of use of such equipment does not imply that the reader should use the equipment other than is advised in directions available from the equipment's manufacturer. The reader is responsible for exercising its own judgment and expertise, or consulting with sources other than Dow AgroSciences, in selecting and determining how to use its equipment.

Spray Drift Management
Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications:

1. The distance of the outer most operating nozzles on the boom must not exceed 3/4 the length of the rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they must be observed.

The applicator should be familiar with and take into account the information covered in the following Aerial Drift Reduction Advisory. [This information is advisory in nature and does not supersede mandatory label requirements.]

Aerial Drift Reduction Advisory
Information on Droplet Size: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

Controlling Droplet Size:
- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produced larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length: For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

Application Height: Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment: When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind: Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions: Applications should not occur during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

Ground Equipment: To aid in reducing spray drift, Garlon 4 should be used in thickened (high viscosity) spray mixtures using an agriculturally labeled drift control additive, high viscosity invert system, or equivalent as directed by the manufacturer. When using a spray thickening or inverting additive, follow all use directions and precautions on the product label. With ground equipment, spray drift can be reduced by keeping the spray boom as low as possible; by applying 20 gallons or more of spray per acre; by keeping the operating spray pressures at the lower end of the manufacturer's recommended pressures for the specific nozzle type used (low pressure nozzles are available from spray equipment manufacturers); and by spraying when wind velocity is low. In hand-gun applications, select the minimum spray pressure that will provide adequate plant coverage (without forming a mist). Do not apply with nozzles that produce a fine droplet spray. Select nozzles and pressures which provide adequate plant coverage, but minimize the production of fine spray particles.

High Volume Leaf-Stem Treatment: To minimize spray drift, keep sprays no higher than brush tops and keep spray pressures low enough to provide coarse spray droplets. An agriculturally labeled thickening agent may be used to reduce drift.

Mixing Directions

Garlon 4 may be foliarly applied by diluting with water or by preparing an oil-water emulsion. For woody plant control, an oil-water emulsion performs more dependably under a broader range of conditions than a straight water dilution and is recommended for aerial applications.

Oil-Water Mixture Sprays
Prepare a premix of oil, surfactant and Garlon 4 in a separate container using diesel fuel, fuel oil, or kerosene plus an emulsifier such as Sponto 712 or Triton X-100. Use a jar test to check spray mix compatibility before preparing oil-water emulsion sprays in the mixing tank. Do not allow any water or mixtures containing water to get into the premix or Garlon 4 since a thick "invert" (water in oil) emulsion may form that will be difficult to break. Such an emulsion may also be formed if the premix or Garlon 4 is put into the mixing tank before the addition of water. Fill the spray tank about one-half full with water, then slowly add the premix with continuous agitation and complete filling the tank with water. Continue moderate agitation.

Ground Application: Add oil to the spray mix at a rate of 5 to 10% of the total mix, up to a maximum of 1 gallon of oil per acre, using agricultural spray emulsifiers according to mixing instructions below.

Aerial Application: Use oil and water in the spray mixture in a 1:5 ratio (1 part oil to 5 parts water), up to a maximum of 1 gallon of oil per acre according to mixing instructions below.

Oil Mixture Sprays for Basal Treatment
Prepare oil-based spray mixtures using either diesel fuel, No. 1 or No. 2 fuel oil, kerosene or a commercially available basal oil. Substitute other oils or diluents only as recommended by the oil or diluent's manufacturer. When preparing an oil mixture, read and follow the use directions and precautions on the manufacturer's product label. Add Garlon 4 to the required amount of oil in the spray tank or mixing tank and mix thoroughly. If the mixture stands over 4 hours, reagitation is required.

Oil Mixtures of Garlon 4 and Tordon K: Tordon K and Garlon 4 may be used in tank mix combination for basal bark treatment of woody plants. These herbicides are incompatible and will not form a stable mixture when mixed together directly in oil. Make a stable tank mixture for basal bark application by first combining each product with a compatibility agent prior to final mixing in the desired ratio. (See product bulletin for mixing instructions.) Tordon K is not registered for use in the states of California and Florida.

Water Dilutions
For water dilutions, an agricultural surfactant at the manufacturer's recommended rate may be added to the spray mixture to provide improved wetting of foliage. To help minimize spray drift, a drift control and deposition aid cleared for application to growing crops is recommended.

Tank Mixing
Garlon 4 may be applied in tank mix combination with labeled rates of other herbicides provided (1) the tank mix product is labeled for the timing and method of application for the use site to be treated; and (2) tank mixing is not prohibited by the label of the tank mix product. When tank mixing Garlon 4 with other materials, a compatibility test (jar test) using relative proportions of the tank mix ingredients should be conducted prior to mixing ingredients in the spray tank. Use a clear glass quart jar with lid and mix the tank mix ingredients in the required order and their relative

proportions. Invert the jar containing the mixture several times and observe the mixture for approximately 1/2 hour. If the mixture balls-up, forms flakes, sludges, jels, oily films or layers, or other precipitates, it is not compatible and the tank mix combination should not be used.

Mixing Order for Tank Mixes: Add one-half of the needed water to the mixing tank and start agitation. Add different materials in the order indicated below, allowing time for complete dispersion and mixing after addition of each product.

1. Water soluble herbicide (if used)
2. Premix of oil, emulsifier, Garlon 4 and other oil-soluble herbicide (if used); see below

Add the remaining water. During the final filling of the tank, add a drift control and deposition aid cleared for application to growing crops (if used), plus an agricultural surfactant (if a water dilution rather than an oil-water emulsion spray is used). Maintain continuous agitation of the spray mixture during mixing, final filling and throughout application to ensure spray uniformity.

Premixing: Prepare a premix of oil, emulsifier (if oil-water emulsion), and Garlon 4 plus other oil-soluble herbicide (if used), e.g., 2,4-D ester. **Note:** Do not allow water or mixtures containing water to get into the premix or Garlon 4 since a thick "invert" (water in oil) emulsion may form that will be difficult to break. Such an emulsion may also be formed if the premix or Garlon 4 is put into the mixing tank before the addition of water.

Tank Mixing Precautions:

- Read carefully and follow all applicable use directions, precautions, and limitations on the respective product labels.
- Do not exceed labeled application rates. If products containing the same active ingredient are tank mixed, do not exceed the maximum allowable active ingredient use rates.
- For direct injection or other spray equipment where the product formulations will be mixed in undiluted form, special care should be taken to ensure tank mix compatibility.
- Always perform a (jar) test to ensure the compatibility of products to be used in tank mixture.

Mixing with Liquid Fertilizer for Broadleaf Weed Control

Garlon 4 may be tank mixed with liquid nitrogen fertilizer and foliarly applied for weed control and fertilization of grass pastures. Use Garlon 4 in accordance with directions for grass pastures as given on this label. Apply at rates directed by supplier or Extension Service Specialist. **Note:** Do not use Garlon 4 with liquid fertilizer on woody plants (brush). Foliage burn caused by liquid fertilizer may reduce herbicide effectiveness on woody plants. Test for mixing compatibility using desired procedure and spray mix proportions in clear glass jar before mixing in spray tank. A compatibility aid such as Unite or Compex may be needed in some situations. **Compatibility is best with straight liquid nitrogen fertilizer solutions. Mixing with N-P-K solutions or suspensions may not be satisfactory even with the addition of compatibility aid.** Premixing Garlon 4 with 1 to 4 parts water may help in difficult situations.

Fill in the spray tank about half full with the liquid fertilizer, then add the herbicide with agitation and complete filling the tank with fertilizer. Apply immediately and continue agitation in the spray tank during application. **Do not store liquid fertilizer spray mixtures**. Application during very cold weather (near freezing) is not advisable. The likelihood of mixing or compatibility problems with liquid fertilizer increases under cold conditions.

Note: Do not use spray equipment for other applications to land planted, or to be planted, to susceptible crops or desirable plants **unless** it has been determined that all phytotoxic herbicide residue has been removed by thoroughly cleaning the equipment.

Plants Controlled by Garlon 4

Woody Plant Species

alder	cascara	gorse	milkweed vine[3]
arrowwood	ceanothus	granjeno	mulberry
ash	cherry[3]	guajillo	oaks
aspen	chinquapin	guava[3]	osage orange
bear clover (bearmat)	choke cherry	hazel	pepper vine[3]
beech	cottonwood	hickory	persimmon, eastern
birch	crataegus (hawthorn)	hornbeam	pine
blackberry	dogwood	huisache (suppression)	poison ivy
blackbrush	Douglas-fir	kudzu[2]	poison oak
blackgum	elderberry	locust	poplar
boxelder[1]	elm (except winged elm)	madrone	salmonberry
Brazilian pepper	gallberry	maple (except bigleaf, vine[3])	saltbush (*Braccharis* spp.)[3]
buckthorn			

Plants Controlled by Garlon 4

Woody Plant Species (Cont.)

salt cedar[1]	sycamore	tulip poplar	willow
sassafras	tanoak	twisted acacia	willow primrose
scotch broom	thimbleberry	Virginia creeper[3]	winged elm
sumac	tree-of-heaven (*Ailanthus*)[1]	wax myrtle (top growth)	
sweetbay magnolia	trumpet creeper[3]	wild rose	
sweetgum			

[1]For best control, use either a basal bark or cut stump treatment.
[2]For complete control, re-treatment may be necessary.
[3]Basal or dormant stem applications only.

Annual, Biennial and Perennial Broadleaf Weeds

Note: Numbers in parentheses refer to footnotes below table.

black medic	curly dock	matchweed	sweet clover
bull thistle	dandelion (top growth)	mustard	tropical soda apple (3)
burdock	dogfennel	Oxalis	vetch
Canada thistle	field bindweed	plantain	wild carrot (Queen Anne's lace)
chicory	goldenrod	purple loosestrife	wild lettuce
cinquefoil	ground ivy	ragweed	wild violet
clover	lambsquarters	sericea lespedeza (1)	yarrow
creeping beggarweed	lespedeza	smartweed	
		sulfur cinquefoil (2)	

1. **Sericea lespedeza:** Apply 1 to 2 pints of Garlon 4 per acre. For best results, apply after maximum foliage development in the late spring to early summer, but prior to bloom.
2. **Sulfur cinquefoil:** Apply 1 to 2 pints of Garlon 4 per acre. For best results, apply to plants in the rosette stage.
3. **Tropical soda apple:** Apply 2 pints of Garlon 4 per acre when tropical soda apple plants reach the first flower stage. For best results, apply in a total spray volume of 40 gallons per acre using ground equipment. An agricultural surfactant may be added at the manufacturer's recommended rate to provide more complete wetting and coverage of the foliage. Spot treatments may be used to control sparse plant stands. For spot treatment use a 1 to 1.5% solution of Garlon 4 in water (1 to 1 1/2 gallons of Garlon 4 in 100 gallons total spray mixture) and spray the entire plant to completely wet the foliage. **In Florida**, control of tropical soda apple may be improved by using the following management practices:
   - Mow plants to a height of 3 inches every 50 to 60 days or whenever they reach flowering. Continue the mowing operation through April.
   - In late May to June (50 to 60 days after the April mowing), apply Garlon 4 as a broadcast treatment.
   - Use spot treatment to control any remaining plants or thin stands of plants that germinate following a broadcast treatment.

Application Methods

Use Garlon 4 at rates of 1 to 8 quarts per acre to control broadleaf weeds and woody plants. It is suggested that rates higher in this rate range be used to control woody plants. In all cases, use the amount specified in enough water to give uniform and complete coverage of the plants to be controlled. The order of addition to the spray tank is water, spray thickening agent (if used), surfactant (if used), additional herbicide (if used), and Garlon 4. If a standard agricultural surfactant is used, use at a rate of 1 to 2 quarts per acre. Use continuous adequate agitation.

Before using any recommended tank mixtures, read the directions and all precautions on both labels.

For best results apply when woody plants and weeds are actively growing. When hard to control species such as ash, blackgum, choke cherry, elm, maples (other than vine or big leaf), oaks, pines, or winged elm are prevalent, during applications made during late summer when the plants are mature, or during drought conditions, use the higher rates of Garlon 4 alone or in combination with Tordon® 101 Mixture specialty herbicide or Tordon K herbicide. Tordon 101 Mixture and Tordon K are restricted use pesticides. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

When using Garlon 4 in combination with 2,4-D low volatile ester herbicide, generally the higher rates of Garlon 4 should be used for satisfactory brush control.

Use the higher dosage rates when brush approaches an average of 15 feet in height or when the brush covers more than 60% of the area to be treated. If lower rates are used on hard to control species, resprouting may occur the year following treatment.

On sites where easy to control brush species dominate, rates less than those listed may be effective. Consult state or local extension personnel for such information.

Foliage Treatment With Ground Equipment

Use sufficient spray volume to completely and uniformly cover foliage. For ground application, apply 10 gallons or more of total spray volume per acre. Use higher spray volumes for ground applications to ensure adequate coverage with increased depth and density of foliage, particularly for treatment of woody plants.

High Volume Foliage Treatment
For control of woody plants, use Garlon 4 at the rate of 2 to 6 quarts per 100 gallons of spray mixture, or Garlon 4 at 2 to 4 quarts may be tank mixed with labeled rates of 2,4-D low volatile ester herbicide, Tordon 101 Mixture, or Tordon K and diluted to make 100 gallons of spray. Do not apply more than 2 gallons of Garlon 4 per acre. On rangeland and permanent pasture sites, make 1 application per year and apply no more than 2 quarts of Garlon 4 (2 lb ae of triclopyr) per acre. Apply at a volume of 100 to 400 gallons of total spray per acre depending upon size and density of woody plants. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida. When tank mixing, follow applicable use directions and precautions on each manufacturer's label.

Depending upon the size and density of the woody plants, apply sufficient spray volume to thoroughly wet all leaves, stems, and root collars. To minimize spray drift, select the minimum spray pressure that provides adequate plant coverage without forming a mist and direct sprays no higher than the top of the target plants. Use a drift control additive cleared for application to growing crops to reduce spray drift. Before using any tank mixture, read the directions and use precautions on both labels. For best results, apply when woody plants and weeds are actively growing.

Table 1: The following table is provided as a guide to the user to achieve the proper rate of Garlon 4.

Total Spray Volume (gallons/ acre)	Rate of Garlon 4	
	Forestry Sites (qt/100 gallons of spray)[1]	Non-Cropland Sites (qt/100 gallons of spray)[2]
400	1.5	2
300	2	2.7
200	3	4
100	6	8
50	12	16
40	15	20
30	20	26.7
20	30	40
10	60	80

[1]Do not exceed the maximum use rate of 6 qt of Garlon 4 (6 lb ae of triclopyr) per acre per year.
[2]Do not exceed the maximum use rate of 8 qt of Garlon 4 (8 lb ae of triclopyr) per acre per year for non-grazable areas, or 2 qt (2 lb ae of triclopyr) per acre per year for grazed areas, except on portions of grazed areas that meet the following requirement. Portions of grazed areas that intersect treated non-cropland, rights-of-way and forestry sites may be treated at up to 8 lb ae per acre if the area to be treated on the day of application comprises no more than 10% of the total grazable area.

Table 2

Application Rates per 100 Gallons of Spray		
Garlon 4	**Plus Tank Mix Product**	**Rate (qt)**
1 - 4 qt	--	--
1 - 2 qt	Grazon® P+D specialty herbicide	4
1 - 2 pt	2,4-D low volatile ester herbicide	1 - 2
1 - 2 qt	Tordon 22K	1 - 2
2 qt	Reclaim® specialty herbicide [1,2]	2

[1]Reclaim is registered for use only in Arizona, Texas, Oklahoma and New Mexico.
[2]See directions for Mesquite Control Using High Volume Foliage Treatment below.

Mesquite Control Using High Volume Foliage Treatment: For control of mesquite infestations of low to moderate density, apply Garlon 4 and Reclaim in a tank mixture to individual plants with backpack or hand-held sprayers or a vehicle-mounted sprayer with hand-held spray wand or spray gun. For individual plant treatment, use 2 quarts of Garlon 4 in combination with 2 quarts of Reclaim per 100 gallons of total spray solution (1/2% v/v of each product). Apply in water or as an oil-water emulsion as described in Mixing Directions. If using an oil-water emulsion, add the oil at a rate of 5% of the total spray volume. Apply as a complete spray-to-wet foliar application, including all leaves. Thorough coverage is necessary for good results, but do not spray to the point of runoff. Do not apply when mesquite foliage is wet. The total amount of Garlon 4 applied should not exceed 1 1/3 pints per acre. For best results, follow information given elsewhere in this label concerning effect of environmental conditions and application timing on control. This application method works best for brush less than 8 feet tall since efficient treatment and thorough coverage of taller brush is difficult to achieve with this method. To minimize drift, select a spray nozzle and pressure that provides good coverage while forming a coarse spray. Additionally, drift may be reduced by using the minimum pressure necessary to obtain plant coverage without forming a mist and by directing sprays no higher than the top of target plants. If desired, a spray dye may be added to the spray mixture to mark the treated plants.

Low Volume Foliage Treatment
To control susceptible woody plants, mix up to 20 quarts of Garlon 4 in 10 to 100 gallons of finished spray. The spray concentration of Garlon 4 and total spray volume per acre should be adjusted according to the size and density of target woody plants and kind of spray equipment used. With low volume sprays, use sufficient spray volume to obtain uniform coverage of target plants including the surfaces of all foliage, stems, and root collars (see General Use Precautions and Restrictions). For best results, a surfactant should be added to all spray mixtures. Match equipment and delivery rate of spray nozzles to height and density of woody plants. When treating tall, dense brush, a truck mounted spray gun with spray tips that deliver up to 2 gallons per minute at 40 to 60 psi may be required. Backpack or other types of specialized spray equipment with spray tips that deliver less than 1 gallon of spray per minute may be appropriate for short, low to moderate density brush.

Tank Mixing: As a low volume foliage spray, up to 12 quarts of Garlon 4 may be applied in tank mix combination with labeled rates of Tordon K or Tordon 101 Mixture in 10 to 100 gallons of finished spray. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

Broadcast Applications With Aerial or Ground Equipment

Environmental conditions and application timing influence brush and weed control results. For best results, apply when woody plants and weeds are actively growing. For woody species, apply after the rapid growth period of early spring when leaf tissue is fully expanded and terminal growth has slowed. Brush regrowth should be at least 4 ft high prior to treatment to insure adequate foliage for herbicide absorption. Adequate soil moisture before and after treatment as well as the presence of healthy foliage at the time of application are important factors contributing to optimal herbicidal activity.

Use sufficient spray volume to completely and uniformly cover foliage. For ground application, apply 10 gallons or more of total spray volume per acre. For aerial application, apply at least 2 gallons of total spray volume per acre. Use higher spray volumes for ground or aerial applications to ensure adequate coverage with increased depth and density of foliage, particularly for treatment of woody plants.

Mesquite: The herbicidal response of mesquite is strongly influenced by foliage condition, growth stage and environmental conditions. For best results, apply when new growth foliage has turned from light to dark green, when the soil temperature is above 75°F at a depth of 12 to 18 inches, and soil moisture is adequate for plant growth. Apply within 60 days after the 75°F minimum soil temperature at the 12- to 18-inch depth has been reached. Product performance may be adversely affected if application is made before mesquite foliage has turned from light to dark green or if foliage has been injured or removed by late frost, insects, hail or plant diseases. Do not treat if mesquite exhibits new (light green) terminal growth in response to recent heavy rainfall during the growing season. Rate of soil warm-up at the 12- to 18-inch depth may vary with soil texture and drainage. Coarse-textured (sandy) soils warm up sooner than fine-textured (clay) soils and dry soils warm up more quickly than wet soils. Mesquite regrowth should be at least 4 ft high prior to treatment to insure adequate foliage for herbicide absorption.

Mesquite Only
Apply 1/2 to 1 pint of Garlon 4 per acre in combination with 2/3 to 1 1/3 pint per acre of Reclaim. See label for Reclaim for additional treatment directions and information on mesquite control. Apply aerially as an oil:water emulsion in 4 gallons or more total volume per acre or with ground equipment in 10 gallons or more total volume per acre. Use a maximum of 1 gallon of oil per acre for aerial or ground application.

Mesquite and Pricklypear Cactus
If pricklypear cactus is a target species in association with mesquite, apply a tank mix of 1/2 to 1 pint of Garlon 4 with 1 to 2 pints of

Tordon 22K per acre. (The 2 pint per acre rate of Tordon 22K provides a higher and more uniform plant kill of pricklypear.) Tordon 22K may also be applied in combination with Reclaim to control pricklypear while providing improved control of mesquite. See labels for Tordon 22K and Reclaim for additional information and treatment directions. Apply aerially as an oil:water emulsion in 4 gallons or more total volume per acre or with ground equipment in 10 or gallons or more total volume per acre. If mesquite canopy is dense, use higher spray volumes. Use a maximum of 1 gallon of oil per acre for aerial or ground application.

South Texas Mixed Brush (Mesquite, Pricklypear Cactus, Blackbrush, Twisted Acacia and Granjeno)
Use 1 to 2 pints of Garlon 4 in a tank mix with 2 pints of Tordon 22K per acre if pricklypear is a problem, or with 2/3 to 1 1/3 pints of Reclaim per acre if mesquite is the prevalent species. Garlon 4 contributes to the control of non-legume species such as granjeno and oaks. However, if woody legume species are predominate, apply 2 pints of Tordon 22K per acre in combination with 2/3 to 1 1/3 pints of Reclaim per acre for improved control. See labels for Tordon 22K and Reclaim for additional information and treatment directions. Apply aerially in an oil:water emulsion in 4 gallons or more total volume per acre or with ground equipment in 15 gallons or more total volume per acre. Use a maximum of 1 gallon of oil per acre for aerial or ground application. The use of an oil:water emulsion is critical and good spray coverage is essential for acceptable brush control.

Sand Shinnery Oak Suppression
In Texas, New Mexico and Oklahoma, apply Garlon 4 alone at a rate of 1/2 to 2 pints per acre for suppression of shinnery oak growing on sandy soils. Grass response following suppression may be impressive where rainfall is adequate. Grazing deferment following application together with proper grazing management is recommended to allow for the reestablishment of grass stands.

Post Oak and Blackjack Oak - Regrowth Stands
Apply in the late spring (May) to early summer (June-July) when oak leaves are fully developed (expanded). Use 2 quarts of Garlon 4 alone or in tank mix combination with 0.5 to 1 pints of 2,4-D low-volatile ester herbicide per acre. Apply in an oil:water emulsion or water surfactant dilution in sufficient total volume per acre to assure thorough coverage, usually 5 gallons or more per acre by fixed-wing aircraft or helicopter or 15 to 25 gallons per acre by ground equipment. Use a maximum of 1 gallon of oil per acre for aerial or ground application. Lower rates may be used for suppression only. Control will require at least 3 consecutive treatments. **Note:** Regrowth plants have a large root mass relative to top growth when compared to undisturbed plants. In order for top growth to intercept and translocate enough herbicide to control the roots, delay broadcast treatment until top growth is at least 4 ft tall.

High Volume Foliage Treatment: For regrowth less than 4 ft tall, apply 2 quarts of Garlon 4 per 100 gallons of water and 2 quarts of ag surfactant alone or in tank mix combination with 1 gallon of Grazon P+D or 1 quart of Tordon 22K. Apply as a high volume leaf-stem treatment to individual plants using ground equipment.

Post Oak and Blackjack Oak - Mature Stands
For control of mature stands (greater than 5 ft tall), apply 2 quarts of Garlon 4 per acre in late spring (May) to early summer (June-July) when oak leaves are fully developed (expanded). Understory species such as winged elm, buckbrush, tree huckleberry and ash occurring in some areas will not be controlled (only suppressed or defoliated) by using Garlon 4 alone. Where these understory species occur, control may be improved by tank mixing 2 quarts of Garlon 4 with 1 quart of Tordon 22K or 4 quarts of Grazon P+D per acre. For best results, apply as an oil:water emulsion in a total volume of 5 gallons per acre or more by fixed-wing aircraft or helicopter.

Other Susceptible Woody Plants
Apply 2 to 4 pints of Garlon 4 alone or in combination with 2 to 3 quarts of 3.8 lb/gal 2,4-D low volatile ester or amine formulation per acre. If difficult to control species such as ash, choke cherry, elm, maple or oaks are prevalent, and during applications made when plants are mature late in the summer or during drought conditions, use the higher rates of Garlon 4, alone or with 2,4-D. Garlon 4 may also be applied in a tank mixture with Grazon P+D or Tordon 22K for increased control of certain species. See labels for Grazon P+D and Tordon 22K for additional information and treatment directions. Apply aerially in 4 gallons or more total volume per acre or with ground equipment in 10 gallons or more total volume per acre. For best results on blackberry, apply during or after bloom. For management of kudzu, apply 1 quart of Garlon 4 per acre. Repeat application may be necessary to achieve desired level of control.

Susceptible Broadleaf Weeds
Use 2 pints of Garlon 4 per acre in a water spray. Apply as a broadcast spray in a total volume of 10 gallons or more per acre by ground equipment or aerially in a total volume of 2 gallons or more per acre. Apply anytime the weeds are actively growing. Garlon 4 at 1/2 to 3 pints may be tank mixed with 1 to 2 quarts of 3.8 lb/gal 2,4-D amine or low volatile ester.

Woody Plant Control
Foliage Treatment: Use 4 to 8 quarts of Garlon 4 in enough water to make 5 gallons or more per acre of total spray, or 1 1/2 to 3 quarts of Garlon 4 may be combined with labeled rates of 2,4-D low volatile ester, Tordon 101 Mixture, or Tordon K in sufficient water to make 5 gallons or more per acre of total spray. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

Broadleaf Weed Control
Use Garlon 4 at rates of 1 to 4 quarts in a total volume of 5 gallons or more per acre as a water spray mixture. Apply anytime weeds are actively growing. Garlon 4 at 0.25 to 3 quarts may be tank mixed with labeled rates of 2,4-D amine or low volatile ester, Tordon K, or Tordon 101 Mixture to improve the spectrum of activity. For thickened (high viscosity) spray mixtures, Garlon 4 can be mixed with diesel oil or other inverting agent. When using an inverting agent, read and follow the use directions and precautions on the product label. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

Foliage Treatment (Utility and Pipeline Rights-of-Way)
Use 4 to 8 quarts of Garlon 4 alone, or 3 to 4 quarts of Garlon 4 in a tank mix combination with labeled rates of 2,4-D low volatile ester, Tordon 101 Mixture or Tordon K and apply in a total spray volume of 10 to 30 gallons per acre. Use the higher rates and volumes when plants are dense or under drought conditions. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

Portions of grazed areas that intersect treated non-cropland, rights-of-way and forestry sites may be treated at up to 8 lb ae per acre if the area to be treated on the day of application comprises no more than 10% of the total grazable area.

Basal Bark, Dormant Stem and Cut Surface Treatments

Individual plant treatments such as basal bark and cut surface applications may be used on any use site listed on this label at a maximum use rate of 8 lb ae of triclopyr per acre. These types of applications are made directly to ungrazed parts of plants and, therefore, are not restricted by the grazing maximum rate of 2 lb ae of triclopyr per acre.

Basal Bark Treatment
To control susceptible woody plants with stems less than 6 inches in basal diameter, mix 1 to 5 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Apply with knapsack sprayer or power spraying equipment using low pressure (20 to 40 psi). Spray the basal parts of brush and tree trunks to a height of 12 to 15 inches from the ground, thoroughly wetting the indicated area. Spray until runoff at the ground line is noticeable. Old or rough bark requires more spray than smooth young bark. Apply anytime, including the winter months, except when snow or water prevent spraying to the ground line. **Mixing with oil requires vigorous agitation to form an oil solution.** Once a solution is formed it will stay stable.

Low Volume Basal Bark Treatment
To control susceptible woody plants with stems less than 6 inches in basal diameter, mix 20 to 30 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using low pressure and a solid cone or flat fan nozzle. Spray the basal parts of brush and tree trunks to a height of 12 to 15 inches from the ground in a manner that thoroughly wets the lower stems, including the root collar area, but not to the point of runoff. Herbicide concentration should vary with size and susceptibility of species treated. Apply anytime, including the winter months, except when snow or water prevent spraying to the ground line or when stem surfaces are saturated with water. See Table 1 for relationship between mixing rate, spray volume and maximum application rate. **Note:** The addition of a soil active herbicide to a basal bark mixture with Garlon 4 may result in damage to surrounding non-target vegetation. Care should be taken to assess the areas in which these soil active herbicides are used in combination with Garlon 4 in basal bark applications. **Mixing with oil requires vigorous agitation to form an oil solution.** Once a solution is formed it will stay stable.

Garlon 4 Plus Tordon K in Oil Tank Mix: Garlon 4 and Tordon K may be used in tank mix combination as a low volume basal bark treatment to improve control of certain woody species such as ash, elm, maple, poplar, aspen, hackberry, oak, oceanspray, birch, hickory, pine, tanoak, cherry, locust, sassafras, and multiflora rose. (See product bulletin for mixing instructions.) Tordon K is not registered for use in the states of California and Florida.

Streamline Basal Bark Treatment (Southern States)
To control or suppress susceptible woody plants for conifer release, mix 20 to 30 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Streamline basal bark treatments are most effective on stems less than 4 inches in basal diameter. Apply with a backpack or knapsack sprayer using equipment that provides a directed straight

stream spray. Apply the spray in a 2- to 3-inch wide band to one side of stems less than 3 inches in basal diameter. When the optimum amount of spray mixture is applied, the treated zone should widen to encircle the stem within approximately 30 minutes. Treat both sides of stems which are 3 to 4 inches in basal diameter. Direct the spray at bark that is approximately 12 to 24 inches above ground. Pines (loblolly, slash, shortleaf, and Virginia) up to 2 inches in diameter breast height (dbh) can be controlled by directing the spray at a point approximately 4 feet above ground. Vary spray mixture concentration with size and susceptibility of the species being treated. Better control is achieved when spray is applied to thin juvenile bark and above rough thickened mature bark. This technique is not recommended for scrub and live oak species, including blackjack, turkey, post, live, bluejack and laurel oaks, or bigleaf maple. Apply anytime, including winter months, except when snow or water prevents spraying at the desired height above ground level. **Note:** Best results with some hardwood species occur when applications are made from approximately 6 weeks prior to leaf expansion in the spring until approximately 2 months after leaf expansion is completed. **Mixing with oil requires vigorous agitation to form an oil solution.** Once a solution is formed it will stay stable.

Low Volume Stem Bark Band Treatment (North Central and Lake States)
To control susceptible woody plants with stems less than 6 inches in basal diameter, mix 20 to 30 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using low pressure and a solid cone or flat fan nozzle. Apply the spray in a 6- to 10-inch wide band that completely encircles the stem. Spray in a manner that completely wets the bark, but not to the point of runoff. The treatment band may be positioned at any height up to the first major branch. For best results, apply the band as low as possible. Spray mixture concentration should vary with size and susceptibility of species to be treated. Applications may be made anytime, including winter months. **Mixing with oil requires vigorous agitation to form an oil solution.** Once a solution is formed it will stay stable.

Thinline Basal Bark Treatment
To control susceptible woody plants with stems less than 6 inches in diameter, apply Garlon 4, either undiluted or mixed at 50 to 75% v/v with oil, in a thin stream to all sides of the lower stems. The stream should be directed horizontally to apply a narrow band of Garlon 4 around each stem or clump. Use a minimum of 2 to 15 milliliters of Garlon 4 or oil mixture with Garlon 4 to treat single stems and from 25 to 100 milliliters to treat clumps of stems. Use an applicator metered or calibrated to deliver the small amounts required. **Mixing with oil requires vigorous agitation to form an oil solution.** Once a solution is formed it will stay stable.

Dormant Stem Treatment
Dormant stem treatments control susceptible woody plants and vines with stems less than 2 inches in diameter. Plants with stems greater than 2 inches in diameter may not be controlled and resprouting may occur. This treatment method is best suited for sites with dense, small diameter brush. Dormant stem treatments of Garlon 4 can also be used as a chemical side-trim for controlling lateral branches of larger trees that encroach onto roadside, utility, or other rights-of-way.

Mix 4 to 8 quarts of Garlon 4 in 2 to 3 gallons of crop oil concentrate or other recommended oil and add this mixture in enough water to make 100 gallons of spray solution. Use continuous adequate agitation. Apply with knapsack or power spraying equipment, using low pressure (20 to 40 psi). In western states, apply anytime after woody plants are dormant and most of the foliage has dropped. In other areas apply anytime within 10 weeks of budbreak, generally February through April. Thoroughly wet the upper parts of the stems and use the remainder to wet the lower 12 to 15 inches above the ground to the point of runoff. For root suckering species such as sumac, sassafras and locust, also spray the ground under the plant to cover small root suckers which may not be visible above the soild surface. For oil-water mixture application, mix 6 quarts of Garlon 4, 25 gallons of oil and 1.5 gallons of an approved agricultural spray emulsifier such as Sponto 712 or Triton X-100 as indicated in the mixing directions. Treat as above. Garlon 4 may be mixed with 4 quarts of Weedone 170 herbicide to improve the control of black cherry and broaden the spectrum of herbicidal activity. Do not apply to wet or saturated bark as poor control may result.

Cut Stump Treatment
To control resprouting, mix 20 to 30 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using low pressures and a solid cone or flat fan nozzle. Spray the root collar area, sides of the stump, and the outer portion of the cut surface, including the cambium, until thoroughly wet, but not to the point of runoff. Spray mixture concentration should vary with the size and susceptibility of species treated. Apply anytime, including in winter months, except when snow or water prevent spraying to the ground line. **Mixing with oil requires vigorous agitation to form an oil solution.** Once a solution is formed it will stay stable.

Cut Stump Treatment in Western States
To control resprouting of salt cedar and other *Tamarix* species, bigleaf maple, tanoak, Oregon myrtle, and other susceptible species, apply undiluted Garlon 4 to wet the cambium and adjacent wood around the entire circumference of the cut stump. Treatments may be applied throughout the year; however, control may be reduced with treatment during periods of moisture stress as in late summer. Cut stumps so that they are approximately level to facilitate uniform coverage of Garlon 4. Use an applicator which can be calibrated to deliver the small amounts of material required.

Growing Point and Leaf Base (Crown) Treatment of Yucca
Prepare a 2% v/v solution of Garlon 4 in diesel or fuel oil (13 fl oz of Garlon 4 in 5 gallons of spray mixture). Thoroughly wet the center of the plant including growing point and leaf bases to the soil surface. Complete coverage of leaves is not necessary.

Forest Management Applications

For broadcast applications, apply 1 to 6 quarts of Garlon 4 per acre in a total spray volume of 5 to 25 gallons per acre by air or 10 to 100 gallons per acre by ground. Use spray volumes sufficient to provide thorough coverage of treated foliage. Nozzles or additives that produce larger droplets of spray may require higher spray volumes to provide adequate coverage.

Plant Back Interval for Conifers: Conifers planted sooner than 1 month after treatment with Garlon 4 at less than 4 quarts per acre or sooner than 2 months after treatment at 4 to 6 quarts per acre may be injured. When tank mixtures of herbicides are used for forest site preparation, labels for all products in the mixture should be consulted and the longest waiting period before planting observed.

Forest Site Preparation (Not for Conifer Release)
Southern States including Alabama, Arkansas, Delaware, Florida, Georgia, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia: To control susceptible woody plants and broadleaf weeds, apply Garlon 4 at a rate of 4 to 6 quarts per acre. To broaden the spectrum of woody plants and broadleaf weeds controlled, apply 2 to 4 quarts of Garlon 4 per acre in tank mix combination with labeled rates of Tordon 101 Mixture or Tordon K. Tordon 101 Mixture and Tordon K is not registered for use in the state of Florida. Where grass control is also desired, Garlon 4, alone or in tank mix combination with Tordon K or Tordon 101 Mixture, may be applied with labeled rates of other herbicides registered for grass control in forests. Use of tank mix products must be in accordance with the most restrictive of label limitations and precautions. Do not exceed labeled application rates. Garlon 4 cannot be tank mixed with any product containing a label prohibition against such mixing.

Western, Northeastern, North Central, and Lake States (States not Listed Above as Southern States): To control susceptible woody plants and broadleaf weeds, apply Garlon 4 at a rate of 3 to 6 quarts per acre. To broaden the spectrum of woody plants and broadleaf weeds controlled, apply 1.5 to 3 quarts of Garlon 4 per acre in tank mix combination with labeled rates of Tordon 101 Mixture, Tordon K, or 2,4-D low volatile ester. Tordon 101 Mixture and Tordon K are not registered for use in the state of California. Where grass control is also desired, Garlon 4, alone or in tank mix combination with Tordon 101 Mixture or Tordon K, may be applied with labeled rates of other herbicides registered for grass control in forests. When applying tank mixes, follow applicable use directions and precautions on each product label.

Southern Coastal Flatwoods: To control susceptible broadleaf weeds and woody species such as gallberry and wax-myrtle, and for partial control of saw-palmetto, apply 2 to 4 quarts of Garlon 4 per acre. To broaden the spectrum of species controlled to include fetterbush, staggerbush, titi, and grasses, apply 2 to 3 quarts of Garlon 4 per acre in tank mix combination with labeled rates of Arsenal Applicator's Concentrate herbicide. Where control of gallberry, wax-myrtle, broadleaf weeds, and grasses is desired, apply 2 to 3 quarts of Garlon 4 per acre in tank mix combination with labeled rates of Accord Concentrate or Accord SP herbicide.

These treatments may be broadcast during site preparation of flat planted or bedded sites or, on bedded sites, applied in bands over the top of beds. For best results, apply in late summer or fall. Efficacy may not be satisfactory when applications are made in early season prior to August. **Note:** Do not apply after planting pines.

Directed Spray Applications for Conifer Release
To release conifers from competing hardwoods and brush such as red maple, sugar maple, striped maple, sweetgum, red and white oaks, ash, hickory, alder, birch, aspen, pin cherry, *Ceanothus* spp., blackberry, chinquapin, and poison oak, mix 4 to 20 quarts of Garlon 4 in enough water to make 100 gallons of spray mixture. This spray mixture should be directed onto foliage of competitive hardwoods using knapsack or backpack sprayers with flat fan nozzles or equivalent anytime after the

hardwoods and brush have reached full leaf size, but before autumn coloration. The majority of treated hardwoods and brush should be less than 6 feet in height to ensure adequate spray coverage. Care should be taken to direct spray away from contact with conifer foliage, particularly foliage of desirable pines. See Table 1 for relationship between mixing rate, spray volume and maximum application rate.

Note: Spray may cause temporary damage and growth suppression where contact with conifers occurs; however, injured conifers should recover and grow normally. Over-the-top spray applications can kill pines.

Broadcast Applications for Mid-Rotation Understory Brush Control in Southern Coastal Flatwoods Pine Stands (Ground Equipment Only)
For control of susceptible species such as gallberry and wax-myrtle and broadleaf weeds, apply 2 to 4 quarts of Garlon 4 per acre. To broaden the spectrum of woody plants controlled to include fetterbush, staggerbush, and titi, apply 2 to 3 quarts of Garlon 4 per acre in tank mix combination with labeled rates of Arsenal Applicator's Concentrate. Saw-palmetto will be partially controlled by use of Garlon 4 at 4 quarts per acre or by mixtures of Garlon 4 at 2 to 3 quarts per acre in tank mix combination with either Arsenal Applicator's Concentrate or Escort herbicide. These mixtures should be broadcast applied over target understory brush species, **but to prevent injury to pines, make applications underneath the foliage of pines.** Apply sprays in 30 gallons or more per acre of total volume. For best results, apply in late summer or fall. Efficacy may not be satisfactory when applications are made in early season prior to August.

Broadcast Applications for Conifer Release in the Pacific Northwest and California
Dormant Conifers Before Bud Swell (Excluding Pines): To control or suppress deciduous hardwoods such as vine maple, bigleaf maple, alder, scotch broom, or willow **before leaf-out**, or evergreen hardwoods such as madrone, chinquapin, and *Ceanothus* spp., use Garlon 4 at 1 to 2 quarts per acre. Use diesel or fuel oil as a diluent, or use water plus 1 to 2 gallons per acre of diesel oil or a suitable surfactant or oil substitute at manufacturer's recommended rates. **Mixing with oil as the only diluent requires vigorous agitation to form an oil solution.** Once a solution is formed it will stay stable.

Conifer Plantations (Excluding Pines) After Hardwoods Begin Growth and Before Conifer Bud Break ("Early Foliar" Hardwood Stage): Use Garlon 4 at 1 to 1.5 quarts alone or with 2,4-D low volatile ester herbicide in water carrier to provide no more than 3 lb ae per acre from both products. After conifer bud break, these sprays may cause more serious injury to the crop trees. Use of a surfactant may cause unacceptable injury to conifers especially after bud break.

Conifer Plantations (Excluding Pines) After Conifers Harden Off in Late Summer and While Hardwoods are Still Actively Growing: Use Garlon 4 at rates of 1 to 1.5 quarts per acre alone or with 2,4-D low volatile ester to provide no more than 3 lb ae per acre from both products. Treat as soon after conifer bud hardening as possible so that hardwoods and brush are actively growing. Use of oil, oil substitute, or surfactant may cause unacceptable injury to the conifers.

Broadcast Applications for Conifer Release in the Eastern United States
To release spruce, fir, red pine, and white pine from competing hardwoods such as red maple, sugar maple, striped maple, alder, birch (white, yellow, and grey), aspen, ash, pin cherry, and *Rubus* spp. and perennial and annual broadleaf weeds, use Garlon 4 at rates of 1.5 to 3 quarts per acre alone or with 2,4-D amine or low volatile ester to provide no more than 4 lb ae per acre from both products. Apply in late summer or early fall after conifers have formed their overwintering buds and hardwoods are in full leaf and prior to autumn coloration.

Broadcast Applications for Conifer Release in the Lake States Region
To release spruce, fir, and red pine from competing hardwoods such as aspen, birch, maple, cherry, willow, oak, hazel, and *Rubus* spp. and perennial and annual broadleaf weeds, use Garlon 4 at rates of 1.5 to 3 quarts per acre. Apply in late summer or early fall after conifers have formed their overwintering buds and hardwoods are in full leaf and prior to autumn coloration.

Terms and Conditions of Use

If terms of the following Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. To the extent permitted by law, otherwise, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies.

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It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperature, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Dow AgroSciences or the seller. To the extent permitted by law, all such risks shall be assumed by buyer.

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1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used.

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Revisions:

1. Corrected "non-crop" to non-cropland" under Use Precautions and Restrictions section.
2. Added ", or using the toilet" to Hazards to Human and Domestic Animals statement under Precautionary Statements section.
3. Updated "Container Reuse" to Container Handling" under Storage and Disposal sections.
4. Changed "should" to "must" under Spray Drift Management section.
5. Updated language: "Garlon 4 is not recommended for use…" to "Do not use Garlon 4…" under Mixing with Liquid Fertilizer for Broadleaf Weed Control section.
6. Pricklypear Cactus, Blackbrush, Twisted Acacia and Granjeno) section.
7. Changed "recommendations" to "directions" under Other Susceptible Woody Plants section.
8. Deleted the word "recommended" under Forest Management Applications – Plant Back Interval for Conifer section.
9. Updated Terms and Conditions of Use and Warranty Disclaimer
10. Updated trademark line

Specimen Label

Dow AgroSciences

Milestone®

SPECIALTY HERBICIDE

®Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

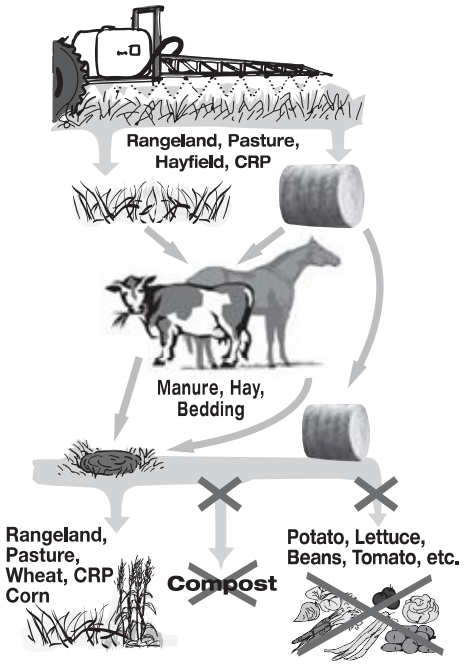
- **For control of annual and perennial broadleaf weeds including invasive and noxious weeds, certain annual grasses, and certain woody plants and vines, on:**
  - **rangeland, permanent grass pastures (including grasses grown for hay*), Conservation Reserve Program (CRP)**
  - **non-crop areas for example, airports, barrow ditches, communication transmission lines, electric power and utility rights-of-way, fencerows, gravel pits, industrial sites, military sites, mining and drilling areas, oil and gas pads, non-irrigation ditch banks, parking lots, petroleum tank farms, pipelines, roadsides, railroads, storage areas, dry storm water retention areas, substations, unimproved rough turf grasses; and**
  - **natural areas (open space) for example, campgrounds, parks, prairie management, trailheads and trails, recreation areas, wildlife openings, and wildlife habitat and management areas including seasonally dry flood plains, deltas, marshes, pairie potholes, or vernal pools;**
  - **including grazed areas in and around these sites.**

***Hay from grass treated with Milestone within the preceding 18-months can only be used on the farm or ranch where the product is applied unless allowed by supplemental labeling**

IMPORTANT USE PRECAUTIONS AND RESTRICTIONS TO PREVENT INJURY TO DESIRABLE PLANTS

- Carefully read the section ***"Restrictions in Hay or Manure Use ."***
- It is mandatory to follow the ***"Use Precautions and Restrictions"*** section of this label.
- Manure and urine from animals consuming grass or hay treated with this product may contain enough aminopyralid to cause injury to sensitive broadleaf plants.
- Hay can only be used on the farm or ranch where product is applied unless allowed by supplemental labeling.
- Consult with a Dow AgroSciences representative if you do not understand the "Use Precautions and Restrictions". **Call [1-(800) 263-1196] Customer Information Group.**

Forage and Manure Management



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Not for Sale, Sale into, Distribution, and/or Use in Nassau and Suffolk counties of New York State.
Not For Sale, Distribution, or Use in the San Luis Valley of Colorado.

GROUP	4	HERBICIDE

Active Ingredient:
Triisopropanolammonium salt of 2-pyridine carboxylic acid, 4-amino-3,6-dichloro-..... 40.6%
Other Ingredients 59.4%
Total 100.0%

Acid Equivalent: aminopyralid (2-pyridine carboxylic acid, 4-amino-3,6-dichloro-) - 21.1% - 2 lb/gal

Container Use Directions

1 - Tip



Tilt container to angle as shown and fill head to desired amount – use vertical scale for measuring. Container should be closed.

2 - Level



Hold container up-right and check the amount for accuracy. Add or subtract as needed, using pour-back scale as guide.

3 - Dispense



Remove cap on head and pour into sprayer or other devices. No fluid will pour from the main container. Replace cap for storage in sealed condition.

Precautionary Statements

Hazards to Humans and Domestic Animals

EPA Reg. No. 62719-519

CAUTION

Causes Moderate Eye Irritation

Avoid contact with eyes or clothing.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:
- Long-sleeved shirt and long pants
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations

Users should:
- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

First Aid

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

Environmental Hazards

Do not apply directly to water. Take care to minimize the incidental overspray along the shoreline when applying to terrestrial plants at the water's edge or to water in areas where surface water is present. Do not apply directly to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Application around a cistern or well may result in contamination of drinking water or groundwater.

Directions for Use

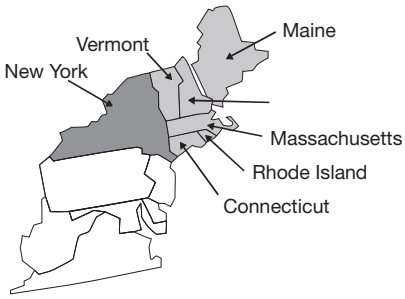
It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
Read all Directions for Use carefully before applying.

This product is not intended for reformulation or repackaging into other end-use products.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Not for Sale, Sale into, Distribution, and/or Use in Nassau and Suffolk counties of New York State.
Not For Sale, Distribution, or Use in the San Luis Valley of Colorado.

Not for use on pastures in Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. All other labeled uses are permitted in these states including grazed areas in and around these sites.



Grey = states where use in pasture is not permitted

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about Personal Protective Equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:
- Coveralls
- Chemical-resistant gloves made of any waterproof material as polyethylene or polyvinyl chloride
- Shoes plus socks
- Protective eyewear

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for Agricultural Pesticides (40 CFR Part 170). The WPS does not pertain to non-agricultural use on sites, such as, rangeland, permanent grass pastures, or non-cropland. See the Agricultural Use Requirements section below for information where the WPS applies.

Entry Restrictions for Non-WPS Uses: For applications on rangeland and permanent grass pastures (not harvested for hay) and non-cropland areas, do not enter or allow worker entry into treated areas until sprays have dried.

Storage and Disposal

Do not contaminate water, food, feed or fertilizer by storage or disposal. Open dumping is prohibited.
Pesticide Storage: If this product is exposed to subfreezing temperatures, the active ingredient may crystallize and settle out of solution. Under these conditions the product should be warmed to at least 40°F and agitated well to dissolve any crystallized active ingredient prior to use.
Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Nonrefillable containers 5 gallons or less:
Container Handling: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Storage and Disposal (Cont.)

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable containers larger than 5 gallons:
Container Handling: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

Nonrefillable containers larger than 5 gallons:
Container Handling: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.
Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Resistance Management Guidelines

- Development of plant populations resistant to this herbicide mode of action is usually not a problem on rangeland, permanent grass pastures, Conservation Reserve Program (CRP), or non-cropland sites since these sites receive infrequent pesticide applications.
- In croplands, use an effective integrated pest management (IPM) program, integrating tillage or other mechanical methods, crop rotation or other cultural control methods into weed control programs whenever practical.
- Similar looking biotypes of a given weed species occurring in a treated area may vary in their susceptibility to a herbicide. Application of a herbicide below its labeled rate may allow more tolerant weeds to survive and a shift to more tolerant biotypes within the treated area.
- Where identified, spreading of resistant weeds to other fields may be prevented by cleaning harvesting and tillage equipment before moving to other areas and by planting weed-free seed.
- Contact your extension specialist, certified crop consultant, or Dow AgroSciences representative for the latest resistance management information.

Use Precautions

- Applications made during periods of intense rainfall, to soils saturated with water, surfaces paved with materials such as asphalt or concrete, or soils through which rainfall will not readily penetrate may result in runoff and movement of Milestone. Injury to crops may result if treated soil and/or runoff water containing Milestone is washed, or moved onto land used to produce crops. Exposure to Milestone may injure or kill susceptible crops and other plants, such as grapes, soybeans, tobacco, sensitive ornamentals.
- **Grass revegetation**:
  - Milestone can be used to control broadleaf plants in grass revegetation programs. Consult Dow AgroSciences' literature for more details about Milestone applications and grass stand establishment.
- **Application before seeding grasses**
  - Milestone can be applied to control broadleaf weeds prior to grass planting. Grass seed germination and seedling development can be adversely effected by many factors such as seed viability and seedling vigor, soil condition (sub-optimal soil temperatures or soil water content), weather after planting, seedbed preparation and seed placement, disease, insects, or animals. Milestone applications will help to reduce competition from weeds and improve the chance for successful grass stand establishment. Some grass species are more sensitive to Milestone; consult Dow AgroSciences' literature for more details.
  - **Postemergence applications on grass:** During the season of establishment, Milestone should be applied only after perennial grasses are well established (have developed a good secondary root system and show good vigor. Most perennial grasses are tolerant to Milestone at this stage of development. Milestone may suppress certain established grasses, such as smooth bromegrass (*Bromus inermis*), especially when plants are stressed by adverse environmental conditions. Plants should recover from this transient suppression with the onset of environmental conditions favorable to grass growth and upon release from weed competition.
- **Seeding Broadleaf Plants (Forbs) and Wildflowers**
  Milestone can be applied in the summer to control broadleaf weeds prior to forb planting. Forbs can be seeded 90 days after a summer application as a dormant fall planting or the following spring. Consult Dow AgroSAciences literature for details.
- **Field Bioassay Instructions:** In fields previously treated with this product, plant short test rows of the intended rotational crop across the original direction of application in a manner to sample variability in field conditions such as soil texture, soil organic matter, soil pH, rainfall pattern or drainage. The field bioassay can be initiated one year after the last application of aminopyralid in that field. Observe the test crop for symptoms of herbicidal activity, such as poor stand (effect on seed germination), chlorosis (yellowing), epinasty, and necrosis (dead leaves or shoots), or stunting (reduced growth). If herbicidal symptoms do not occur, the test crop can be grown. If there is apparent herbicidal activity, do not plant the field to the intended rotational crop; plant only to wheat, forage grasses, native grasses or grasses grown for hay.

Consult with a Dow AgroSciences representative if you do not understand the "Use Precautions and Restrictions." Call (1-800-263-1196) for more information.

Pasture and Rangeland Restrictions

- **Do not use grasses treated with Milestone in the preceding 18-months for hay intended for export outside the United States.**
- **Hay from areas treated with Milestone in the preceding 18-months CAN NOT be distributed or made available for sale off the farm or ranch where harvested unless allowed by supplemental labeling.**
- **Hay from areas treated with Milestone in the preceding 18-months CAN NOT be used for silage, haylage, baylage and green chop unless allowed by supplemental labeling.**
- **Do not move hay made from grass treated with Milestone within the preceding 18-months off farm unless allowed by supplemental labeling.**
- **Do not use hay or straw from areas treated with Milestone within the preceding 18-months or manure from animals feeding on hay treated with Milestone in compost.**
- **Do not use grasses treated with Milestone in the preceding 18-months for seed production.**

Restrictions for All Uses

Maximum Application Rate: On all labeled use sites do not broadcast apply more than 7 fl oz per acre of Milestone per year. The total amount of Milestone applied broadcast, as a re-treatment, and/or spot treatment cannot exceed 7 fl oz per acre per year. Spot treatments may be applied at an equivalent broadcast rate of up to 0.22 lb acid equivalent (14 fl oz of Milestone) per acre per year; however, not more than 50% of an acre may be treated at that rate. Do not apply more than a total of 0.11 lb acid equivalent (7 fl oz) per acre of Milestone per year as a result of broadcast, spot or repeat applications.

Obtain Required Permits: Consult with appropriate state or local water authorities before applying this product around public waters. State or local public agencies may require permits.

- **Avoiding Injury to Non-Target Plants:** Do not aerially apply Milestone within 50 feet of a border downwind (in the direction of wind movement), or allow spray drift to come in contact with, any broadleaf crop or other desirable broadleaf plants, including, but not limited to, alfalfa, cotton, dry beans, flowers, grapes, lettuce, potatoes, radishes, soybeans, sugar beets, sunflowers, tobacco, tomatoes or other broadleaf or vegetable crop, fruit trees, ornamental plants, or soil where sensitive crops are growing or will be planted. Avoid application under conditions that may allow spray drift because very small quantities of spray may seriously injure susceptible crops. Read and consider the "Precautions for Avoiding Spray Drift and Spray Drift Advisory" to help minimize the potential for spray drift.
- **Chemigation:** Do not apply this product through any type of irrigation system.
- **Do not contaminate water intended for irrigation or domestic purposes.** Do not treat inside banks or bottoms of irrigation ditches, either dry or containing water, or other channels that carry water that may be used for irrigation or domestic purposes.
- Do not apply this product to lawns, turf, ornamental plantings, urban walkways, driveways, tennis courts, golf courses, athletic fields, commercial sod operations, or other high-maintenance, fine turfgrass areas, or similar areas.
- Trees adjacent to or in a treated area can occasionally be affected by root uptake of Milestone. Do not apply Milestone within the root zone of desirable trees unless such injury can be tolerated. Use special caution near roses, and leguminous trees such as locusts, redbud, mimosa, and caragana.
- Do not treat frozen soil where runoff could damage sensitive plants.
- **Grazing and Haying Restrictions:** There are no restrictions on grazing or grass hay harvest following application of Milestone at labeled rates. Cutting hay too soon after spraying weeds will reduce weed control. Wait 14 days after herbicide application to cut grass hay to allow herbicide to work. Do not transfer grazing animals from areas treated with Milestone to areas where sensitive broadleaf crops occur without first allowing 3 days of grazing on an untreated pasture. Otherwise, urine and manure may contain enough aminopyralid to cause injury to sensitive broadleaf plants.
- **Grazing Poisonous Plants:** Herbicide application may increase palatability of certain poisonous plants. Do not graze treated areas until poisonous plants are dry and no longer palatable to livestock.
- **Restrictions in Hay or Manure Use:**
  - ♦ Do not use aminopyralid-treated plant residues, including grass, wood plants, trees, hay or straw from areas treated within the preceeding 18-months, in compost, mulch wood chips, or mushroom spawn.-
  - ♦ Do not use manure from animals that have eaten aminopyralid-treated forage or hay within the previous 3 days in compost, mulch or mushroom spawn. Livestock must have 3 days of eating non-aminopyralid-treated materials in order to clear their system of aminopyralid. Do not use aminopyralid-treated plants in areas where commercially grown mushrooms or susceptible broadleaf plants may be grown.
  - ♦ Do not spread manure from animals that have consumed aminopyralid-treated forage or hay within the previous 3 days on land used for growing susceptible broadleaf crops.
  - ♦ Manure from animals that have consumed aminopyralid-treated forage or hay within the previous 3 days may only be used on areas used for pasture, grass grown for seed, wheat and corn.
  - ♦ Do not plant a broadleaf crop (including soybeans, sunflower, tobacco, vegetables, field beans, peanuts, and potatoes) in fields or areas treated with aminopyralid or manure from animals that have grazed forage or eaten hay harvested from aminopyralid-treated areas until an adequately sensitive field bioassay is conducted to determine that the aminopyralid concentration in the soil is at level that is not injurious to the crop to be planted.
  - ♦ Do not plant a broadleaf crop in fields or areas treated in the previous year with manure from animals that have consumed aminopyralid-treated forage or hay until an adequately sensitive field bioassay is conducted to determine that the aminopyralid concentration in the soil is at level that is not injurious to the crop to be planted.
  - ♦ To promote herbicide decomposition, plant residues should be evenly incorporated in the surface soil or burned. Breakdown of aminopyralid in plant residues or manure is more rapid under warm, moist soil conditions and may be enhanced by supplemental irrigation.
- **Crop Rotation:** Do not rotate to any crop from rangeland, permanent pasture or CRP acres within one year following treatment. Cereals and corn can be planted one year after treatment. Broadleaf crops are sensitive to aminopyralid residues in the soil and prediction of crop safety by field biassay (see instructions below) is the BEST way to determine planting options. Broadleaf crops such as canola, flax, and alfalfa can require **at least** 2 to 3 years depending on the crop and environmental conditions. More sensitive crops such as soybeans, tobacco, peanuts, potatoes, and peas may require a longer plant back interval and should not be planted until a field bioassay shows that the level of aminopyralid present in the soil will not adversely affect that broadleaf crop.

Precautions for Avoiding Spray Drift

Avoid application under conditions that may allow spray drift because very small quantities of spray, which may not be visible, may injure susceptible crops. This product should be applied only when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, non-target crops and other plants) is minimal (e.g., when wind is blowing away from the sensitive areas. A drift control aid may be added to the spray solution to further reduce the potential for drift. If a drift control aid is used, follow the use directions and precautions on the manufacturer's label. Do not use a thickening agent with Microfoil, Thru-Valve booms, or other spray delivery systems that cannot accommodate thickened spray solutions.

Ground Equipment: With ground equipment spray drift can be lessened by keeping the spray boom as low as possible; by applying 10 gallons or more of spray per acre; by keeping the operating spray pressures at the manufacturer's specified minimum pressures for the specific nozzle type used (low pressure nozzles are available from spray equipment manufacturers); and by spraying when the wind velocity is low (follow state regulations). Avoid calm conditions which may be conducive to thermal inversions. Direct sprays no higher than the tops of target vegetation and keep spray pressures low enough to provide coarse spray droplets to minimize drift.

Aerial Application: Avoid spray drift at the application site. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. Users are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications:

1. The boom length must not exceed 75% of the fixed wing span and must be located at least 8 -10 inches below the trailing edge of the fixed wing; the boom length must not exceed 85% of the rotary blade.
2. Nozzles should be pointed backward parallel with the air stream or not pointed downwards more than 45 degrees.

State regulations must be followed.

The applicator should be familiar with and take into account the information covered in the following **Aerial Drift Reduction Advisory**. This information is advisory in nature and does not supersede mandatory label requirements.

Aerial Drift Reduction Advisory

Information on Droplet Size: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

Controlling Droplet Size:

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's specified pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that will provide uniform coverage.

- **Nozzle Orientation** - Orient nozzles so that the spray is released parallel to the airstream to produce larger droplets than other orientations. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length: The distance of the outer most operating nozzles on the boom must not exceed 75% of wingspan or 85% of rotor diameter.

Application Height: Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment: When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind: Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. **Note**: Local terrain such as valleys and ravines can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions: Applications should not occur during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Sprayer Clean-Out Instructions

It is recommended to use separate spray equipment on highly sensitive crops such as tobacco, soybeans, potatoes, peanuts and tomatoes.

Do not use spray equipment used to apply Milestone for other applications to land planted to, or to be planted to, broadleaf plants unless it has been determined that all residues of this herbicide have been removed by thorough cleaning of equipment.

Equipment used to apply Milestone should be thoroughly cleaned before reusing to apply any other chemicals as follows:

1. Rinse and flush application equipment thoroughly after use. Dispose of rinse water in non-cropland area away from water supplies.
2. Rinse a second time, adding 1 quart of household ammonia or tank cleaning agent for every 25 gallons of water. Circulate the solution through the entire system so that all internal surfaces are contacted (15 to 20 minutes). Let the solution stand for several hours, preferably overnight.
3. Flush the solution out of the spray tank through the boom.
4. Rinse the system twice with clean water, recirculating and draining each time.
5. Spray nozzles and screens should be removed and cleaned separately.

- Do not apply this product with mist blower systems that deliver very fine spray droplets. Use of mist blower equipment can reduce control achieved with the herbicide and increase spray drift potential.

Use Information

Apply the specified rate of Milestone as a coarse low-pressure spray. Do not apply this product with mist blower systems that deliver very fine spray droplets. Spray volume should be sufficient to uniformly cover foliage or intended application site. Increase spray volume to ensure thorough and uniform coverage when target vegetation is tall and/or dense. To enhance foliage wetting and coverage, a non-ionic agricultural surfactant or other adjuvant may be added to the spray mixture as specified by the adjuvant label.

Milestone may be applied by ground or aerial application equipment on any registered use site specified on this label.

Ground Broadcast Application: Higher spray volumes (greater than 10 gallons per acre) generally provide better coverage and better control, particularly in dense and/or tall foliage.

Aerial Broadcast Application: Do not apply less than 2 gallons per acre total spray volume. Five gallons per acre or greater will generally provide better coverage and better control, particularly in dense and/or tall foliage.

High-Volume Foliar Application: High volume foliar treatments may be applied at rates equivalent to a maximum of 7 fl oz per acre per year. Use sufficient spray volume to thoroughly and uniformly wet foliage and stems.

For basal bark and cut stubble and all types of cut surface applications, see woody plant section.

Low-Volume Foliar Treatment

To control susceptible woody plants, use Milestone alone or in tank mixes with other herbicides in water. The spray concentration of Milestone tank mixes and total spray volume per acre should be adjusted according to the size and density of target woody plants and type of spray equipment used. With low-volume application, use sufficient spray volume to obtain uniform coverage of target plants including the surfaces of all foliage, stems, and root collars.

For best results, an adjuvant should be added to all spray mixtures. Match equipment and delivery rate of spray nozzles to height and density of woody plants. When treating tall, dense brush, a truck mounted spray gun with spray tips that deliver up to 2 gallons per minute at 40 to 60 psi may be required. Backpack or other types of specialized spray equipment with spray tips that deliver less than 1 gallon of spray per minute may be appropriate for short, low to moderate density brush.

Spot Application: Spot treatments may be applied at an equivalent broadcast rate of up to 0.22 lb acid equivalent (14 fl oz of Milestone) per acre per year; however, not more than 50% of an acre may be treated at that rate. Do not apply more than a total of 0.11 lb acid equivalent (7 fl oz) per acre of Milestone per year as a result of broadcast, spot or repeat applications.) Spray volume should be sufficient to thoroughly and uniformly wet weed foliage, but not to the point of runoff. Repeat treatments may be made, but the total amount of Milestone applied must not exceed 7 fl oz per acre per year. To prevent misapplication, spot treatments should be applied with a calibrated sprayer with a known volume per acre. Table 1 shows Milestone amount to mix for various sprayer outputs in gallons per acre (GPA)

Table 1: Amount of Milestone **(in mL)** to mix in **1 gallon of water**

Gallons per acre	Milestone amount (in mL) to mix to achive target application rates		
GPA	**5 fl oz/a**	**7 fl oz/a**	**14 fl oz/a**
20	7.5	10.5	21.0
30	5.0	7.0	14.0
40	3.8	5.3	10.5
50	3.0	4.2	8.4
60	2.5	3.5	7.0
70	2.1	3.0	6.0
80	1.9	2.6	5.3
90	1.7	2.3	4.7
100	1.5	2.1	4.2

Use a syringe to measure cc

Note: Table 1 above shows mixes for various sprayer outputs in gallons per acre (GPA).

Conversions:

1 tsp = 5 mL
3 tsp = 1 Tbsp
30 ml = 1 fluid ounce
2 Tbsp = 1 fluid ounce
1 cc = 1 mL

Mixing Instructions

Mixing with Water: To prepare the spray, add about half the required amount of water in the spray tank. Then, with agitation, add the specified amount of Milestone and other herbicides, if tank mixing. Finally, with continued agitation, add the rest of the water and additives such as adjuvants, surfactants or drift control and deposition aids.

Addition of Surfactants or Adjuvants on All Labled Use Sites: The addition of a high quality non-ionic surfactant (of at least 80% active principal) or adjuvant at 0.25 to 0.5 % volume per volume (1 to 2 quarts per 100 gallons of spray) is recommended to enhance herbicide activity under adverse environmental conditions (such as, high temperature, low relative humidity, drought conditions, dusty plant surfaces) or when weeds are heavily pubescent or more mature.

Tank Mixing with Other Herbicides: Milestone may be applied in tank mix combination with labeled rates of other herbicides provided: (1) the tank mix product is labeled for the timing and method of application for the use site to be treated and (2) mixing is not prohibited by the label of the tank mix product(s), and (3) that the tank mix combination is physically compatible (see tank mix compatibility testing below). When tank mixing, use only in accordance with the restrictions, precautions and limitations on the respective product labels.

- It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.
- Do not exceed specified application rates. If products containing the same active ingredient are mixed, do not exceed the maximum allowable active ingredient use rates.
- For direct injection or other spray equipment where the product formulations will be mixed in undiluted form, special care should be taken to ensure tank mix compatibility.
- Always perform a jar test to ensure the compatibility of products to be used in tank mixture.

Tank Mix Compatibility Testing: Perform a jar test prior to mixing in a spray tank to ensure compatibility of Milestone and other pesticides or carriers. Use a clear glass jar with lid and mix ingredients in the same order and proportions as will be used in the spray tank. The mixture is compatible if the materials mix readily when the jar is inverted several times. The mixture should remain stable after standing for 1/2 hour or, if separation occurs, should readily remix if agitated. An incompatible mixture is indicated by separation into distinct layers that do not readily remix when agitated and/or the presence of flakes, precipitates, gels, or heavy oily film in the jar. Use of an appropriate compatibility aid may resolve mix incompatibility. If the mixture is incompatible do not use that tank mix partner in tank mixtures.

Invert emulsion spray mixtures
Milestone can be applied in an invert emulsion using oil and an appropriate inverting agent. Follow label directions of the inverting agent.

Mixing with Sprayable Liquid Fertilizer Solutions: Milestone is usually compatible with liquid fertilizer solutions. It is anticipated that Milestone will not require a compatibility agent for mixing with fertilizers; however, a compatibility test (jar test) should be made prior to mixing. Jar tests are particularly important when a new batch of fertilizer or pesticide is used, when water sources change, or when tank mixture ingredients or concentrations are changed. Compatibility may be determined by mixing the spray components in the desired order and proportions in a clear glass jar before large scale mixing of spray components in the spray tank.

Note: The lower the temperature of the liquid fertilizer, the greater the likelihood of mixing problems. Use of a compatibility aid may be required if Milestone is mixed with a 2,4-D-containing product and liquid fertilizer. **Mixing Milestone and 2,4-D in N-P or N-P-K liquid fertilizer solutions is more difficult than mixing with straight nitrogen fertilizer and should not be attempted without first conducting a successful compatibility jar test.** Agitation in the spray tank must be vigorous to be comparable with jar test agitation. Apply the spray mixture the same day it is prepared while maintaining continuous agitation. Rinse the spray tank thoroughly after use.

Note: Foliar-applied liquid fertilizers themselves can cause yellowing of the foliage of forage grasses and other vegetation.

Use Rates and Timing

Milestone may be applied as a broadcast spray by ground or aerial equipment or as a spot application to control weeds including, but not limited to, those listed on this label. When a rate range is given use the higher rate to control weeds at advanced growth stages, or under less than favorable growing conditions, or for longer residual control. Best results are obtained when spray volume is sufficient to provide uniform coverage of treated weeds. For optimum uptake and translocation of Milestone, avoid mowing, haying, shredding, burning or soil disturbance in treated areas for at least 14 days following application.

Milestone provides post emergence control and premergence control of emerging seedlings of susceptible weeds, and re-growth of certain perennial weeds following application. Preventing establishment of weeds will depend upon application rate, season of application, and environmental conditions after application.

Milestone can provide long-term control of susceptible weeds. The length of control is dependent upon the application rate, condition and growth stage of target weeds, environmental conditions at and following application, and the density and vigor of competing desirable vegetation. Long-term weed control is most effective where grass vegetation is allowed to recover from overgrazing, drought, etc., and compete with weeds.

Milestone can be an important component of integrated vegetation management programs designed to renovate or restore desired plant communities. To maximize and extend the benefits of weed control provided by Milestone, it is important that other vegetation management practices, including proper grazing management, biological control agents, replanting, fertilization, prescribed fire, etc., be used in appropriate sequences and combinations to further alleviate the adverse effects of weeds on desirable plant species and to promote development of desired plant communities. Agricultural and natural resources specialists with federal and state government agencies can provide guidance on best management practices and development of integrated vegetation management programs.

Plants Controlled

The following weeds and woody plants will be controlled with the rates of Milestone indicated below (table 2). For best results, most weeds and woody plants should be treated when they are actively growing and under conditions favorable for growth. Use a higher rate in the rate range when growing conditions are less than favorable or when weed foliage is tall and dense, or when optimal longer term residual control is desired. Milestone also provides preemergence control of germinating seeds or seedlings of susceptible weeds following application.

Table 2: Weeds and Woody Plants Controlled
Note: Numbers in parentheses (-) refer to specific use directions for a particular weeds species.

Common Name	Scientific Name	Rate Range (fl oz/acre)	Life Cycle	Plant Family
amaranth, spiny	*Amaranthus spinosus*	4 to 7	annual	Amaranthaceae
bedstraw	*Galium spp.*	4 to 7	perennial	Rubiaceae
beggarticks	*Bidens spp.*	4 to 7	annual	Asteracea
broomweed, annual	*Amphiachyris dracunculoides*	4 to 7	annual	Asteraceae
burdock, common	*Arctium minus*	4 to 7	biennial	Asteraceae
buttercup, hairy	*Ranunculus sardous*	4 to 7	annual	Ranunculaceae
buttercup, tall	*Ranunculus acris*	4 to 7	perennial	Ranunculaceae
buttercup spp	*Ranunculus spp*	4 to 7	various	Ranunculaceae
camelthorn	*Alhagi pseudalhagi*	5 to 7	perennial	Fabaceae
cat's ear, common	*Hypochaeris radicata*	5 to 7	perennial	Asteracea
cat's ear	*Hypochaeris spp*	5 to 7	perennial	Asteracea
chamomile, scentless	*Matricaria inodora*	4 to 7	annual	Asteraceae
chicory	*Cichorium intybus*	4 to 6	perennial	Asteraceae
chickweed	*Stellaria media*	7	annual	Caryophyllaceae

Table 2: Weeds and Woody Plants Controlled (Cont.)
Note: Numbers in parentheses (-) refer to specific use directions for a particular weeds species.

Common Name	Scientific Name	Rate Range (fl oz/acre)	Life Cycle	Plant Family
cinquefoil, sulfur (1)	*Potentilla recta*	4 to 7	perennial	Rosaceae
cocklebur	*Xanthium strumarium*	3 to 5	annual	Asteraceae
clover	*Trifolium spp.*	5 to 7	perennial	Fabaceae
crazyweed	*Oxytropisp*	5 to 7	perennial	Fabaceae
croton, tropic	*Croton glandulosus*	3 to 5	annual	Euphorbiaceae
crownvetch	*Securigera varia*	5 to 7	perennial	Fabaceae
cudweed, purple	*Gamochaeta purpurea*	4 to 7	annual	Asteraceae
daisy, oxeye (1)	*Leucanthemum vulgare*	4 to 7	perennial	Asteraceae
dock, curly	*Rumex crispus*	4 to 7	perennial	Polygonaceae
evening primrose, cutleaf	*Oenothera laciniata*	4 to 7	annual	Onagraceae
fiddleneck	*Amsinckia spp*	4 to 7	annual	Boraginaceae
fireweed	*Epilobium angustifolium*	5 to 7	perennial	Onagraceae
fleabane, flax-leaf	*Conyza bonariensis*	4 to 7	annual	Asteraceae
fleabane, hairy	*Conyza bonariensis*	5-7	annual/biennial	Asteraceae
hawkweed, orange (2)	*Hieracium aurantiacum*	4 to 7	perennial	Asteraceae
hawkweed, yellow (2)	*Hieracium caespitosum*	4 to 7	perennial	Asteraceae
henbane, black	*Hyoscyamus niger*	5 to 7	annual/biennial	Solanaceae
henbit	*Lamium amplexicaule*	5 to 7	annual/ biennial	Lamiaceae
hogweed, giant	*Heracleum mantegazzianum*	7	perennial	Apiaceae
horsenettle, Carolina	*Solanum carolinense*	4 to 7	perennial	Solanaceae
horseweed (marestail)	*Conyza canadensis*	4 to 7	annual	Asteraceae
ironweed, tall	*Vernonia gigantea*	5 to 7	perennial	Asteraceae
ironweed, western	*Vernonia baldwinii*	7	perennial	Asteraceae
knapweed, diffuse (3)	*Centaurea diffusa*	5 to 7	biennial/ perennial	Asteraceae
knapweed, meadow	*Centaurea debeauxii*	5 to 7	perennial	Asteraceae
knapweed, Russian (4)	*Acroptilon repens*	5 to 7	perennial	Asteraceae
knapweed, spotted (3)	*Centaurea stoebe*	5 to 7	biennial/ perennial	Asteraceae
knapweed, squarrose	*Centaurea virgata*	5 to 7	biennial/ perennial	Asteraceae
knapweeds	*Centaurea spp.*	5 to 7	biennial/ perennial	Asteraceae
knotweeds, Japanese, bohemian (11)	*Reynoutria japonica*	7-14	perennial	Polygonaceae
kudzu	*Pueraria montana*	7	perennial	Fabaceae
lady's thumb	*Polygonum persicaria*	3 to 5	annual	Polygonaceae
lambsquarters	*Chenopodium album*	5 to 7	annual	Chenopodiaceae
lespedeza, annual	*Lespedeza striata*	5 to 7	annual	Fabaceae
licorice, wild	*Glycyrrhiza lepidota*	7	perennial	Fabaceae
locoweed	*Astragalus spp.*	5 to 7	perennial	Fabaceae
locust, black	*Robinia pseudoacacia*	7	woody perennial	Fabaceae
locust, honey	*Gleditsia triacanthos*	7	woody perennial	Fabaceae
loosestrife, purple (12)	*Lythrum salicaria*	7-14	perennial	Lythraceae
mayweed, scentless	*Tripleurospermum perforate*	4 to 7	annual	Asteraceae
mayweed, stinking	*Anthemis cotula*	7	annual	Asteraceae
medic, black	*Medicago lupulina*	4 to 7	perennial	Fabaceae
mimosa	*Albizia julibrissin*	7	woody perennial	Fabaceae
mullein (5)	*Verbascum spp.*	7	biennial	Scrophulariaceae
nightshade, silverleaf	*Solanum elaeagnifolium*	4-7	perennial	Solanaceae
oxtongue, bristly	*Picris echioides*	5 to 7	biennial	Asteraceae
pea, Swainson	*Sphaerophysa salsula*	5-7	perennial	Fabaceae
povertyweed	*Iva axillaris*	5-7	perennial	Asteraceae
ragweed, common	*Ambrosia artemisiifolia*	3 to 5	annual	Asteraceae
ragweed, western	*Ambrosia psilostachya*	4 to 7	perennial	Asteraceae
ragweed, giant	*Ambrosia trifida*	4 to 7	annual	Asteraceae
ragwort, tansy	*Senecio jacobaea*	5 to 7	perennial	Asteraceae
redbud	*Cercis Canadensis*	7	woody perennial	Fabaceae

Table 2: Weeds and Woody Plants Controlled (Cont.)
Note: Numbers in parentheses (-) refer to specific use directions for a particular weeds species.

Common Name	Scientific Name	Rate Range (fl oz/acre)	Life Cycle	Plant Family
rush skeletonweed	*Chondrilla juncea*	5 to 7	perennial	Asteraceae
sicklepod	*Cassia obtusifolia*	7	perennial	Fabaceae
smartweed, Pennsylvania	*Polygonum pensylvanicum*	3 to 5	annual	Polygonaceae
sneezeweed, bitter	*Helenium amarum*	4 to 7	annual	Asteraceae
soda apple, tropical (6)	*Solanum viarum*	5 to 7	perennial	Solanaceae
sowthistle, annual	*Sonchus oleraceae*	7	annual	Asteraceae
sowthistle, perennial	*Sonchus arvensis*	3 to 5	perennial	Asteraceae
spanishneedles	*Bidens bipinnata*	4 to 7	annual	Asteraceae
St. Johnswort, common	*Hypericum perforatum*	5 to 7	perennial	Clusiaceae
stiltgrass, Japanese	*Microstegium vimineum*	5-7	annual	Poaceae
starthistle, Malta (7)	*Centaurea melitensis*	3 to 5	annual	Asteraceae
starthistle, purple (7)	*Centaurea calcitrapa*	3 to 5	biennial	Asteraceae
starthistle, yellow (7)	*Centaurea solstitialis*	3 to 5	annual	Asteraceae
sunflower, common	*Helianthus annuus*	4 to 7	annual	Asteraceae
sweetclover, white	*Melilotus albus*	5 to 7	biennial	Fabaceae
sweetclover, yellow	*Melilotus officinalis*	5 to 7	biennial	Fabaceae
teasel	*Dipsacus spp.*	4 to 7	biennial	Dipsacaceae
thistle, artichoke	*Cynara cardunculus*	5 to 7	perennial	Asteracea
thistle, blessed milk	*Silybum marianum*	4-7	biennial	Asteraceae
thistle, bull (8)	*Cirsium vulgare*	3 to 5	biennial	Asteraceae
thistle, Canada (9)	*Cirsium arvense*	5 to 7	perennial	Asteraceae
thistle, woolly distaff	*Carthamus lanatus*	4 to 7	annual	Asteraceae
thistle, Italian	*Carduus pycnocephalus*	7	annual	Asteraceae
thistle, musk (8)	*Carduus nutans*	3 to 5	biennial	Asteraceae
thistle, plumeless (8)	*Carduus acanthoides*	3 to 5	biennial	Asteraceae
thistle, Scotch	*Onopordum acanthium*	5 to 7	biennial	Asteracea
thistle, Russian (preemergence)	*Salsola spp*	7	annual	Chenopodiaceae
tree of heaven	*Ailanthus altissima*	7	perennial	Simaroubaceae
vetch	*Vicia spp.*	3 to 7	perennial	Fabaceae
willoweed, panicle	*Epilobium brachycarpum*	5-7	annual	Onagraceae
wisteria	*Wisteria brachybotris*	7	woody perennial	Fabaceae
wormwood, absinth(10)	*Artemisia absinthium*	6 to 7	perennial	Asteraceae
yarrow, common	*Achillea millefolium*	7	perennial	Asteraceae

(1) **Sulfur cinquefoil or oxeye daisy:** Apply Milestone at 4 to 6 fl oz per acre to plants in the prebud stage of development.
(2) **Orange or yellow hawkweeds:** Apply Milestone at 4 to 7 fl oz per acre to plants in the bolting stage of development.
(3) **Diffuse, spotted, and squarrose knapweeds:** Apply Milestone at 5 to 7 fl oz per acre when plants are actively growing with the optimum time of application occurring from rosette to the bolting stages of development or in the fall. Plants will be controlled by mid-summer and fall applications even though plants may not show any changes in form or stature the year of application.
(4) **Russian knapweed:** Apply Milestone at 5 to 7 fl oz per acre to plants in the spring and summer at early bud to flowering stages and to dormant plants in the fall.
(5) Mullein: Apply to the rosette stage
(6) **Tropical soda apple:** Apply Milestone at 5 to 7 fl oz per acre at any growth stage, but application by flowering will reduce seed production potential.
(7) **Malta, purple, and yellow starthistle:** Apply Milestone at 3 to 5 fl oz per acre to plants at the rosette through bolting growth stages.
(8) **Bull, musk, and plumeless thistles:** Apply Milestone at 3 to 5 fl oz per acre in the spring and early summer to rosette or bolting plants or in the fall to seedlings and rosettes. Apply at 4 to 5 fl oz when plants are at the late bolt through early flowering growth stages. 2,4-D at 1 lb ae/acre should be tank-mixed with Milestone starting at the late bud stages
(9) **Canada thistle:** Apply Milestone at 5 to 7 fl oz per acre in the spring after all plants have fully emerged (some may be budding) until the oldest plants are in full flower stage. Use the higher rate when applying to the flower stage. Applications are also effective in the fall before a killing frost. Use higher rates for older/dense stands or for longer residual control.
(10) **Absinth wormwood:** Apply 6 to 7 fl oz per acre before wormwood is 12 inches tall. When applying by air on CRP, coverage is important and a minimum of 3 GPA is specified. Remove old duff and litter by fire or mowing for best results
(11) **Invasive knotweeds:** Japanese, Bohemian, giant knotweeds: Optimum suppression of invasive knotweeds with Milestone herbicide is obtained when applications are made to plants that are at least 3 to 4 feet tall. Results of field trials conducted in the western U.S. indicate that high volume applications (100 gpa or greater) of Milestone at 7 fl oz/A or a spot treatment rate up to 14 fl oz/A applied in summer will provide good control of invasive knotweeds. In the upper Midwest, mowing in summer followed by fall application of Milestone (prior to frost) provided the best control. Infestations of invasive knotweed that are mowed should be allowed to regrow to at least 3 feet in height prior to herbicide treatment. Monitoring and follow-up herbicide treatments on regrowth will be necessary to control resprouts and achieve long-term control.
(12) **Purple loosestrife:** For optimum control apply Milestone at 7 fl oz per acre plus 1 pt to 1 qt of 2,4-D amine or 1 to 2 qts of Garlon 3A. Spot treatments may also be made by applying Milestone at 14 fl oz (see Spot treatment section of the label) with or without the addition of 2,4-D or Garlon 3A.
(13) **Fiddleneck:** For optimum control apply Milestone at 4 to 7 fl oz per acre when the plants are young and before flowering. Use higher rates if the plants are older and larger. In California optimal application timing is November through March.

For Control or Suppression of Medusahead Rye

Milestone applied broadcast at 7 to14 fl oz/A can suppress or control medusahead rye (*Taeniatherum caput-medusae)* and downy brome *(Bromus tectorum,* also called cheatgrass*).* The key to optimum results is the timing of application. Applications should be made in late summer prior to rains and seed germination in order to provide the best possibility of suppression or control. In general, control or suppression will be poor if any of the seeds have germinated prior to application even if they have not yet emerged through the soil surface. Tank mixes with Accord XRT II at 12 fl oz/A, where a non-selective herbicide can be used or where desired grasses are dormant and will not be harmed, and will aid in control. Spot treatment restrictions (see spot treatment section) apply for rates above 7 fl oz/A for broadcast applications.

Control of Terrestrial Weeds near and up to the Water's Edge

Milestone can be used to treat terrestrial weeds that extend up to the water's edge. **Do not apply directly to water.** This product must not be used to treat vegetation standing in the water. When controlling terrestrial weed species near and up to the water's edge, take precautions to minimize incidental overspray to the adjacent water. Consult local public water control authorities before applying this product near public waters. Permits may be required to treat such areas. Apply the specified rate, listed in Table 2, of Milestone as a coarse low-pressure spray as ground broadcast or spot applications. Do not apply aerially for control of weeds growing at or near the water's edge. Spray volume should be sufficient to uniformly cover foliage. Increase the spray volume to ensure thorough and uniform coverage when target vegetation is tall and/or dense. It is also permissible to treat target weeds within dry non-irrigation ditches and seasonally dry transitional areas between upland and lowland sites (such as flood plains, deltas, marshes, prairie potholes or vernal pools), but only at times when those sites are dry and are forecasted or managed by water control systems to remain dry for at least 2 weeks following application.

Use Rate Restrictions:
Do not broadcast apply more than 7 fl oz per acre of Milestone per year.

The total amount of Milestone applied broadcast, as a re-treatment, and/or spot treatment cannot exceed 7 fl oz per acre per year. Spot treatments may be applied at an equivalent broadcast rate of up to 0.22 lb acid equivalent (14 fl oz of Milestone) per acre per year; however, not more than 50% of an acre may be treated at that rate. Do not apply more than a total of 0.11 lb acid equivalent (7 fl oz) per acre of Milestone per year as a result of broadcast, spot or repeat applications.

Woody Plant Control

Milestone may be applied to control woody plants by any application method listed on the label on any site listed.

Milestone may be applied alone or in tank-mix combinations with labeled rates of other herbicides provided: (1) the tank mix product is labeled for the timing and method of application for the use site to be treated and (2) mixing is not prohibited by the label of the registered tank mixed products. Use as directed in the Directions of Use section of the tank-mix partner. Follow Mixing Instructions under the General Mixing and Application Instructions section.

Add Milestone to tank mixes for improved brush control on species such as alder, aspen, blackberry, boxelder, cherry, coyote brush, conifers, cottonwood, elm, maple, poplar, oak, brooms (Scotch, Spanish, French, Portuguese), gorse, hackberry, Russian and Autumn olive, salt-cedar.

Low or High Volume Foliar Applications:
For broad spectrum brush control using a foliar application, Milestone may be added to tank mixes with Accord® XRT II, Arsenal Powerline, DMA® 4IVM, Garlon 4 Ultra, Remedy Ultra, Tordon 101M, Transline, Forestry Garlon XRT, or Garlon 3A, Rodeo®, Tordon® K, Tordon 22K or other products labeled for use on the intended site.

Low Volume Basal Bark Applications:
To control susceptible woody plants with stems less than 6 inches in basal diameter, apply herbicide mix (see below for rates) with a backpack or knapsack sprayer using low pressure and a solid cone or flat fan nozzle. Spray the basal parts of brush and tree trunks to a height of 12 to 15 inches from the ground in a manner that thoroughly wets the lower stems but not to the point of runoff. The use of a Spraying Systems Y2 nozzle or similar nozzle is recommended, which will narrow the spray pattern to target individual stems. Herbicide concentration should vary with tree diameter, bark thickness, volume used per acre, and susceptibility of species treated. Apply anytime, including the winter months, except when snow or water prevent spraying to the ground line or when stem surfaces are saturated with water.

Milestone may be used as a low volume basal treatment alone, for sensitive woody species in the Fabaceae family (legumes), or in combination with other products such as Garlon 4 Ultra, Forestry Garlon XRT, Remedy Ultra for broader control of other sensitive woody species. Applications should not exceed the maximum use rate per acre for the site.

Mix Milestone at 0.5 to 5% v/v alone, or with Garlon 4 Ultra or Forestry Garlon XRT in a commercially available basal diluent (or other oils or basal diluents as recommended by the manufacturer); the basal oil should be compatible with a water soluble herbicide such as Milestone. See table 3 to calculate the amount of Milestone that can be applied per acre at the various volumes and rates. Make a stable tank mixture for basal bark application by first combining each product with a compatibility agent prior to final mixing in the desired ratio. If using a tank mix, mix the oil-based products such as Garlon 4 Ultra thoroughly with basal oil and add any other oil-based products before adding the water based products. If the mixture stands for more than 30 minutes, reagitation may be required.

Oil and water based mixtures can separate over time. Long-term storage is not recommended without vigorous agitation prior to use or without a recommended compatibility agent.

Use caution when treating areas adjacent to susceptible and desirable species to avoid root uptake and possible injury when using Milestone or other soil active herbicides

Low Volume Stem Bark Band Treatment
To control susceptible woody plants (see table 2) with stems less than 6 inches in basal diameter, mix 0.5 to 5 gallons of Milestone in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using low pressure and a solid cone or flat fan nozzle. Apply the spray in a 6- to 10-inch wide band that completely encircles the stem. Spray in a manner that completely wets the bark, but not to the point of runoff. The treatment band may be positioned at any height up to the first major branch. For best results apply the band as low as possible. Spray mixture concentration should vary with size and susceptibility of species to be treated. Applications may be made anytime, including winter months.

Table 3:

% of Milestone in Basal Mix	Fluid ounces of Milestone by GPA (gallons per acre)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.0	1.3	2.6	3.8	5.1	6.4	7.7	9.0
1.5	1.9	3.8	5.8	7.7	9.6	11.5	13.4
2.0	2.6	5.1	7.7	10.2	12.8		
2.5	3.2	6.4	9.6	12.8			
3.0	3.8	7.7	11.5				
3.5	4.5	9.0	13.4				
4.0	5.1	10.2					
5.0	6.4	12.8					

within spot treatment labeled rate

in excess of spot treatmentt labeled rate

NOTE: Avoid treating high density of stems adjacent to desirable trees with roots in the treatment zone. See table 4 for guidance on estimated volume per acre by treated stem density. Trees adjacent to or in a treated area can occasionally be affected by root uptake of Milestone. Applications of Milestone within the root zone of desirable trees should not be made unless injury can be tolerated. Severe injury or plant death can occur if used near roses, or leguminous trees such as locusts, redbud, mimosa, and caragana.

Table 4:

Estimated gallons of spray solution per acre for basal bark applications on various stem densities per acre		
	Volume Range	Target Spacing
Number of Stems/Acre	(gal/acre)	(ft between brush/trees)
250	1.0 - 1.7	8.4
500	2.0 - 3.3	5.9
750	3.0 - 5.0	4.9
1000	4.0 - 6.6	4.2
1250	5.0 - 8.3	3.8
1500	5.9 - 9.9	3.4

Cut surface

Apply Milestone in the cut surface applications listed below for control of susceptible tree species such as legumes like Albezia, mimosa, locust, etc. Mixtures of Milestone and Garlon 3A or Garlon 4 Ultra may be effective on species other than legumes such as elm, maple, oak and conifers.

Cut surface applications may be used successfully at any season except during periods of heavy sap flow of certain species - for example, maples in the spring.

Cut-Stump Treatment

Apply Milestone as a 10% dilution v/v in water, by spraying or painting all the exposed cambium layer on the freshly cut surface. The cambium area next to the bark is the most vital area to wet.

With Tree Injector Method

Apply by injecting 1 milliliter of 10% v/v Milestone in water through the bark at intervals of 3 to 4 inches between centers of the injector wound. The injections should completely surround the tree at any convenient height. Note: No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is injected directly into plants.

With Hack and Squirt Method

Make cuts around the tree trunk at a convenient height with a hatchet or similar equipment so that the cuts overlap slightly and make a continuous circle around the trunk. Spray 1 milliliter of 10% v/v Milestone in water into the pocket created between the bark and the inner stem/trunk by each cut.

With Frill or Girdle Method

Make a single girdle through the bark completely around the tree at a convenient height. The frill should allow for the herbicide to remain next to the inner stem and absorb into the plant. Wet the cut surface with 10% v/v Milestone in water.

For use in Hawaii only:
Incision Point Application (IPA) also known as Tree Injection or Hack and Squirt

For control of susceptible tree species such as Albezia, and other legumes and susceptible tree species, make cuts around the tree trunk at a convenient height with a machete, hatchet or similar equipment so that the cuts are about 6 inches apart between centers. Inject ½ to 1 milliliter of undiluted Milestone into the pocket created between the bark and the inner stem/trunk by each cut as soon as possible after cutting. The cambium area next to the bark is the most vital area to wet.

Preemergent Weed Control

Typically Milestone is used as a post emergent herbicide but it has preemergent activity on susceptible weeds. Use Milestone as a preemergence spray prior to weed seed germination. Control will depend upon species susceptibility, application timing, and environmental conditions, such as precipitation, following application. When applied at rates lower than 7 fl oz per acre, Milestone can provide short-term control of some susceptible weeds but when applied at 7 fl oz (broadcast) or 14 fl oz (spot treatment), weed control is extended.

Best results for use as a premergent application for total vegetation control are obtained if Milestone at 7 fl oz per acre is tank mixed with other herbicides to broaden the weed spectrum and to control grasses. If grasses and broadleaf weeds tolerant to Milestone are present at the time of application or will germinate on the site, then tank mixtures with other herbicides, such as Accord® XRT II, Rodeo®, Dimension® 2EW or EC (annual grasses), Oust XP, Esplanade, flumioxazin, diuron, or other herbicides labeled for total vegetation control applications.

SPOT TREATMENTS FOR AREAS SUCH AS SUBJECT POLES, SUBSTATIONS, AND OTHER SMALL AREAS

Spot treatments may be applied at an equivalent broadcast rate of up to 0.22 lb acid equivalent (14 fl oz of Milestone) per acre per year to small spots for clearing around utility subject poles to help prevent fire damage, on small substations and other spot areas. To prevent misapplication, spot treatments should be applied with a calibrated sprayer.

Terms and Conditions of Use

If terms of the following Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. To the extent permitted by law, otherwise, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies.

Warranty Disclaimer

Dow AgroSciences warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. To the extent permitted by law, Dow AgroSciences MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Dow AgroSciences or the seller. To the extent permitted by law, all such risks shall be assumed by buyer.

Limitation of Remedies

To the extent permitted by law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Dow AgroSciences' election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used.

To the extent permitted by law, Dow AgroSciences shall not be liable for losses or damages resulting from handling or use of this product unless Dow AgroSciences is promptly notified of such loss or damage in writing. To the extent permitted by law, in no case shall Dow AgroSciences be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer, Inherent Risks of Use and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Dow AgroSciences or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

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Produced for
Dow AgroSciences LLC
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Indianapolis, IN 46268

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Replaced Label: D02-879-006
LOES Number: 010-02112

EPA accepted 01/30/17

Revisions:

1. Added the following to the use site list in description: "seasonally dry flood plains, deltas, marshes, prairie potholes, or vernal pools."
2. Revised the restriction for New York to read, "Not for Sale, Sale into, Distribution, and/or Use in Nassau and Suffolk counties of New York State."
3. Added the following restriction: "Not For Sale, Distribution, or Use in the San Luis Valley of Colorado."
4. Updated the Use Precautions and Restriction section and divided into two distinct sections.
5. Updated Tank Mixing with Other Herbicides section by adding, "It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture."
6. Added the following use section: Control of Terrestrial Weeds at the Water's Edge

Specimen Label

GLYPHOSATE	GROUP	9	HERBICIDE

CORTEVA™ agriscience

Rodeo®

HERBICIDE

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For control of annual and perennial weeds and woody plants in natural and production (plantations), forests for site preparation, mid-rotation release treatments, timber stand improvement activities, noncrop sites including industrial sites, rights-of-way (including roadsides, electric utility and communication transmission lines, pipelines, railroads, airports), irrigation and drainage ditches, canals, reservoirs, natural areas (including wildlife management areas, wildlife openings, wildlife habitats and refuges, parks and recreational areas, campgrounds, trailheads and trails), rangeland, and in and around aquatic sites and wetlands; also for perennial grass release, and grass growth suppression and grazed areas on these sites.

Avoid contact of herbicide with foliage, green stems, exposed non-woody roots or fruit of crops, desirable plants and trees, because severe injury or destruction may result.

Active Ingredient:	
glyphosate† N-(phosphonomethyl)glycine, isopropylamine salt	53.8%
Other Ingredients	46.2%
Total	100.0%

†Contains 5.4 lb per gallon glyphosate, isopropylamine salt (4 lb per gallon glyphosate acid).

Precautionary Statements

Hazards to Humans and Domestic Animals

EPA Reg. No. 62719-324

Keep Out of Reach of Children

CAUTION

Harmful If Inhaled • Avoid breathing spray mist. Remove contaminated clothing and wash before reuse. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

First Aid

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

Environmental Hazards

Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants. This oxygen loss can cause fish suffocation.

In case of leak or spill, soak up and remove to a landfill.

Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.

Do not mix, store or apply this product or spray solutions of this product in galvanized steel or unlined steel (except stainless steel) containers or spray tanks. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
Read all Directions for Use carefully before applying.

This is an end-use product. Dow AgroSciences does not intend and has not registered it for reformulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Keep people and pets off treated areas until spray solution has dried.

Storage and Disposal

Do not contaminate water, food, feed or seed by storage or disposal.
Pesticide Storage: Store above 10°F (-12°C) to keep product from crystallizing. Crystals will settle to the bottom. If allowed to crystallize, place in a warm room 68°F (20°C) for several days to redissolve and roll or shake container or recirculate in mini-bulk containers to mix well before using.
Pesticide Disposal: Wastes resulting from use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, state or local procedures.

Nonrefillable containers 5 gallons or less:
Container Handling: Nonrefillable container. Do not reuse or refill this container.
Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Refillable containers larger than 5 gallons:
Container Handling: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Nonrefillable containers 5 gallons or larger:
Container Handling: Nonrefillable container. Do not reuse or refill this container.
Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Product Information

This product is a broad spectrum, systemic, postemergent herbicide with no soil residual activity. It is intended for control of annual and perennial weeds and woody plants and brush. It is formulated as a water soluble liquid.

Time to Symptoms: The active ingredient in this product moves through the plant from the point of foliage contact to and into the root system. Visible effects are a gradual wilting and yellowing of the plant that advances to complete browning of above ground growth and deterioration of underground plant parts. Visible effects on most annual weeds occur within two to four days, but on most perennial weeds visible effects may not occur for seven days or more. Extremely cool or cloudy weather following treatment may slow the activity of this product and delay development of visual symptoms.

Stage of Weeds: Annual weeds are easiest to control when they are small. Best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity. Refer to the annual, perennial and woody brush and trees rate tables for specific weeds. Always use the higher rate within the rate range for heavy or dense weed growth or when weeds are growing in an undisturbed (noncultivated) area. When treating weeds with disease or insect damage, weeds heavily covered with dust, or weeds under poor growing conditions, reduced weed control may result.

Cultural Considerations: Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed, or cut, and have not been allowed to regrow to the specified stage for treatment.

Rainfastness: Heavy rainfall soon after application may wash off this product from the foliage and a repeat application up to the labled rate may be required for adequate control.

Spray Coverage: For best results, spray coverage should be uniform and complete.

Mode of Action: The active ingredient in this product inhibits an enzyme. This enzyme is found only in plants and microorganisms that are essential to forming specific amino acids.

No Soil Activity: Weeds must be emerged at the time of application to be controlled by this product. Weeds germinating from seed after application will not be controlled. Unemerged plants arising from unattached underground rhizomes or rootstocks of perennials will not be affected by the herbicide and will continue to grow.

Biological Degradation: Degradation of this product is primarily a biological process carried out by soil microbes.

Maximum Application Rates: The maximum application rates specified in this label are given in units of volume, either fluid ounces, pints or quarts, of this product per acre. The maximum allowed application rates apply to this product combined with the use of any and all other glyphosate- or sulfosate-containing herbicides, either applied separately or in a tank mix, on the basis of total pounds of glyphosate (acid equivalents) per acre. If more than one glyphosate- or sulfosate-containing product is applied to the same site within the same year, ensure that the total of pounds acid equivalent glyphosate does not exceed the maximum allowed.

Do not apply more than 8 quarts of this product (8 lb glyphosate acid) per acre per year for all use sites listed on this label.

IMPORTANT: When using this product, unless otherwise specified, mix with a surfactant, such as a nonionic surfactant containing 80% or greater active ingredient. For conifer release (pine release) use only surfactants that are approved for conifer release and specified on the surfactant label as safe for use in conifer release (pine release). Use of this product without surfactant will result in reduced herbicide performance. Ammonium sulfate, drift control additives, or dyes and colorants may be used. See Mixing Directions and the surfactant manufacturer's label for more information.

Grazing Restrictions: This product may be used to treat undesirable vegetation in utility rights-of-way that pass through pastures, rangeland, and forestry sites that are being grazed. For tank mix applications, comply with all restrictions appearing on the tank mix product label.

Except for lactating dairy animals there are no grazing restrictions following the labeled applications of this product.

For lactating dairy animals there are no grazing restrictions for the following labeled applications of this product:
- Where the spray can be directed onto undesirable woody brush and trees, including in handgun spray to wet or low volume directed spray treatments.
- For tree injection of frill applications and for cut stump treatments.

For broadcast applications, observe the following restrictions for lactating dairy animals:
- For application rates between 4.5 and 7.5 quarts per acre, no more than 15 percent of the available grazing area may be treated.
- For application rates less than 4.5 quarts per acre, no more than 25 percent of the available grazing area may be treated.

These restrictions do not apply to pastures, rangeland or forestry sites outside of utility rights-of-way.

Herbicide Resistance Management

Glyphosate, the active ingredient in this product, is a group 9 herbicide (inhibitor of EPSP synthase). Some naturally occurring weed biotypes that are tolerant (resistant) to glyphosate may exist due to genetic variability in a weed population. Where resistant biotypes exist, the repeated use

of herbicides with the same mode of action can lead to the selection for resistant weeds. Certain agronomic practices reduce the likelihood that resistant weed populations will develop, and can be utilized to manage weed resistance once it occurs.

To delay the selection for glyphosate resistant weeds, use the following practices:

- Scout fields before and after application to detect weed escapes or shifts in weed species.
- Start with a clean field by applying a burndown herbicide or by tillage.
- Control weeds early when they are small.
- Add other herbicides, including a selective and/or a residual herbicide, and cultural practices, including tillage or crop rotation, where appropriate.
- Use the application rate for the most difficult to control weed in the field. Do not tank mix with other herbicides that reduce this product's efficacy through antagonism or with ones that encourage application rates of this product below those specified on this label.
- Control weed escapes and prevent weeds from setting seeds.
- In situations where resistant weeds are a problem, before moving from one site to another, clean equipment to minimize the spread of weed seeds or plant parts.
- Use new commercial seed that is as free of weed seed as possible.
- Report any incidence of repeated non-performance of this product against a particular weed species to the local retailer, county extension agent, or Dow AgroSciences representative.

The following good agronomic practices are recommended to reduce the spread of confirmed glyphosate-resistant biotypes:

- Tank mix this product or apply it sequentially with an appropriately labeled herbicide with a different mode of action to achieve control if a naturally occurring resistant biotype is present in the site.
- Cultural and mechanical control practices, including crop rotation or tillage, may also be used.
- To control weed escapes, including resistant biotypes, before they set seed, scout treated sites after applying this product.
- Thoroughly clean equipment before leaving any site known to contain resistant biotypes.

Because the presence of glyphosate resistance in weed populations is difficult to detect prior to use, Dow AgroSciences accepts no liability for any losses that may result from the failure of this product to control glyphosate-resistant weeds.

Attention

Avoid contact of herbicide with foliage, green stems, exposed non-woody roots or fruit of crops, desirable plants and trees, because severe injury or destruction may result.

AVOID DRIFT. Use extreme care when applying this product to prevent injury to desirable plants and crops.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of injury occurring from the use of this product increases when winds are gusty, as wind velocity increases, when wind direction is constantly changing, or when there are other meteorological conditions that favor spray drift. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. **Avoid applying at excessive speed or pressure.**

NOTE: Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and-weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

- The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
- Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they must be observed.

The applicator must be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory.

Aerial Drift Reduction Advisory
This section is advisory in nature and does not supersede the mandatory label requirements.

Importance of Droplet Size: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent adverse effects from drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

Controlling Droplet Size:

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows product larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. Use the lower spray pressures for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length: For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

Application Height: Applications must not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment: When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance must increase with increasing drift potential (higher wind, smaller drops, etc.).

Wind: Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Do not apply this product when wind speed is below 2 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions: Do not apply this product during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a connected cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas: Apply this pesticide only when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

Mixing Directions

Use only clean, stainless steel, fiberglass, plastic or plastic-lined steel containers to mix, store and apply spray solutions of this product. Do not mix, store or apply this product or spray solutions of this product in galvanized steel or unlined steel, except stainless steel, containers or spray tanks.

Eliminate any risk of siphoning the contents of the tank mix back into the carrier source while mixing. Use approved anti-back-siphoning devices where required by state or local regulations.

Note: Reduced results may occur if water containing soil is used, including visibly muddy water or water from ponds and ditches that is not clear.

Rodeo – Alone
This product mixes readily with water. Mix spray solutions of this product as follows:

1. Fill the mixing or spray tank with the required amount of clean water.
2. Add the specified amount of this product and nonionic surfactant near the end of the filling process and mix well.
3. During mixing and application, foaming of the spray solution may occur. To prevent or minimize foaming, avoid the use of mechanical agitators, terminate by-pass and return lines at the bottom of the tank and, if needed, use an approved anti-foam or defoaming agent.

Rodeo – Tank Mix
This product does not provide residual weed control. For residual weed control or an alternate mode of action, tank mix this product with other herbicides. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture..

Under certain conditions, at certain growth stages, and/or under other circumstances, some tank mix products have the potential to cause injury. Read all labels for products used in the tank mix prior to using them to determine the potential for crop injury.

Tank mixing with other herbicides, insecticides, fungicides, micronutrients or foliar fertilizers may result in reduced weed control or injury. Do not use these products in applications with this product unless otherwise noted in this label. To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly specified in this labeling. Mixing this product with herbicides or other materials not specified on this label may result in reduced performance.

The user is responsible for ensuring that the specific application being made is included on the label of the product used in the tank mix when a tank mixture with a generic active ingredient, including 2,4-D, atrazine, dicamba, diuron, or pendimethalin, is used.

Read all individual product labels for all products in the tank mix and observe all precautions and restrictions on the label. Use according to the most restrictive directions for each product in the tank mix. Always predetermine the compatibility of all tank mix products, together in the carrier, by mixing small proportional quantities in advance of mixing and applying them to the use site. Add the tank mix product to the tank as directed by the label. Maintain agitation and add the required amount of this product.

Maintain good agitation at all times until the contents in the tank are sprayed. If the mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying resumes. Keep the bypass line on or near the bottom of the tank to minimize foaming. The screen size in the nozzle or line strainers must be no finer than 50 mesh.

Note: If tank mixing with Garlon® 3A herbicide, ensure that Garlon 3A is well mixed with at least 75 percent of the total spray volume before adding this product to the spray tank to avoid incompatibility.

Hand-Held Sprayers
Prepare the desired volume of spray solution by mixing the amount of this product in water as shown in the following table:

Spray Concentration (percent)	Amount of this Product for Desired Volume:		
	1 gal	25 gal	100 gal
0.5	2/3 fl oz	1 pt	2 qt
0.75	1 fl oz	1 1/2 pt	3 qt
1	1 1/3 fl oz	1 qt	1 gal
1.5	2 fl oz	1 1/2 qt	1 1/2 gal
2	2 2/3 fl oz	2 qt	2 gal
3.75	5 fl oz	3 3/4 qt	3 3/4 gal
5	6 1/2 fl oz	1 1/4 gal	5 gal
10	13 fl oz	2 1/2 gal	10 gal

Nonionic Surfactant
When using this product, unless otherwise specified, mix with a surfactant, including a nonionic surfactant containing 80% or more active ingredient. For conifer release (pine release), use only surfactants that are approved for conifer release and specified on the surfactant label as safe for use in conifer release. Using this product without surfactant will result in reduced herbicide performance.

Colorants or Dyes
Agriculturally-approved colorants or marking dyes may be added to this product. Colorants or dyes used in spray solutions of this product may reduce performance, especially at lower rates or dilutions. Use colorants or dyes according to the manufacturer's directions.

Drift Control Additives
Drift control additives may be used with all equipment types except wiper applicators, sponge bars and CDA equipment. When a drift control additive is used, it is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture..

Application Equipment and Application Methods

Chemigation: Do not apply this product through any type of irrigation system.

Apply spray solutions in properly maintained and calibrated equipment capable of delivering desired volumes.

This product may be applied with the following application equipment and application methods.

Aerial Application
Equipment: Fixed wing and helicopter

Do not apply this product using aerial spray equipment except under conditions as specified within this label.

Avoid drift. Do not apply when winds are gusty or under any other condition which favors drift. Drift may cause damage to any vegetation contacted to which treatment is not intended. To prevent injury to adjacent desirable vegetation, maintain appropriate buffer zones.

Do not directly apply to any body of water.

Use the specified rates of this herbicide in 3 to 25 gallons of water per acre unless otherwise specified on this label. Refer to the specific use directions of this label for volumes and application rates.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations that dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. A drift control additive may be used. When a drift control additive is used, carefully read and observe the precautionary statements and all other information specified on the additive label.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Aerial Application Restrictions in California Only

AVOID DRIFT: Do not apply when winds are gusty or under any other condition which favors drift. Drift may cause damage to any vegetation contacted to which treatment is not intended. To prevent injury to adjacent desirable vegetation, appropriate buffer zones must be maintained.

Do not aerially apply this product in a tank mix with dicamba in California.

Make aerial applications with helicopter only. To ensure uniform application, avoid streaking, uneven, or overlapped application, and use appropriate marking devices.

Use the following guidelines when aerial applications are made near crops or desirable perennial vegetation after budbreak and before total leaf drop, and/or near other desirable vegetation or annual crops:

- Do not apply this product using aerial equipment in residential areas.
- Do not apply within 100 feet of all desirable vegetation or crop(s).
- If wind up to 5 miles per hour is blowing toward desirable vegetation or crop(s), do not apply within 500 feet of the desirable vegetation or crop(s).
- Winds blowing from 5 to 10 miles per hour toward desirable vegetation or crop(s) may require buffer zones in excess of the 500-foot minimum buffer.
- Do not apply when winds are in excess of 10 miles per hour or when inversion conditions exist.

Use only coarse sprays to minimize drift. Do not use nozzles or nozzle configurations that dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure above the manufacturer's directions.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. Prolonged exposure of this product to uncoated steel surfaces may result in corrosion and possible failure of the part. Landing gear is most susceptible. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion.

ADDITIONAL LIMITATIONS FOR AERIAL APPLICATION IN FRESNO COUNTY, CALIFORNIA ONLY

Always read and follow the label directions and precautionary statements for all products used in the aerial application.
The following information applies only from February 15 through March 31 within the following boundaries of Fresno County, California:
North: Fresno County line
South: Fresno County line
East: State Highway 99 West

Observe the following directions to minimize off-site movement during aerial application of this product. Minimization of off-site movement is the responsibility of the grower, Pest Control Advisor and aerial applicator.

Written Directions

Written directions MUST be submitted by or on behalf of the applicator to the Fresno County Agricultural Commissioner 24 hours prior to the application. These written directions MUST state the proximity of surrounding crops and that conditions of each manufacturer's product label and this label have been satisfied.

Aerial Applicator Training and Equipment

Aerial application of this product is limited to pilots who have successfully completed a Fresno County Agricultural Commissioner and California Department of Pesticide Regulation approved training program for aerial application of herbicides. All aircraft must be inspected, critiqued in flight and certified at a Fresno County Agricultural Commissioner approved fly-in. Test and calibrate spray equipment at intervals sufficient to insure that proper rates of herbicides and adjuvants are being applied during commercial use. Applicator must document such calibrations and testing. Demonstration of performance at Fresno County Agricultural Commissioner approved fly-ins constitutes such documentation, or other written records showing calculations and measurements of flight and spray parameters acceptable to the Fresno County Agricultural Commissioner.

Applications at Night – Do not apply this product by air earlier than 30 minutes prior to sunrise and/or later than 30 minutes after sunset without prior permission from the Fresno County Agricultural Commissioner.

To report known or suspected misuse of this product, call 1-800-332-3111.

For additional information on the proper aerial application of this product in Fresno County, call 916-784-1718.

Aquatic and Noncrop Sites

When this product is applied under the conditions described, it controls or partially controls the labeled weeds growing in the following industrial, recreational, and public areas or other similar sites.

Aquatic sites includes all bodies of fresh and brackish water that may be flowing, nonflowing, or transient-including lakes, rivers, streams, ponds, seeps, irrigation and drainage ditches, canals, reservoirs, estuaries and similar sites.

If aquatic sites are present in the noncrop area and are part of the intended treatment, read and observe the following directions:

- This product does not control plants that are completely submerged or have a majority of their foliage under water.
- There is no restriction on the use of treated water for irrigation, recreation, or domestic purposes.
- Consult local and state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.
- To make aquatic applications around and within 1/2 mile of active potable water intakes, the water intake must be turned off for a minimum period of 48 hours after the application. The water intake may be turned on prior to 48 hours if the glyphosate level in the intake water is below 0.7 parts per million as determined by laboratory analysis. These aquatic applications may be made only in those cases where there are alternative water sources or holding ponds that would permit the turning off of an active potable water intake for a minimum period of 48 hours after the application.

Restrictions:

- Do not apply this product within 1/2 mile upstream of an active potable water intake in flowing water (i.e., river stream, etc.), or within 1/2 mile of an active potable water intake in a standing body of water, such as a lake, pond, or reservoir.

Ground Application

Equipment: Boom or boomless systems, pull-type sprayer, floaters, pick-up sprayers, spray coupes and other ground broadcast equipment.

Use the specified rates of this product in 3 to 40 gallons of water per acre as a broadcast spray unless otherwise specified on this label. As density of weeds increases, increase the spray volume within the rate range to ensure complete coverage. Carefully select proper nozzles to avoid spraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

Hand-Held and High-Volume Including Backpack Application

Equipment: Knapsack and backpack sprayers, pump up pressure sprayers, handguns, hand wands, mistblowers, lances, and other hand-held and motorized spray equipment used to direct the spray onto weed foliage. **Note:** This product is not registered in Arizona or California for use in mistblowers.

Apply to foliage of vegetation to be controlled. Do not spray to the point of runoff for applications made on a spray to wet basis. Use coarse sprays only. For best results, cover the top half of the plant and at least half of the total foliage. To ensure adequate spray coverage, spray both sides of large or tall woody brush and trees, when foliage is thick and dense, or where there are multiple sprouts.

High Volume Sprays: Prepare a 3/4 to 2 percent solution of this product in water, add a nonionic surfactant and apply to foliage of vegetation to be controlled. For specific rates of application and instructions for control of various annual and perennial weeds, see the Weeds Controlled section.

Make applications on a spray to wet basis with uniform and complete spray coverage. Do not spray to point of runoff.

Low Volume Directed Sprays: This product may be used as a 5 to 10 percent solution in low volume directed sprays for spot treatment of trees and brush. This treatment method is most effective in areas where there is a low density of undesirable trees or brush. If a straight stream nozzle is used, start the application at the top of the targeted vegetation and spray from top to bottom in a lateral zigzag motion. Ensure that at least 50 percent of the leaves are contacted by the spray solution. For flat fan and cone nozzles and with hand-directed mist blowers, mist the application over the foliage of the targeted vegetation. Treat small, open-branched trees only from one side. If the foliage is thick or there are multiple root sprouts, apply from several sides to ensure adequate spray coverage. Prepare the desired volume of spray solution by mixing the amount of this product in water as shown in the following table.

Spray Solution:

Desired Volume	Amount of This Product								
	0.5	0.75	1	1.25	1.5	2	5	8	10
1 gal	2/3 fl oz	1 fl oz	1 1/3 fl oz	1 2/3 fl oz	2 fl oz	2 2/3 fl oz	6 1/2 fl oz	10 1/4 fl oz	13 fl oz
25 gal	1 pt	1 1/2 pt	1 qt	1 1/4 qt	1 1/2 qt	2 qt	1 1/4 gal	2 gal	2 1/2 gal
100 gal	2 qt	3 qt	1 gal	1 1/4 gal	1 1/2 gal	2 gal	5 gal	8 gal	10 gal

2 Tablespoons = 1 fl oz

For best results when using knapsack sprayers, mix the specified amount of product with water in a larger container. Fill the knapsack sprayer with the solution and add the correct amount of surfactant.

Selective Equipment

Equipment: Recirculating sprayers, shielded and hooded sprayers, wiper applicators and sponge bars.

Do not contact desirable vegetation with herbicide. Droplets, mist, foam, or splatter of the herbicide settling on desirable vegetation is likely to result in discoloration, stunting or destruction.

Better results are obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when the height of weeds varies so that not all weeds are contacted. If this occurs, repeat treatment up to the labled rate may be necessary.

Shielded and Hooded Applicators: A shielded or hooded applicator directs the herbicide solution onto weeds while shielding desirable vegetation from the herbicide. Use nozzles that provide uniform coverage within the treated area. Keep shields on these sprayers adjusted to protect desirable vegetation. **Exercise extreme care to avoid contact of the herbicide with desirable vegetation.**

Wiper Applicators: Wiper applicators are devices that physically wipe appropriate amounts of this product directly onto the weed. Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation.

Adjust wiper applicators used over the top of desirable vegetation so that the wiper contact point is at least 2 inches above the desirable vegetation. Better results are obtained when more of the weed is exposed to the herbicide solution. Weeds should be a minimum of 6 inches above the desirable vegetation. Adjust the applicator height to ensure adequate contact with weeds as weeds not contacted by the herbicide solution will not be affected. Poor contact may occur when weeds are growing in dense clumps, in severe weed infestations, or when weed height varies dramatically. If this occurs, repeat treatment up to the labeled rate may be necessary.

Operate this equipment at ground speeds no more than 5 mph. Performance may be improved by reducing speed in areas of heavy weed infestations to ensure adequate wiper saturation. Better results may be obtained if two applications are made in opposite directions.

Droplets, mist, foam, or splatter of the herbicide settling onto desirable vegetation may result in discoloration, stunting or destruction. Avoid leakage or dripping onto desirable vegetation. Adjust height of applicator to ensure adequate contact with weeds. Keep wiping surfaces clean. Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying of the wicks on the upper end of a wiper applicator.

Do not use wiper equipment when weeds are wet.

Mix only the amount of solution to be used during a one-day period as reduced activity may result from use of leftover solutions. Clean wiper parts by thoroughly flushing with water immediately after using this product.

For best results, use a nonionic surfactant at a rate of 10 percent by volume of total herbicide solution for all wiper applications.
Rope or Sponge Wick Applicators: Use solutions of 33 to 75 percent of this product in water.
Panel Applicator: Use solutions of 33 to 100 percent of this product in water.

Injection Systems
Equipment: Aerial or ground injection sprayers.

This product may be used in aerial or ground injection spray systems. It may be used as a liquid concentrate or diluted prior to injecting into the spray stream. Do not mix this product with the concentrate of other products when using injection systems.

Controlled Droplet Applicator (CDA)
Equipment: Hand-held or boom-mounted applicators that produce a spray consisting of a narrow range of droplet sizes.

The rate of this product applied per acre by vehicle-mounted CDA equipment must not be less than the amount specified on this label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 3 to 15 gallons of water per acre.

For the control of annual weeds with hand-held CDA units, apply a 20 percent solution of this product at a flow rate of 2 fl oz per minute and a walking speed of 1.5 mph (1 1/2 pints of product per acre). For control of perennial weeds, apply a 20 to 40 percent solution of this product at a flow rate of 2 fl oz per minute and a walking speed of 0.75 mph (3 to 6 pints of product per acre).

CDA equipment produces a spray pattern that is not easily visible. Exercise extreme care to avoid spray or drift contacting the foliage or any other green tissue of desirable vegetation as damage or destruction may result.

Use Sites

Use this product in noncrop areas, including airports, apartment complexes, aquatic sites, Christmas tree farms, commercial sites, Conservation Reserve Program (CRP) areas, ditch banks, driveways, dry ditches, dry canals, fencerows, golf courses, greenhouses, habitat management, industrial areas, lumber yards, manufacturing sites, municipal sites, natural areas, office complexes, ornamentals, parking areas, parks, pastures, petroleum tank farms and pumping installations, plant nurseries, public areas, railroads, rangeland, recreation areas, utility rights-of-way, roadsides, shadehouses, sod or turf seed farms, sports complexes, storage areas, substations, turfgrass areas, utility sites, warehouse areas, wildlife habitat management areas, and in grazed areas on these sites.

Aquatic Sites

This product may be applied to emerged weeds in all bodies of fresh and brackish water that may be flowing, nonflowing or transient including lakes, rivers, streams, ponds, estuaries, rice levees, seeps, irrigation and drainage ditches, canals, reservoirs, wastewater treatment facilities, wildlife habitat restoration and management areas and similar sites.

If aquatic sites are present in the noncrop area and are part of the intended treatment, read and observe the following directions:

- This product does not control plants that are completely submerged or have a majority of their foliage under water.
- There is no restriction on the use of treated water for irrigation, recreation or domestic purposes.
- Consult local and state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.
- To make aquatic applications around and within 1/2 mile of active potable water intakes, the water intake must be turned off for a minimum period of 48 hours after the application. The water intake may be turned on prior to 48 hours if the glyphosate level in the intake water is below 0.7 parts per million as determined by laboratory analysis. These aquatic applications may be made **only** in those cases where there are alternative water sources or holding ponds which would permit the turning off of an active potable water intake for a minimum period of 48 hours after the application.
- For treatments after draw down of water or in dry ditches, allow 7 days or more after treatment before reintroduction of water to achieve maximum weed control. Apply this product within 1 day after draw down to ensure application to actively growing weeds.
- Floating mats of vegetation may require retreatment up to the labeled rate. Avoid wash off of sprayed foliage by spray boat or recreational boat backwash or by rainfall within 6 hours of application. Do not re-treat within 24 hours following the initial treatment.
- Applications made to moving bodies of water must be made while traveling upstream to prevent concentration of this herbicide in water. When making any bankside applications, do not overlap more than 1 foot into open water. Do not spray in bodies of water where weeds do not exist. The maximum application rate of 7 1/2 pints per acre must not be exceeded in any single broadcast application that is being made over water.
- When emerged infestations require treatment of the total surface area of impounded water, treating the area in strips may avoid oxygen depletion due to decaying vegetation. Oxygen depletion may result in fish kill.

Restrictions:
- Do not apply this product directly to water within 1/2 mile upstream of an active potable water intake in flowing water (i.e., river, stream, etc.), or within 1/2 mile of an active potable water intake in a standing body of water, such as a lake, pond or reservoir. This restriction does not apply to intermittent inadvertent overspray of water in terrestrial use sites.

Wetland Sites

This product may be applied to undesirable vegetation in and around water (aquatic areas) and wetlands found in forestry, utility rights-of-way sites or other site listed on the label, including where these sites are adjacent to or surrounding domestic water supply reservoirs, supply streams, lakes and ponds.

If wetland sites are present, read and observe the following directions:
- There is no restriction on the use of treated water for irrigation, recreation or domestic purposes.
- Consult local public water control authorities before applying this product in and around public water. Permits may be required to treat in such areas.

Restrictions:
- Do not apply this product directly to water within 1/2 mile upstream of an active potable water intake in flowing water (i.e., river, stream, etc.), or within 1/2 mile of an active potable water intake in a standing body of water, such as a lake, pond or reservoir. This restriction does not apply to intermittent inadvertent overspray of water in terrestrial use sites.
- Do not spray open bodies of water where woody brush, trees and herbaceous weeds do not exist. Do not apply more than 3 3/4 quarts per acre in a single over water broadcast application except in stream crossings in utility right-of-way or where applications will result in less than 20 percent of the total water area being treated. In either of these locations, any specified rate may be applied:

Christmas Tree Plantations

Broadcast Application (Oregon and Washington Only)
Broadcast apply this product over the established Christmas tree species Douglas fir (*Pseudotsuga menziesii*), fir species (*Abies* spp.), and pine species (*Pinus* spp.) (except eastern white, loblolly, longleaf, shortleaf, slash), and spruce species (*Picea* spp.). Use 1 quart of this product per acre in 5 to 30 gallons of water per acre. For best results, add up to 10 fl oz of Entry II surfactant per acre. If using a different surfactant, follow the manufacturer's directions for use and ensure conifer safety has been adequately tested for that surfactant. Apply after trees have completed at least a full growing season since planting or transplanting.

Apply only in the fall after the formation of the final conifer resting buds or in the spring prior to initial bud swell. Final resting buds must be fully hardened and in the dormant stage. Applying this product at any other time may result in unacceptable injury to the Christmas trees. Avoid spray pattern overlap as injury may occur.

In some areas, 1 to 2 quarts of this product per acre may be used. Consult your local representative for specific use instructions if rates greater than 1 quart per acre are required.

For best results, do not use drift control additives as they may increase injury to Christmas trees.

Precautions:
- Ensure that adequate buffers are maintained to prevent drift onto nearby desirable crops or vegetation.

Restrictions:
- **Preharvest Interval:** Do not apply within 1 full year prior to tree harvest.

Cut Stump

Treat cut stumps in any noncrop site listed on this label. This product will control regrowth of freshly cut stumps and resprouts of many types of woody brush and tree species, some of which are listed below. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut trees or resprouts close to the soil surface. Apply a 50 to 100 percent solution of this product to freshly cut surface immediately after cutting. Delays in application may result in reduced performance. For best results, make applications during periods of active growth and full leaf expansion.

When used according to directions for cut stump application, this product will control, partially control or suppress most woody brush and tree species, some of which are listed below:

Common Name	Scientific Name
alder	*Alnus* spp.
coyotebrush[1]	*Baccharis pilularis*
dogwood[1]	*Cornus* spp.
eucalyptus	*Eucalyptus* spp.
hickory[1]	*Carya* spp.
madrone, Pacific	*Arbutus menziesii*
maple[1]	*Acer* spp.
oak	*Quercus* spp.
peppertree, Brazilian	*Schinus terebinthifolius*
Australian-pine,	*Casuarina equisetifolia*
poplar[1]	*Populus* spp.
reed, giant	*Arundo donax*
saltcedar	*Tamarix ramosissima*
sweetgum[1]	*Liquidambar styraciflua*
sycamore[1]	*Platanus occidentalis*
tan oak	*Lithocarpus densiflorus*
willow	*Salix* spp.

[1]Do not use this product on these species in the state of California.

Precautions:
- Adjacent trees that are of a similar age, height and spacing may indicate shared roots.
- Injury is likely to occur to non-treated stems or trees when one tree or more that shares a common root is treated.

Restrictions:
- Do not make cut stump applications when the roots of desirable woody brush or trees may be grafted to the roots of the cut stump. Some sprouts, stems, or trees may share the same root system.

Injection and Frill (Woody Brush and Trees)

Woody vegetation may be controlled by injection or frill application of this product. Apply this product using suitable equipment that penetrates into the living tissue. Apply the equivalent of 1 mL of this product per each two to three inches of trunk diameter at breast height (DBH). This is best achieved by applying 50 to 100 percent concentration of this product either to a continuous frill around the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying diluted material to a continuous frill or more closely spaced cuttings. Do not make any applications that allow runoff to occur from frilled or cut areas in species that exude sap freely. In species such as this, make frill or cuts at an oblique angle to produce a cupping effect and use a 100 percent undiluted concentration of this product. For best results, apply during periods of active growth and full leaf expansion.

This product controls the following woody species:

Common Name	Scientific Name
oak	*Quercus* spp.
poplar	*Populus spp.*
sweetgum	*Liquidambar styraciflua*
sycamore	*Platanus occidentalis*

This product suppresses the following woody species:

Common Name	Scientific Name
blackgum[1]	*Nyssa sylvatica*
dogwood	*Cornus* spp.
hickory	*Carya* spp.
maple, red	*Acer rubrum*

[1]Do not use this product on these species in the state of California.

Forestry Site Preparation

This product is for the control or partial control of woody brush, trees, and herbaceous weeds in forestry. This product is also for use in preparing or establishing wildlife openings within these sites and maintaining logging roads.

In forestry sites, use this product in site preparation prior to planting any tree species including Christmas trees, eucalyptus, hybrid tree cultivars and silvicultural nursery sites. Unless otherwise specified, make applications of this product for control or partial control of herbaceous weeds, woody brush and trees listed in the Weeds Controlled section.

Application Rates

Method of Application	Rate	Spray Volume (gal/acre)
Broadcast		
aerial	1.5 - 7.5 qt/acre	5 - 30
ground		10 - 60
Spray to Wet		
handgun, backpack	0.75 - 2%	spray to wet
mistblower	by volume	
Low Volume Directed Spray[1]		
handgun, backpack	5 - 10%	partial coverage
mistblower	by volume	

[1] For low volume directed spray applications, coverage should be uniform with at least 50% of the foliage contacted. For best results, coverage of the top one-half of the plant, including the growing tip, is important (over the top and down coverage) To ensure adequate spray coverage, spray all sides of large or tall woody brush and trees, when foliage is thick and dense, or where there are multiple sense or tall sprouts.

Use a higher rate in the rate range for control or partial control of woody brush, trees and hard to control perennial herbaceous weeds. For best results, apply to actively growing woody brush and trees after full leaf expansion and before leaf drop. Use increased rates within the rate range to control perennial herbaceous weeds from emergence up to the appearance of seedheads, flowers or berries. Use a lower rate in the rate range to control annual herbaceous weeds and actively growing perennial herbaceous weeds after seedheads, flowers or berries appear. Apply to foliage of actively growing annual herbaceous weeds anytime after emergence.

This product has no herbicidal or residual activity in the soil. Where repeat applications up to the labled rate are necessary, do not apply more than 8 quarts of product per acre per year.

Tank Mixes
This product may be used in tank mix combination with other herbicide products to broaden the spectrum of vegetation controlled. When tank mixing, read and observe applicable use directions, precautions and limitations on the respective product labels. Use according to the most restrictive precautionary statements for each product in the mixture. Any specified rate of this product may be used in a tank mix.

Note: For forestry site preparation, make sure the tank mix product is approved for use prior to planting the desired species. Observe planting interval restrictions.

Any specified rate of this product may be used in a tank mix with the following products for forestry site preparation:

Product
Milestone VM
Garlon 3A
Garlon 4
Arsenal Applicators Concentrate
Escort
Chopper
Oust XP
Arsenal Applicators Concentrate
Arsenal Applicators Concentrate

For control of herbaceous weeds, use the lower specified tank mixture rates. For control of dense stands or difficult to control woody brush and trees, use the higher specified rates.

Aerial Application
Aerially apply this product by helicopter only in forestry sites. See Aerial Application in Application Equipment and Application Methods for more details.

Ground Application
Apply this product using suitable ground equipment for broadcast applications in forestry sites. See Ground Application in Application Equipment and Application Methods for more details. Unless otherwise specified, apply the specified rates of this product as a broadcast spray in sufficient spray volume to provide complete and uniform coverage of plant foliage. Check for even distribution throughout the spray pattern.

Hand-Held and Backpack Application
Apply this product using handgun and backpack equipment in forestry sites. See Hand-Held and Backpack Application in Application Equipment and Application Methods for more details. For spray to wet applications, coverage should be uniform and complete, but not to the point of runoff.

This product may be used for low volume directed sprays for spot treatment of trees and brush. It is most effective in areas where there is a low density of undesirable trees or brush. For flat fan and cone nozzles, spray the foliage of the targeted vegetation. Small, open branched trees need only be treated from one side. If the foliage is thick or there are multiple root sprouts, apply from several sides to ensure adequate spray coverage.

Forestry Conifer and Hardwood Release

Directed Sprays and Selective Equipment
Apply this product as a directed spray or with selective equipment in forestry conifer and hardwood sites, including Christmas tree plantations and silvicultural nurseries. A surfactant must be used with this product. Use only surfactants approved for conifer release and specified on the surfactant label as safe for use in conifer release (pine release). Using this product without a surfactant will result in reduced herbicide performance. See Mixing Directions and Application Equipment and Application Methods sections.

Avoid contact of spray drift, mist or drips with foliage, green bark or non-woody surface roots of desirable plant species.

Tank Mixes: When tank mixing, read and observe applicable use directions, precautions and limitations on the respective product labels. Use according to the most restrictive precautionary statements for each product in the mixture.

Broadcast Application Outside Area of Southeastern United States
Apply this product as a broadcast application for release of Douglas fir (*Pseudotsuga menziesii*), fir (*Abies* species), hemlock (*Tsuga* species), pines (*Pinus* species) (includes all species except loblolly, longleaf, shortleaf, or slash), and California redwood (*Sequoia* species) outside the area of the southeastern United States. Apply this product as a broadcast application only after formation of final conifer resting buds in the fall or prior to initial bud swelling in the spring. Note: Except where specified, make broadcast applications of this product only where conifers have been established for more than one year.

Injury may occur to conifers treated for release, especially where spray patterns overlap or the higher labeled rate is applied. Damage can be accentuated if applications are made when conifers are actively growing, are under stress from drought, flood water, improper planting, insects, animal damage or diseases.

Apply 3/4 to 1 1/2 quarts per acre as a broadcast spray. Apply 3/4 to 1 1/8 quarts of this product per acre to release Douglas fir, pine and spruce species at the end of the first growing season (except California). Ensure all conifers are well hardened off.

A surfactant must be used with this product for optimum weed control. Use only surfactants approved for use in over the top release applications. Using this product without a surfactant will result in reduced herbicide performance. For best results, do not use a surfactant for release of hemlock species or California redwood. In mixed conifer stands, injury to these species may result if a surfactant is used. See Mixing Directions and Application Equipment and Application Methods sections.

For release of Douglas fir, a nonionic surfactant for over the top foliar spray may be used. To avoid possible conifer injury, use nonionic surfactants at 2 fl oz per acre at elevations above 1500 feet, or 1 fl oz per acre in the coastal range or at elevations below 1500 feet. Using a higher rate of surfactant may result in unacceptable conifer injury. Ensure the nonionic surfactant has been adequately tested for safety to Douglas fir before using.

Tank Mixes with Oust XP: Apply 3/4 to 1 1/2 quarts of this product with the labeled rate of Oust XP per acre to release jack pine and white. Use the labeled rate of Oust XP per acre with this product to release white pine. Make applications to actively growing weeds as a broadcast spray over the top of established conifers. Make applications after formation of conifer resting buds in the late summer or fall.

Tank Mixes with Arsenal Applicators Concentrate: Apply 3/4 to 1 1/8 quarts of this product with the labeled rate of Arsenal Applicators Concentrate per acre to release Douglas fir. Apply 1 1/2 quarts of this product with the labeled rate of Arsenal Applicators Concentrate per acre to release balsam fir and red spruce.

In **Maine** and **New Hampshire**, apply up to 2 1/4 quarts of this product per acre to control or suppress difficult to control hardwood species. For the release of red pine, balsam fir, red spruce, white spruce, Norway spruce, and black spruce with dense tough to control brush, and where maples make up a large component of the undesirable trees, this product may be tank mixed with the labeled rate of Arsenal Applicators Concentrate and the labeled rate of Oust XP per acre. Apply this mix as a broadcast spray.

Broadcast Application in Southeastern United States
Apply this product as a broadcast application for release of loblolly pine (*Pinus taeda*), eastern white pine (*Pinus strobus*), shortleaf pine (*Pinus echinata*), slash pine (*Pinus elliottii*), Virginia pine (*Pinus virginiana*), and longleaf pine (*Pinus palustris*) in the southeastern United States.

Apply 1 1/8 to 1 7/8 quarts of this product per acre as a broadcast spray during late summer or early fall after the conifers have hardened off. For applications at the end of the first growing season, use 3/4 quart of this product alone or in a tank mix.

Tank Mixes with Arsenal Applicators Concentrate: For conifer release, apply 3/4 to 1 1/2 quarts of this product with the labeled rate of Arsenal Applicators Concentrate per acre as a broadcast spray. Use only on conifer species that are labeled for over the top spray for both products. Use the higher specified rates for dense tough to control wood brush and trees.

Herbaceous Release
When applied as directed, this product plus listed residual herbicides provide postemergence control of the annual weeds and control or suppression of the perennial weeds listed in this label, and residual control of the weeds listed in the residual herbicide label. Make applications to actively growing weeds as a broadcast spray over the top of labeled conifers.

Use a surfactant labeled for use in over the top herbaceous release applications. Using this product without a surfactant will result in reduced herbicide performance. See Mixing Directions and Application Equipment and Application Methods sections on this label.

Weed control may be reduced if spray solution water volumes exceed 25 gallons per acre for these treatments.

Tank Mixes with Oust XP: Apply 12 to 18 fl oz of this product with the labeled rate of Oust XP per acre to release loblolly pines. Apply 9 to 12 fl oz of this product with the labled rate of Oust XP per acre to release slash pines.

Tank Mix with Atrazine: Apply 3/4 quarts of this product with 4 lb ai of atrazine per acre to release Douglas fir. Apply only over Douglas fir that has been established for at least one full growing season. Apply in the early spring, usually mid-March through early April. Injury will occur if applications are made after bud swell in the spring. For this use, do not add surfactant to the tank mix.

In **Maine** and **New Hampshire**, for release of red pine, balsam fir, red spruce, white spruce, Norway spruce, and black spruce with heavy grass and herbaceous weeds infesting the site, up to 2 1/4 quarts of this product per acre may be tank mixed with the labled rate of Oust XP to control grass, herbaceous weeds and woody brush. Apply this mix as a broadcast spray.

Mid-Rotation Conifer Release and Spot Treatments for Crop Tree Release and Timber Stand Improvement

This product is applied as a ground broadcast or directed spray application for mid-rotation release applications under the canopy of pines (and other conifers) and hardwoods. Make applications using application techniques that prevent or minimize direct contact to the foliage of crop trees (including in stands of pine, other conifers, or hardwood). This may be accomplished using directed sprays and ground equipment with nozzles oriented to target only undesirable understory vegetation below the crop tree canopy. This product is applied as a spot, individual plant treatment for woody and herbaceous weeds (see Hand-Held and Backpack Application in Application Equipment and Application Methods section). When making spot applications, do not allow spray to contact the foliage of desirable crop trees.

Broadcast Application for Control of Undesirable Competitive Vegetation in Larch (*Larix* spp.) Plantations in Maine

Apply this product to control or reduce competition from undesirable vegetation in Larch (*Larix* spp.) plantations in the state of Maine.

Application Timing
Apply only after lignification has occurred in 50% or more of the current year's terminal growth.

Application Directions
Broadcast Spray: Use 1 to 3 quarts of this product per acre. Apply in a total spray volume of 10 to 60 gallons per acre using ground equipment or 5 to 15 gallons per acre if applied aerially. Up to 30 fl oz of Entry II surfactant may be added.

Directed Sprays: This product may be applied as a directed spray for competitive release of larch. Avoid contact of spray drift, mist or drips with foliage, green bark or non-woody surface roots of desirable plants. See Application Equipment and Application Methods of the product label.

Injury to larch may occur, especially where spray patterns overlap or higher labeled rates of this product or surfactant were applied. Damage can be accentuated if application is made when larch is actively growing or is under stress. Make applications only if some level of injury to larch is acceptable.

Noncrop Areas and Industrial Sites

See the rate tables in the Annual Weeds, Perennial Weeds, and Woody Brush and Trees sections for specific application rates. This product has no herbicidal or residual activity in the soil. Where repeat applications up to the labeled rate are necessary, do not apply more than 8 quarts of this product per acre per year.

Use a higher rate in the rate range for control or partial control of woody brush, trees, and hard to control perennial herbaceous weeds. For best results, apply to actively growing woody brush and trees after full leaf expansion and before fall color and leaf drop. Use increased rates within the rate range for difficult to control species, where dense stands occur, or where conditions for control are not ideal and to control perennial herbaceous weeds from emergence up to the appearance of seedheads, flowers or berries. Use a lower rate in the rate range to control annual herbaceous weeds and actively growing perennial herbaceous weeds after seedheads, flowers or berries appear. Apply to foliage of actively growing annual herbaceous weeds anytime after emergence.

Tank Mixing for Noncrop Areas
This product may be used in tank mix combination with other herbicide products to broaden the spectrum of vegetation controlled. When tank mixing, read and observe applicable use directions, precautions and limitations on the respective product labels. Use according to the most restrictive precautionary statements for each product in the mixture. Any specified rate of this product may be used in a tank mix.

Maintain good agitation at all times during the mixing process and application. Ensure that the tank mix product(s) is well mixed with the spray solution before adding this product. Mix only the amount of spray solution that will be used during the same day. Reduced weed control may result if a tank mixture is allowed to stand overnight. If the spray mix is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed.

Weed Control, Trim and Edge, and Bare Ground
This product may be used in general noncrop and non-food areas. It may be applied with any application equipment described in this label. This product may be used to trim and edge around objects in noncrop sites, for spot treatment of unwanted vegetation, and to eliminate unwanted weeds growing in established shrub beds or ornamental plantings. This product may be used prior to planting an area to ornamentals, flowers, turfgrass (sod or seed), or prior to laying asphalt or beginning construction projects.

To maintain bare ground, repeated applications up to the labeled rate of this product may be used.

This product provides control of emerged annual weeds and control or partial control of emerged perennial weeds, woody brush and trees when applied in a tank mix to bare ground.

Turfgrass Renovation, Seed or Sod Production

This product controls most existing vegetation prior to renovating turfgrass areas or establishing turfgrass grown for seed or sod. For maximum control of existing vegetation, delay planting or sodding to determine if any regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm season turfgrass, including bermudagrass, summer or fall applications provide the best control. Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at last one regular mowing to allow sufficient grown for good interception of the spray.

Do not disturb soil or underground plant parts before treatment. Delay tillage or renovation techniques, including vertical mowing, coring, or slicing, for seven days after application to allow translocation into underground plant parts.

Desirable turfgrass may be planed following the above procedures.

Hand-held equipment may be used for spot treatment of unwanted vegetation growing in existing turfgrass. Broadcast or hand-held equipment may be used to control sod remnants or other unwanted vegetation after sod is harvested.

Do not feed or graze turfgrass grown for seed or sod production for eight weeks following application.

Ornamentals and Plant Nurseries

Post-Direct and Trim and Edge
This product may be used as a post-directed spray around established woody ornamental species, including arborvitae, azalea, boxwood, crabapple, euonymus, fir, Douglas fir, jojoba, hollies, lilac, magnolia, maple, oak, provet, pine, spruce and yew. This product may also be used to trim and edge around trees, buildings, sidewalks and roads, potted plants and other objects in a nursery setting.

Desirable plants may be protected from the spray solution by using shields or coverings made of cardboard or other impermeable material. Do not use this product for any over the top broadcast spray in ornamentals. Exercise care to avoid contact of spray, drift or mist with foliage or green bark of established ornamental species.

Site Preparation
This product may be used prior to planting any ornamental, nursery or Christmas tree species.

Greenhouse/Shadehouse
This product may be used to control weeds growing in and around greenhouses and shadehouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

Wildlife Habitat Management

This product may be used to control exotic and other undesirable vegetation in habitat management and natural areas, including rangeland and wildlife refuges. Apply to allow recovery of native plant species, prior to planting desirable native species, and for broad spectrum vegetation control. Apply spot treatments to selectively remove unwanted plants for habitat enhancement.

Wildlife Food Plots
This product may be used as a site preparation treatment to control annual and perennial weeds prior to planting wildlife food plots. Any wildlife food species may be planted after applying this product, or native species may be allowed to repopulate the area. If tillage is needed to prepare a seedbed, wait 7 days after application before tilling to allow translocation into underground plant parts.

Hollow Stem Injection

Apply this product to control giant knotweed (*Polygonum sachalinense*), Japanese knotweed (*Polygonum cuspidatum*), or other invasive knotweeds using individual stem treatment. Use a hand-held injection device that delivers the specified amount of this product into these hollow stem plants.

Make a hole through both sides of the stem about 6 inches above the ground, just below a node, using an awl or other pointed tool. Inject 5 mL of undiluted product directly into this hole in the hollow stem. Treat each stem of the knotweed plant.

Restrictions:
- Do not apply more than a total of 8 quarts of this product per acre for all treatments combined. At 5 mL per stem, 7.5 quarts will treat approximately 1420 stems per acre.

Parks, Recreational and Residential Areas

Use this product in parks, recreational and residential areas. Apply it with any application equipment described in this label. Use this product to trim and edge around trees, fences, paths, around buildings, sidewalks, and other objects in these areas. This product may be used for spot treatment of unwanted vegetation, eliminate unwanted weeds growing in established shrub beds or ornamental plantings, and prior to planting an area to ornamentals, flowers, turfgrass (sod or seed), or prior to laying asphalt or beginning construction projects.

All of the label instructions apply to park and recreational areas.

Railroads

All of the instructions in the Noncrop Areas and Industrial Sites and Roadside sections apply to railroads.

Bare Ground, Ballast and Shoulders, Crossings, and Spot Treatment
Use this product to maintain bare ground on railroad ballast and shoulders. Repeat applications up to the labled rate of this product may be used as weeds emerge to maintain bare ground. Use this product to control tall growing weeds to improve line of sight at railroad crossings and reduce the need for mowing along rights-of-way.

Brush Control
Apply 3 to 8 quarts of this product per acre as a broadcast spray, using boom-type or boomless nozzles. Applications up to 80 gallons of spray solution per acre may be used. Apply a 3/4 to 1.5 percent solution of this product when using high volume spray to wet applications. Apply a 5 to 10 percent solution of this product when using low volume directed sprays for spot treatment.

Roadsides

All of the instructions in the Noncrop Areas and Industrial Sites and Railroads sections apply to roadsides.

Shoulder Treatments
Use this product on road shoulders. Apply it with boom sprayers, shielded boom sprayers, high volume off-center nozzles, OC nozzle clusters, manifold nozzle systems, hand-held equipment, and similar equipment, and under-deck mowing plus herbicide systems.

Guardrails and Other Obstacles to Mowing
Use this product to control weeds growing under guardrails and around signposts and other objects along the roadside.

Spot Treatment
Use this product as a spot treatment to control unwanted vegetation growing along roadsides.

Tank Mixes: This product may be used in tank mix combination with other herbicide products to broaden the spectrum of vegetation controlled and for residual weed control. Follow applicable use directions, precautions and limitations on the respective product labels. Use according to the most restrictive precautionary statements for each product in the mixture. Any specified rate of this product may be used in a tank mix.

Chemical Mowing
Perennials: This product suppresses perennial grasses listed in this section to serve as a substitute for mowing. Use 4.5 fl oz of this product per acre when treating Kentucky bluegrass, tall fescue, fine fescue, orchardgrass, or quackgrass. Apply 12 fl oz of this product per acre when treating bermudagrass. Apply 4.5 to 8 fl oz of this product per acre when treating bahiagrass. Use the higher labled rates when grass is under heat stress. Apply 3 pints of this product per acre when treating torpedograss or paragrass. Apply treatments in 10 to 20 gallons of spray solution per acre.

Annuals: For growth suppression of some annual grasses, including annual ryegrass, wild barley and wild oats growing in coarse turfgrass on roadsides or other industrial areas, apply 3 to 3.75 fl oz of this product in 10 to 40 gallons of spray solution per acre. Apply when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments may cause injury to the desired grasses.

Release of Dormant Bermudagrass or Bahiagrass
Apply 6 to 48 fl oz of this product per acre in 10 to 40 gallons of water per acre. Use only in areas where bermudagrass or bahiagrass are desirable groundcovers and where some temporary injury or discoloration can be tolerated. Treatments of more than 12 fl oz per acre may result in injury or delayed greenup in highly maintained areas, including golf courses and lawns.

For best results on winter annuals, treat when weeds are in an early growth stage (less than 6 inches in height) after most have germinated. For best results on tall fescue, treat when fescue is in or beyond the 4- to 6-leaf stage.

Tank Mixes: This product may be used in tank mix combination with other herbicide products to broaden the spectrum of vegetation controlled and for residual weed control. When tank mixing, read and follow all applicable use directions, precautions, and limitation on the respective product labels. Use according to the most restrictive precautionary statements for each product in the mixture. Any specified rate of this product may be used in a tank mix.

Actively Growing Bermudagrass
Use this product to control or partially control many annual and perennial weeds for effective release of actively growing bermudagrass. Use only in areas where some temporary injury or discoloration can be tolerated. Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment, but regrowth will occur under moist conditions. Repeat applications of the tank mix in the same season are not recommended because severe injury may occur.

Apply up to 2.25 pints of this product in 10 to 40 gallons of spray solution per acre. Use the lower rate when treating annual weeds less than 6 inches in height (or runner length). Use the higher labled rate as weeds increase in size or as they approach flower or seedhead formation.

Actively Growing Bahiagrass
For suppression of vegetable growth and seedhead inhibition of bahiagrass for approximately 45 days, apply 4.5 fl oz of this product in 10 to 40 gallons of water per acre. Apply one to two weeks after full greenup or after mowing to a uniform height of 3 to 4 inches. Make this application prior to seedhead emergence. For suppression up to 120 days, apply 3 fl oz of this product per acre, followed by an application of 1.5 to 3 fl oz per acre about 45 days later. Make no more than two applications per year.

Tank Mixes: This product may be used in tank mix combination with other herbicide products to broaden the spectrum of vegetation controlled and for residual weed control. When tank mixing, read and follow all applicable use directions, precautions, and limitation on the respective product labels. Use according to the most restrictive precautionary statements for each product in the mixture. Any specified rate of this product may be used in a tank mix.

Utility Sites

Use this product for control of brush, tree, and weed control and side trimming in areas including electrical power, pipeline and telephone rights-of-ways, and other sites associated with these rights-of-ways including substations, roadsides, and railroads. This product may be applied with any application equipment or method described on this label unless specifically prohibited.

Tank Mixes: This product may be used in tank mix combination with other herbicide products to broaden the spectrum of vegetation controlled and for residual weed control. When tank mixing, read and follow all applicable use directions, precautions, and limitation on the respective product labels. Use according to the most restrictive precautionary statements for each product in the mixture. Any specified rate of this product may be used in a tank mix.

Rangelands

Use this product to control or suppress many annual weeds growing in perennial cool and warm season grass rangelands. Preventing weed seed production is critical to the successful control of annual grassy weeds invading these perennial grass sites. Eliminate most of the viable seeds with follow up applications in sequential years. Delay grazing of treated areas to encourage growth of desirable perennials. Allowing desirable perennials to flower and reseed in the treated area will encourage successful transition.

***Bromus*:** Use this product to control or suppress downy brome/cheatgrass (*Bromus tectorum*), Japanese brome (*Bromus japonicus*), soft chess (*Bromus mollis*), cheat (*Bromus secalinus*), cereal rye, and jointed goatgrass. Apply 6 to 12 fl oz of this product per acre as a broadcast treatment.

For best results, coincide treatments with early seedhead emergence of the most mature plants. Delaying the application until this growth stage maximizes the emergence of other weedy grass flushes. Make applications to the same site each year until seed banks are depleted and the desirable perennial grasses become established on the site.

Medusahead: Apply 12 fl oz of this product per acre to control or suppress medusahead at the 3-leaf stage when plants are actively growing. Delaying applications beyond this stage results in reduced or unacceptable control. Repeat applications in subsequent years to eliminate the seed bank before reestablishing desirable perennial grasses. Apply in the fall or spring.

Apply by ground or air. Make aerial applications for these uses with fixed wing or helicopter equipment. For aerial applications, apply in 2 to 10 gallons of water per acre. For ground applications, apply in at least 10 to 20 gallons of water per acre.

Spot Treatment and Wiper Application
Apply this product in rangeland, pastures, or industrial sites as a spot treatment or over the top of desirable grasses using wiper applicators to control tall weeds. See Wiper Application section for specific instructions. Make repeat applications up to the labeled rate in the same area at 30-day intervals.

The entire site or any portion of it may be treated when using 2.25 quarts or less of this product per acre for spot treatments or wiper applications. No more than 10 percent of the total site may be treated at any one time when using more than 2.25 quarts of this product per acre for spot treatments or wiper applications. To achieve maximum performance, remove domestic livestock before application and wait 7 days after application before grazing livestock or harvesting for feed.

Pastures

Type of Pastures: Bahiagrass, bermudagrass, bluegrass, brome, fescue, orchardgrass, ryegrass, timothy, wheatgrass, alfalfa, clover

Spot Treatment and Wiper Application
This product may be applied as a spot treatment or as a wiper application. Make applications in the same area at 30-day intervals. See Wiper Application section for specific instructions.

Precautions:
- For spot treatment and wiper applications, the entire field or any portion of it may be treated when using a rate of 2.25 quarts or less per acre.
- To achieve maximum performance, remove domestic livestock before application and wait 14 days after application before grazing livestock or harvesting.

Restrictions:
- Do not treat more than 10 percent of any acre at one time if applying more than 2.25 quarts per acre as a spot treatment or wiper application.

Preplant, Preemergence, and Pasture Renovation
Apply this product prior to planting or emergence of forage grasses and legumes. In addition, this product may be used to control perennial pasture species listed on this label prior to re-planting.

Precautions:
- If the application rates total 2.25 quarts or less per acre, there is no waiting period between treatment and feeding or livestock grazing is required.
- If the application rates total more than 2.25 quarts per acre, remove domestic livestock before application and wait eight weeks after application before grazing or harvesting.

Restrictions:
- Crops listed for treatment in this label may be planted into the treated area at any time. Wait 30 days between application and planting for all other crops.

Bamboo

Use this product on roadside rights-of way to control or suppress bamboo. Use the higher rate in the rate range for dense stands and larger plants. Mow or cut bamboo and allow it to resprout to have sufficient foliage in order for the spray solution to completely cover the foliage. Optimum control or suppression of bamboo is achieved when this product is applied between August and October (prior to frost). One application of this product plus a surfactant will not eradicate bamboo. Several mowings and applications are required to completely control bamboo.

Apply the specified rate plus a surfactant (1/4 to 1/2% v/v), such as a nonionic surfactant containing 80% active ingredient or more. Using this product without a surfactant results in reduced performance.

Application Method	Rate	Spray Volume (gal/acre)
ground broadcast	1.5 – 7.5 qt/acre	10 - 60
handgun spray to wet	0.75 – 2%	spray to wet
handgun or backpack low volume directed spray	4 – 10%	spray to cover

Restrictions:
- Do not apply more than a total of 8 quarts of this product per acre per year.

Annual Weeds, Perennial Weeds, and Woody Brush and Trees

Annual Weeds

Apply 24 fl oz of this product per acre if weeds are less than 6 inches in height or runner length. Use 1.25 to 3 quarts of this product per acre if weeds are more than 6 inches in height or runner length or when weeds are growing under stressed conditions. Use a higher rate in the rate range for tough to control species regardless of the size of the weed at the time of application. Treat tough to control weeds when they are relatively small. Tank mix this product with only those products that are labeled for application at the target site. Refer to the label of the tank mix partner for use sites and application rates.

Apply a 0.4 percent solution of this product as a spray to wet application to weeds less than 6 inches in height or runner length. Use a 0.7 to 1.5 percent solution for annual weeds more than 6 inches tall or for smaller weeds growing under stressed conditions. Use the higher concentration for tough to control species or for weeds more than 24 inches tall. Apply prior to seedhead formation in grass or bud formation in broadleaf weeds.

Use a 4 to 7 percent solution of this product for low volume directed spray applications. Spray coverage should be uniform with at least 50 percent of the foliage contacted. For best results, cover the top one-half of the plant. To ensure adequate spray coverage, spray both sides of large or tall weeds when foliage is thick and dense or where there are multiple sprouts.

Common Name	Scientific Name
anoda, spurred	*Anoda cristata*
balsamapple[1]	*Momordica charantia*
barley	*Hordeum vulgare*
barnyardgrass	*Echinochloa crus-galli*
bassia, fivehook	*Bassia hyssopifolia*
bittercress	*Cardamine* spp.
bluegrass, annual	*Poa annua*
bluegrass, bulbous	*Poa bulbosa*
brome, downy/cheatgrass	*Bromus tectorum*
brome, Japanese	*Bromus japonicus*
buttercup	*Ranunculus spp.*
Carolina foxtail	*Alopecurus carolinianus*
Carolina geranium	*Geranium carolinianum*
castorbean	*Ricinus communis*
chamomile, mayweed	*Anthemis cotula*
cheat	*Bromus secalinus*
chervil	*Anthriscus cerefolium*
chickweed	*Cerastium vulgatum*
cocklebur, common	*Xanthium strumarium*
coreopsis, plains	*Coreopsis tinctoria*
corn, volunteer	*Zea mays*
crabgrass	*Digitaria* spp.
dwarfdandelion, Virginia	*Krigia virginica*
eastern mannagrass	*Glyceria* spp.
eclipta	*Eclipta prostrata*
falsedandelion	*Pyrrhopappus carolinianus*
falseflax, smallseed	*Camelina microcarpa*
fiddleneck	*Amsinckia* spp.
field pennycress	*Thlaspi arvense*
fleabane, annual	*Erigeron annuus*
fleabane, hairy	*Conyza bonariensis*
fleabane, rough	*Erigeron strigosus*
Florida pusley	*Richardia scabra*
foxtail	*Setaria* spp.
goatgrass, jointed	*Aegilops cylindrica*
goosegrass	*Eleusine indica*
groundsel, common	*Senecio vulgaris*
henbit	*Lamium amplexicaule*
horseweed/marestail	*Conyza canadensis*
itchgrass	*Rottboellia cochinchinensis*
johnsongrass	*Sorghum halepense*
junglerice	*Echinochloa colona*
knotweed	*Polygonum* spp.
kochia[2]	*Kochia scoparia*
lambsquarters, common	*Chenopodium album*
mallow, little	*Malva parviflora*
medusahead	*Taeniatherum caput-medusae*
morningglory	*Ipomoea* spp.
mustard, blue	*Chorispora tenella*
mustard, tumble	*Sisymbrium altissimum*
mustard, wild	*Sinapis arvensis*
oats, wild	*Avena fatua*
panicum, fall	*Panicum dichotomiflorum*
pigweed, redroot	*Amaranthus retroflexus*
pigweed, smooth	*Amaranthus hybridus*
prickly lettuce	*Lactuca serriola*
puncturevine	*Tribulus terrestris*
purslane, common	*Portulaca oleracea*
ragweed, common	*Ambrosia artemisiifolia*
ragweed, giant	*Ambrosia trifida*
rocket, London	*Sisymbrium irio*
Russian-thistle	*Salsola tragus*
rye, cereal	*Secale cereale*
ryegrass, Italian[3]	*Lolium perenne*
sandbur, field	*Cenchrus spinifex*
sesbania, hemp	*Sesbania herbacea*
shattercane	*Sorghum bicolor*
shepherd's-purse	*Capsella bursa-pastoris*
sicklepod	*Senna obtusifolia*
signalgrass, broadleaf	*Urochloa platyphylla*
smartweed, Pennsylvania	*Polygonum pensylvanicum*
sowthistle, annual	*Sonchus oleraceus*
Spanishneedles[3]	*Bidens bipinnata*
speedwell, corn	*Veronica arvensis*
speedwell, purslane	*Veronica peregrina*
sprangletop	*Leptochloa* spp.
spurge, annual	*Chamaesyce* spp.
spurge, prostrate	*Chamaesyce humistrata*
spurge, spotted	*Chamaesyce maculata*
spurry, umbrella	*Holosteum umbellatum*
stinkgrass	*Eragrostis cilianensis*
sunflower, common	*Helianthus annuus*
tansymustard, pinnate	*Descurainia pinnata*
teaweed/sida, prickly	*Sida spinosa*
Texas panicum	*Panicum* spp.

Common Name (Cont.)	Scientific Name
velvetleaf	*Abutilon theophrasti*
Virginia pepperweed	*Lepidium virginicum*
wheat	*Triticum aestivum*
witchgrass	*Panicum capillare*
woolly cupgrass	*Eriochloa villosa*
yellow rocket	*Barbarea vulgaris*

[1]Apply with hand-held equipment only.
[2]Do not treat kochia in the button stage.
[3]Apply 3 pints of product per acre.

Perennial Weeds

Best results are obtained when perennial weeds are treated after they reach the reproductive stage of growth (seedhead initiation in grasses and bud formation in broadleaves). Best results are obtained when non-flowering plants are treated when they reach a mature stage of growth. In many situations, applications are required prior to these growth stages. Under these conditions, use a higher rate in the rate range.

When using spray to wet treatments with hand-held equipment, ensure thorough coverage of the plant. For best results, use a 1.5 percent solution on harder to control perennials including bermudagrass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

Use a 4 to 7 percent solution of this product in low volume directed spray applications. Spray coverage should be uniform with at least 50 percent of the foliage contacted. For best results, cover the top one-half of the plant. To ensure adequate spray coverage, spray both sides of large or tall weeds when foliage is thick and dense or where there are multiple sprouts.

Allow 7 days or more after application before tillage.

Common Name	Scientific Name
alfalfa	*Medicago sativa*
alligatorweed[1]	*Alternanthera philoxeroides*
anise/fennel	*Foeniculum vulgare*
artichoke, Jerusalem	*Helianthus tuberosus*
bahiagrass	*Paspalum notatum*
beachgrass, European	*Ammophila arenaria*
bentgrass	*Agrostis* spp.
bermudagrass	*Cynodon dactylon*
bindweed, field	*Convolvulus arvensis*
bluegrass, Kentucky	*Poa pratensis*
blueweed, Texas	*Helianthus ciliaris*
brackenfern	*Pteridium aquilinum*
brome, smooth	*Bromus inermis*
bursage, woollyleaf	*Ambrosia grayi*
canarygrass, reed	*Phalaris arundinacea*
cattail	*Typha* spp.
clover, red	*Trifolium pratense*
clover, white	*Trifolium repens*
cogongrass	*Imperata clylindrica*
cordgrass-	*Spartina spp.*
cutgrass, giant[1]	*Zizaniopsis miliacea*
dallisgrass	*Paspalum dilatatum*
dandelion	*Taraxacum officinale*
dock, curly	*Rumex crispus*
dogbane, hemp	*Apocynum cannabinum*
fescue	*Festuca* spp.
fescue, tall	*Lolium arundinaceum*
German ivy	*Senecio mikanioides*
guineagrass	*Urochloa maxima*
horsenettle	*Solanum carolinense*
horseradish	*Armoracia rusticana*
iceplant, crystalline	*Mesembryanthemum crystallinum*
johnsongrass-	*Sorghum halepense*
kikuyugrass	*Pennisetum clandestinum*
knapweed, Russian	*Acroptilon repens*
lantana, largeleaf-	*Lantana camara*
lespedeza, common	*Kummerowia striata*
lespedeza, sericea-	*Lespedeza cuneata*
loosestrife, purple	*Lythrum salicaria*
lotus, American	*Nelumbo lutea*
maidencane	*Panicum hemitomon*
milkweed	*Asclepias* spp.
muhly, wirestem	*Muhlenbergia frondosa*
mullein, common	*Verbascum thapsus*
napiergrass	*Pennisetum purpureum*
nightshade, silverleaf	*Solanum elaeagnifolium*
nutsedge, purple	*Cyperus rotundus*
nutsedge, yellow	*Cyperus esculentus*
orchardgrass	*Dactylis glomerata*
pampasgrass	*Cortaderia selloana*
paragrass	*Urochloa mutica*
phragmites[2]	*Phragmites* spp.
poison-hemlock	*Conium maculatum*
quackgrass	*Elymus repens*
redvine	*Brunnichia ovata*
reed, giant	*Arundo donax*
ryegrass, perennial	*Lolium perenne*
smartweed, swamp	*Polygonum amphibium*
sowthistle, perennial	*Sonchus arvensis*
spatterdock	*Nuphar lutea*
starthistle, yellow-	*Centaurea solstitialis*
sweet potato, wild[1]	*Ipomoea pandurata*
thistle, artichoke	*Cynara cardunculus*
thistle, Canada	*Cirsium arvense*
timothy	*Phleum pratense*
torpedograss[1-]	*Panicum repens*
trumpetcreeper	*Campsis radicans*
tules, common	*Scirpus acutus*
vaseygrass	*Paspalum urvillei*
velvetgrass	*Holcus* spp.
water fern[3]	*Salvinia spp*
waterhyacinth	*Eichornia crassipes*
waterlettuce	*Pistia stratiotes*
waterprimrose	*Ludwigia* spp.
wheatgrass, western	*Pascopyrum smithii*

[1] Partial control.
[2] Partial control in southeastern states.
[3]Not for use in California

Woody Brush and Trees

Apply this product after full leaf expansion unless otherwise directed. Use the higher labeled rate for larger plants and/or dense areas of growth. On vines, use the higher labled rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when applications are made in the spring or early summer when brush species are at high moisture content and are flowering.

Ensure thorough coverage when using hand-held equipment.

See Low Volume Directed Spray Application section of label. Spray coverage should be uniform with at least 50 percent of the foliage contacted. For best results, cover the top half to 2/3 of the plant foliage. Spray both sides of large or tall woody brush and trees to ensure adequate spray coverage when foliage is thick and dense or where there are multiple sprouts. Symptoms may not appear prior to frost or senescence with fall treatments.

Allow seven days or more after application before tillage, mowing or removal. Repeat treatments up to the labeled rate may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

Note: If brush has been mowed or tilled, or trees have been cut, do not treat until regrowth has reached the specified stage of growth.

This product will control, partially control, or suppress the following woody brush and trees.

Common Name	Scientific Name
alder	*Alnus* spp.
ash[1]	*Fraxinus* spp.
aspen, quaking	*Populus tremuloides*
bearclover, bearmat	*Ceanothus prostratus*
beach	*Fagus* spp.
birch	*Betula* spp.
bittercherry	*Prunus emarginata*
blackberry	*Rubus* spp.
blackgum	*Nyssa sylvatica*
blue gum, Tasmanian	*Eucalyptus globulus*
brackenfern	*Pteridium aquilinum*
broom, French	*Genista monspessulana*
broom, Scotch	*Cytisus scoparius*
buckwheat, California[1]	*Eriogonum fasciculatum*
cascara[1]	*Frangula purshiana*
catclaw-vine[1]	*Macfadyena unguis-cati*
ceanothus	*Ceanothus* spp.
chamise	*Adenostoma fasciculatum*
cherry	*Prunus* spp.
cherry, black	*Prunus serotina*
cherry, pin	*Prunus pensylvanica*
copperleaf, hophornbeam	*Acalypha ostryifolia*
coyotebrush	*Baccharis pilularis*
deer vetch	*Lotus unifoliolatus*
dewberry, southern	*Rubus trivialis*
dogwood	*Cornus* spp.
elderberry	*Sambucus nigra*
elm[1]	*Ulmus* spp.
gorse	*Ulex europaeus*
hasardia[1]	*Haplopappus squamosus*
hawthorn	*Crataegus* spp.
hazel	*Corylus* spp.
hickory	*Carya* spp.
holly, Florida	*Schinus terebinthifolius*

Common Name (Cont.)	Scientific Name
honeysuckle	*Lonicera* spp.
hornbeam, American	*Carpinus caroliniana*
kudzu	*Pueraria montana*
locust, black[1-]	*Robinia pseudoacacia*
madrone, Pacific	*Arbutus menziesii*
manzanita	*Arctostaphylos* spp.
maple	*Acer* spp.
maple, red[1]	*Acer rubrum*
maple, sugar	*Acer saccharum*
maple, vine[1]	*Acer circinatum*
monkeyflower[1]	*Mimulus guttatus*
oak	*Quercus* spp.
oak, black[1]	*Quercus kellogia*
oak, pin	*Quercus palustris*
oak, post	*Quercus stellata*
oak, red	*Quercus rubra*
oak, southern red	*Quercus falcata*
oak, white[1]	*Quercus alba*
peppertree, Brazilian	*Schinus terebinthifolius*
persimmon[1]	*Diospyros* spp.
pine	*Pknus* spp.
poison-ivy, eastern	*Toxicodendron radicans*
poison-oak	*Toxicodendron* spp.
poison-sumac[1]	*Toxicodendron vernix*
prunus	*Prunus* spp.
raspberry	*Rubus* spp.
redbud, eastern-	*Cercis canadensis*
rose, multiflora-	*Rosa multiflora*
Russian-olive	*Elaeagnus angustifolia*
sage,: black, white	*Salvia* spp.
sagebrush, California	*Artemisia californica*
salmonberry	*Rubus spectabilis*
saltcedar[1-]	*Tamarix ramosissima*
saltbush, sea myrtle	*Baccharis halimifolia*
sassafras-	*Sassafras albidum*
sourwood[1]	*Oxydendrum arboreum*
sumac, smooth[1]	*Rhus glabra*
sumac, dwarf[1]	*Rhus copallinum*
sweetgum-	*Liquidambar styraciflua*
swordfern[1]	*Polystichum munitum*
tallowtree, Chinese-	*Triadica sebifera*
oak, tanbark resprouts	*Lithocarpus densiflorus*
thimbleberry, western	*Rubus parviflorus*
tobacco, tree[1]	*Nicotiana glauca*
trumpetcreeper-	*Campsis radicans*
Virginia-creeper[1]	*Parthenocissus quinquefolia*
waxmyrtle, southern[1]	*Myrica cerifera*
willow-	*Salix* spp.
yellow-poplar [1-]	*Liriodendron tulipifera*
yerba santa	*Eriodictyon californicum*

[1]Partial control

Terms and Conditions of Use

If terms of the following Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. Otherwise, to the extent permitted by law, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitations of Remedies.

Warranty Disclaimer

Dow AgroSciences warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. TO THE EXTENT PERMITTED BY LAW, Dow AgroSciences MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Dow AgroSciences or the seller. To the extent permitted by law, all such risks shall be assumed by buyer.

Limitation of Remedies

The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Dow AgroSciences' election, one of the following:

(1) Refund of purchase price paid by buyer or user for product bought, or
(2) Replacement of amount of product used.

To the extent permitted by law, Dow AgroSciences shall not be liable for losses or damages resulting from handling or use of this product unless Dow AgroSciences is promptly notified of such loss or damage in writing. To the extent permitted by law, in no case shall Dow AgroSciences be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Dow AgroSciences or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or Limitation of Remedies in any manner.

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Produced for
Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268

Label code: CD02-148-020
Replaced label: D02-148-007
LOES number: 010-01471

EPA accepted 11/27/18

Revisions

1. Updated the trademark line to read, "® ™ Trademarks of Dow AgroSciences, DuPont or Pioneer and their affiliated companies or respective owners"
2. Add "Caution" to the Precautionary Statements and combine the statements into one paragraph.
3. Under Rainfastness – revised sentence to read, "Heavy rainfall soon… repeat application up to the labeled rate may be required.
4. Revised 2nd paragraph of Directed Sprays to read, "Injury to larch may occur especially where spray patterns overlap or higher labeled rates of this…"
5. Removed rates and application method from table of Tank Mix Partners for Forestry Sites.
6. Broadcast Applications Outside Areas of Southeastern United States revised to read, "…overlap or the higher labeled rate is applied."
7. Chemical Mowing revised sentence to read, "Repeat applications of the tank mix in the same season are not recommended because severe injury may occur."
8. Add missing table for Hand Held Sprayers to sub-label B
9. Add following statements to Wiper Applications: "Rope or Sponge Wick applications: Use solutions of 33 to 75 percent of this product in water." "Panel Applications: Use solutions of 33 to 100 percent of this product in water."
10. Correct typo under "Hollow Stem Injection" "Do not apply more than a total of 7.5 quarts of this product…"
11. Update Mode of Action banner to reflect provisions in PR Notice 2017-01.

MERIT® 2F

INSECTICIDE

Specimen Label

* ***For Foliar and systemic insect control in turfgrass (including sod farms), landscape ornamentals, fruit and nut trees and interior plantscapes.***

ACTIVE INGREDIENT:

*Imidacloprid,1-[(6-Chloro-3-pyridinyl)methyl]-*N*-nitro-2-imidazolidinimin . . .	21.4%
OTHER INGREDIENTS:	78.6%
Total:	100.0%

*Protected by U.S. Patent No. 4,742,060
Contains 2 pounds of imidacloprid per gallon. **SHAKE WELL BEFORE USING**

EPA Reg. No. 432-1312
EPA Est. No indicated by 2nd and 3rd digits of the batch number on this package.
(19) = 3125-MO-1 (65) = 432-TX-1 (66) = 264-MO-02

STOP - Read the label before use. Keep out of reach of children.

CAUTION

PRECAUCION AL USUARIO: Si usted no puede leer o entender inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

(TO THE USER: If you cannot read or understand English, do not use this product until the label has been fully explained to you.)

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if swallowed or absorbed through skin. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Keep children or pets off treated area until spray is dry.

Applicators and Other Handlers Must Wear:

- Long-sleeved shirt and long pants
- Chemical resistant gloves made of any waterproof material such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchovinylchloride (PVC) or viton.
- Shoes plus socks

Follow manufacturer's instructions for cleaning/ maintaining personal protective equipment, PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering controls statements:

- When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

User should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

NET CONTENTS: ____ Ounces

BACKED by BAYER.

FIRST AID

If swallowed	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
If in eyes	• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.

In case of emergency call toll free the Bayer Environmental Science Emergency Response Telephone No. 800-334-7577. Have a product container or label with you when calling a poison control center or doctor, or going for treatment.

Note to Physician: No specific antidote is available. Treat the patient symptomatically.

ENVIRONMENTAL HAZARDS

This product is highly toxic to aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

This chemical demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Do not formulate this product into other end-use products.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

Exception: If the product is applied by drenching, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls
- Chemical resistant gloves made of any waterproof material such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchovinylchloride (PVC) or viton.
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep children and pets off treated area until dry.

APPLICATION TO TURFGRASS

MERIT® 2F Insecticide can be used for the control of soil inhabiting pests of turfgrass, such as Northern & Southern masked chafers, *Cyclocephala borealis, C. immaculata,* and/or *C. lurida;* Asiatic garden beetle, *Maladera castanea;* European chafer, *Rhizotroqus majalis;* Green June beetle, *Cotinis nitida;* May or June beetle, *Phyllophaga* spp.; Japanese beetle, *Popillia japonica;* Oriental beetle, *Anomala orientalis;* Billbugs, *Sphenophorus* spp.; Annual bluegrass weevil, *Listronotus* spp.; Black turfgrass ataenius, *Ataenius spretulus* and *Aphodius* spp.; European crane fly, *Tipula paludosa;* and mole crickets, *Scapteriscus* spp.. MERIT® 2F Insecticide can also be used for suppression of cutworms and chinch bugs. MERIT® 2F Insecticide can be used as directed on turfgrass in sites such as home lawns, business and office complexes, shopping complexes, multi-family residential complexes, golf courses, airports, cemeteries, parks, playgrounds, athletic fields and sod farms.

The active ingredient in MERIT® 2F Insecticide has sufficient residual activity so that applications can be made preceding the egg laying activity of the target pests. High levels of control can be achieved when applications are made preceding or during the egg laying period. The need for an application can be based on historical monitoring of the site, previous records or experiences, current season adult trapping or other methods. Optimum control will be achieved when applications are made prior to egg hatch of the target pests, followed by sufficient irrigation or rainfall to move the active ingredient through the thatch.

Applications should not be made when turfgrass areas are waterlogged or the soil is saturated with water. Adequate distribution of the active ingredient cannot be achieved when these conditions exist. The treated turf area must be in such a condition that the rainfall or irrigation will penetrate vertically in the soil profile. Applications cannot exceed a total of 1.6 pints (0.4 lb of active ingredient) per acre per year.

APPLICATION EQUIPMENT FOR USE ON TURFGRASS

Apply MERIT® 2F Insecticide in sufficient water to provide adequate distribution in the treated area. The use of accurately calibrated equipment normally used for the application of turfgrass insecticides is required. Use equipment which will produce a uniform, coarse droplet spray, using a low pressure setting to eliminate off target drift. Check calibration periodically to ensure that equipment is working properly.

APPLICATION TO ORNAMENTALS

MERIT® 2F Insecticide is for use on ornamentals in commercial and residential landscapes and interior plantscapes. MERIT® 2F Insecticide is a systemic product and will be translocated upward into the plant system from root uptake. To assure optimum effectiveness, the product must be placed where the growing portion of the target plant can absorb the active ingredient. The addition of a nitrogen containing fertilizer, where applicable, into the solution may enhance the uptake of the active ingredient. Application can be made by foliar application or soil applications; including soil injection, drenches, and broadcast sprays. Foliar applications offer locally systemic activity against insect pests. When making soil applications to plants with woody stems, systemic activity will be delayed until the active ingredient is translocated throughout the plant. In some cases, this translocation delay could take 60 days or longer. For this reason, applications should be made prior to anticipated pest infestation to achieve optimum levels of control.

For outdoor ornamentals, broadcast applications cannot exceed a total of 1.6 pints (0.4 lb of active ingredient) per acre per year.

Ant Management Programs

Use MERIT® 2F to control aphids, scale insects, mealybugs and other sucking pests on ornamentals to limit the honeydew available as a food source for ant populations. MERIT® 2F applications can be then be supplemented with residual sprays, bait placements or other ant control tactics to further reduce the pest population.

NOTE: Not for use in commercial greenhouses, nurseries, or on grasses grown for seed, or on commercial fruit and nut trees.

APPLICATION EQUIPMENT FOR FOLIAR APPLICATIONS

MERIT® 2F Insecticide mixes readily with water and may be used in many types of application equipment. Mix product with the required amount of water and apply as desired dependent upon the selected use pattern.

When making foliar applications on hard to wet foliage such as holly, pine, or ivy, the addition of a spreader/ sticker is recommended. If concentrate or mist type spray equipment is used, an equivalent amount of product should be used on the area sprayed, as would be used in a dilute application.

RECOMMENDED APPLICATIONS - TREES, SHRUBS, FLOWERS AND GROUNDCOVERS

For use only in and around industrial and commercial buildings and residential areas, and state, national, and private wooded and forested areas for the insect pests listed below.

CROP	PEST	DOSAGE MERIT® 2F	REMARKS
Trees	Adelgids Aphids Armored scales (suppression) Black vine weevil larvae Emerald ash borer Eucalyptus longhorned borer Flatheaded borers (including bronze birch and alder borer) Japanese beetles Lace bugs Leaf beetles (including elm and viburnum leaf beetles) Leafhoppers (including glassy-winged sharpshooter) Leafminers Mealybugs Pine tip moth larvae Psyllids Royal palm bugs Sawfly larvae Soft scales Thrips (suppression) White grub larvae Whiteflies	0.1 to 0.2 fl oz (3 to 6 mL) per inch of trunk diameter (D.B.H.)	**Soil Injection:** GRID SYSTEM: Holes should be spaced on 2.5 foot centers, in a grid pattern, extending to the drip line of the tree. CIRCLE SYSTEM: Apply in holes evenly spaced in circles, (use more than one circle dependent upon the size of the tree) beneath the drip line of the tree extending in from that line. BASAL SYSTEM: Space injection holes evenly around the base of the tree trunk no more than 6 to 12 inches out from the base. Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. For optimum control, keep the treated area moist for 7 to 10 days. Do not use less than 4 holes per tree. **No Soil Injection Applications Allowed in Nassau or Suffolk Counties of New York.** **Soil Drench:** Uniformly apply the dosage in no less than 10 gallons of water per 1000 square feet as a drench around the base of the tree, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone. **For Control of Specified Borers:** Application to trees already heavily infested may not prevent the eventual loss of the trees due to existing pest damage and tree stress.
Shrubs		0.1 to 0.2 fl oz (3 to 6 mL) per foot of shrub height	**Soil Injection:** Apply to individual plants using dosage indicated. Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone, Keep the treated area moist for 7 to 10 days. Do not use less than 4 holes per shrub. **No Soil Injection Applications Allowed in Nassau or Suffolk Counties of New York.** **Soil Drench:** Uniformly apply the dosage in no less than 10 gallons of water per 1000 square feet as a drench around the base of the tree, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.
Flowers and Groundcovers		0.46 to 0.6 fl oz (14 to 17 mL) per 1000 sq ft	Apply as a broadcast treatment and incorporate into the soil before planting or apply after plants are established. If application is made to established plants, optimum control will be attained if area is irrigated thoroughly after application.

RECOMMENDED APPLICATIONS

For use only in and around residential areas.

CROP	PEST	RATE PER APPLICATION	
Pome Fruits Apple Crabapple Loquat Mayhew Pear Pear (oriental) Quince	Aphids (except Wooly apple aphid) Leafhoppers (including glassy-winged sharpshooter) Leafminer Mealybugs* San Jose scale*	1.5 fl oz (45 mL) per 100 gal of water	6.0 fl oz/A[1]

Apply specified dosage as foliar spray as needed after petal-fall is complete.

For control of rosy apple aphid, apply prior to leafrolling caused by the pest.

For first generation leafminer control, make first application as soon as petal-fall is complete. Greatest leafminer control will result from the earliest possible application. For second and succeeding generations of leafminer, optimal control is obtained from applications made early in the adult flight against egg and early instar larvae. A second application may be required 10 days later if severe pressure continues or if generations are overlapping. A single application may result in suppression only. MERIT® 2F will not control late stage larvae.

For San Jose Scale, time applications to the crawler stage. Treat each generation.

For late season (preharvest) control of leafhopper species, apply MERIT® 2F while most leafhoppers are in the nymphal stage.

For optimal control of mealybug, insure good spray coverage of the trunk and scaffolding limbs or other resting sites of the mealybug.

Do not apply more than 6.0 fluid ounces per acre in a single application. Do not make more than 5 applications.

Allow 10 or more days between applications. Allow at least 7 days between last application and harvest.

* Not for use in California for control on pears.

Pecans*	Yellow pecan aphid Black margined aphid Pecan leaf phylloxera Pecan spittlebug Pecan stem phylloxera	1.5 fl oz (45 mL) per 100 gal of water	6.0 fl oz/A[1]

Make foliar applications as pests begin to build before populations become extreme. Two applications at a 10 to 14 day interval may be required to achieve control. Scout and retreat if needed.

Thorough uniform coverage of foliage is necessary for optimal control. Addition of an organosilicone-based spray adjuvant at a rate not to exceed the adjuvant manufacturer's recommended use rate may improve coverage.

Do not apply more than a total of 18.0 fluid ounces of MERIT® 2F per acre per year. Do not make more than 3 applications.

Allow 10 or more days between applications.

[1]The amount of MERIT® 2F required per acre will depend on tree size and volume of foliage present. The rate per acre is based on a standard of 400 gallons of dilute spray solution per acre for large trees.

* Use on pecans not permitted in California unless directed by specific supplemental labeling.

RECOMMENDED APPLICATIONS

For use only in and around industrial and commercial buildings and residential areas.

CROP	PEST		RATE PER APPLICATION	
Grapes	Leafhoppers (including glassy-winged sharpshooter)	Mealybugs	1.5 fl oz (45 mL) per 100 gal of water	3.0 fl oz/A (90 mL/A)

Apply specified dosage as a foliar spray using 200 gallons of water per acre. Do not apply more than a total of 6.0 ounces of MERIT® 2F per acre per year. Allow at least 14 days between applications. Applications may be applied up to and including day of harvest.

RESTRICTIONS

Do not graze treated areas or use clippings from treated areas for feed or forage. Avoid runoff or puddling of irrigation water following application. Keep children and pets off treated area until dry. Avoid application of MERIT® 2F Insecticide to areas which are water logged or saturated, which will not allow penetration into the root zone of the plant. Do not apply more than 1.6 pt (0.4 lb of active ingredient) per acre per year.

Treated areas may be replanted with any crop specified on an imidacloprid label, or with any crop for which a tolerance exists for the active ingredient.

For crops not listed on an imidacloprid label, or for crops for which no tolerances for the active ingredient have been established, a 12-month plant-back interval should be observed.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Disposal: Wastes resulting from the use of this product me be disposed of on site or at an approved waste disposal facility.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed.

Store in original container and out of the reach of children, preferably in a locked storage area.

Handle and open container in a manner as to prevent spillage. If the container is leaking or material spilled for any reason or cause, carefully sweep material into a pile. Refer to Precautionary Statements on label for hazards associated with the handling of this material. Do not walk through spilled material. Dispose of pesticide as directed below. In spill or leak incidents, keep unauthorized people away. You may contact the Bayer Emergency Response Team for decontamination procedures or any other assistance that may be necessary. The Bayer Environmental Science Emergency Response Telephone No. is 800-334-7577 or contact Chemtrec at 800-424-9300.

IMPORTANT: READ BEFORE USE

Read the entire Directions for Use, Conditions, Disclaimer of Warranties and Limitations of liability before using this product.

If terms are not acceptable, return the unopened product container at once. By using this product, user or buyer accepts the following conditions, disclaimer of warranties and limitations of liability.

CONDITIONS: The directions for use of this product are believed to be adequate and should be followed carefully. However, because of manner of use and other factors beyond Bayer Environmental Science's control it is impossible for Bayer Environmental Science to eliminate all risks associated with the use of this product. As a result, crop injury or ineffectiveness is always possible. All such risks shall be assumed by the user or buyer.

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040406B

NOTES

BOTANIGARD® 22WP

Wettable Powder Mycoinsecticide

For use in controlling Whitefly, Aphids, Thrips, Psyllids, Weevils and Mealybugs in Ornamentals and Vegetables, Indoor/Outdoor Nursery, Greenhouse, Shadehouse, Commercial Landscape, Interiorscape and Turf.

Active Ingredient: *Beauveria bassiana* Strain GHA……..…….22.0%*
Inert Ingredients…… ……..78.0%**
Total:……..……..100.0%

*Based on the weight estimate of 4.78 x 10^{-12} grams per spore.
**Contains petroleum distillates.
BotaniGard 22WP contains 2 x 10^{13} viable spores per pound.

KEEP OUT OF REACH OF CHILDREN

CAUTION

See additional precautionary statements and first aid statements in attached booklet.

Store between 40°F and 85°F

LAM INTERNATIONAL CORPORATION
117 S. Parkmont; PO Box 4109 – Butte, MT 59702;
Ph: (406)782-2386; Fax: (406)782-9912

EPA Registration Number 82074-2 EPA Establishment Number 65626-MT-02
ED131101C Net Contents: Pound; 500gm
Lot No.: Expiration Date:

Exclusively distributed by BioWorks®

Si Usted no entiende la etiqueta, busque a alguien para que se la explique a Usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Causes moderate eye irritation. Harmful if absorbed through the skin, inhaled or swallowed. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist or dust. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash clothing before reuse.

FIRST AID	
If in eyes	• Hold eye open and rinse slowly and gently with water for 15 – 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. • Call poison control center or doctor for treatment advice.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 – 20 minutes. • Call a poison control center or doctor for treatment advice.
If inhaled	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
If swallowed	• Immediately call a poison control center or doctor. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give any liquid to the person. • Do not give anything by mouth to an unconscious person.
HOT LINE NUMBER Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.	
NOTE TO PHYSICIAN Contains petroleum distillate. Vomiting may cause aspiration pneumonia.	

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as nitrile rubber or butyl rubber
- Shoes plus socks

Mixers/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least R-95 or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This product is potentially pathogenic to honey bees. Avoid applying to areas where honey bees are actively foraging or around bee hives. This product may be toxic to fish. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas.

For terrestrial uses: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters or rinsate. Do not discharge into lakes, streams, ponds, or public waterways.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

For use in controlling Whitefly, Aphids, Thrips, Psyllids, Weevils and Mealybugs in Ornamentals and Vegetables, Indoor / Outdoor Nursery, Greenhouse, Shadehouse, Commercial Landscape, Interiorscape and Turf. Suitable for use with ultra low-volume application equipment.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box apply only to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours unless wearing the appropriate personal protective equipment.

PPE required for early entry to treated areas (that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water). is:

- Coveralls
- Chemical-resistant gloves such as nitrile rubber or butyl rubber
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours unless wearing the appropriate personal protective equipment.

Keep unprotected persons out of treated areas until sprays have dried.

GENERAL INFORMATION

BotaniGard 22WP contains live spores of the naturally occurring fungus, *Beauveria bassiana* Strain GHA. Spores are alive and can be harmed by storage at high temperatures or contact with water for more than 24 hours. See STORAGE AND DISPOSAL instructions on the container label.

MODE OF ACTION AND APPLICATION TIMING

Begin treatment of crops at the first appearance of the insect pest. Typically, it takes 7-10 days after the first spray to see control. Application rates, frequency, spray coverage and insect numbers impact the speed at which acceptable control is achieved. BotaniGard 22WP is most effective when used early, before high insect populations develop. Reapply as necessary under a pest management program that includes close scouting. Intense pest outbreaks may require combination of BotaniGard 22WP with a compatible insecticide.

Contact LAM International Corporation or your distributor for specific information on compatible insecticides.

PRE-HARVEST INTERVAL

Pre-harvest interval for BotaniGard 22WP is zero (0) days. BotaniGard 22WP can be applied up to and including the day of harvest.

INSECTS FOR WHICH BOTANIGARD 22WP MAY BE USED

WHITEFLY

Banded-winged Whitefly
Citrus Blackfly
Citrus Whitefly
Giant Whitefly
Greenhouse Whitefly
Silverleaf Whitefly
Sweet Potato Whitefly (aka Tobacco Whitefly)

APHIDS

Bean Aphid
Cabbage Aphid
Cowpea Aphid
Green Peach Aphid
Greenbug
Hop Aphid
Melon/Cotton Aphid
Pea Aphid
Potato Aphid
Rose Aphid
Russian Wheat Aphid
Spotted Alfalfa Aphid

THRIPS

Greenhouse Thrips
Cuban Laurel Thrips
Pear Thrips
Potato/Onion Thrips
Thrips palmi
Western Flower Thrips

PSYLLIDS

Pear Psylla
Tomato/Potato Psylla

MEALYBUGS

Citrus Mealybug
Buffalo Grass Mealybug
Grape Mealybug
Longtailed Mealybug

LEAFHOPPERS AND PLANTHOPPERS

Grape Leafhopper
Leafhoppers
Planthoppers
Potato Leafhopper
Variegated Grape Leafhopper
Virginia Creeper Leafhopper

SCARAB BEETLES

Atenius
Green June Beetle
White Grubs

PLANT BUGS (HETEROPTERA)

Chinch Bugs
Lace Bugs

WEEVILS

Billbugs
Black Vine Weevil
Fuller Rose Weevil
Rose Curculio
Root Weevil
Strawberry Root Weevil

CROPS ON WHICH BOTANIGARD 22WP MAY BE USED

VEGETABLES

acerola	arracacha	arrowroot
artichoke	arugula	asparagus
atermoya	balsam pear	bamboo shoots
beans (all varieties)	beet	blackeyed peas
bokchoy	broccoli	broccoli raab

Brussels sprouts	burdock	cabbage
cantaloupe	carambols	carrots
casaba melons	cassava	catjang
cauliflower	celeriac	celery
celtuce	chayote	chervil
chickpeas	chicory	Chinese broccoli
Chinese cabbage	Chinese gai lon	Chinese longbeans
Chinese mustard	Chinese spinach	Chinese waxgourd
chrysanthemum (edible)	chufa	cilantro
citron melon	collards	corn salad
crenshaw melon	cress	cucumber
dandelion	dasheen	daikon
dock	edamame	eggplant
endive	escarole	fennel
garlic	gherkin	ginger
golden pershaw melon	gourds (edible)	groundcherry
guar	honey balls	honeydew melon
horseradish	kale	kohlrabi
leek	lentils	leren
lettuce	mango melon	muskmelon hybrids/varieties
mustard greens	New Zealand spinach	okra
onion	orach	parsley
parsnip	peas (all varieties)	pepinos
pepper (all varieties)	Persian melon	pimento (all varieties)
pineapple melon	potato	pumpkin
purslane	radish	radicchio
rambutan	rape greens	rapini
rhubarb	rutabaga	salsify
shallot	snake melon	soybeans
spinach	squash (summer/winter)	sugar beet
sweet potato	Swiss chard	tanier
tomatillo	tomatoes	tumeric
turnip	watermelon	yam
zucchini		

FRUITS AND BERRIES

apple	apricot	avocado
bananas	blackberry	blueberry
boysenberry	calamondin	carob
cherimoya	cherry (sweet/sour)	chironja
citrus citron	citrus hybrids	coffee
crabapple	cranberry	currant
dates	dewberry	durian
elderberry	fejoa	figs
gooseberry	grape (table, raisin, wine)	grapefruit
guava	huckleberry	kiwi
kumquat	lemon	limes
loganberry	loquat	lychee
mandarin	mango	marionberry
nectarine	olallie berry	olives (all varieties)
orange	oriental pear	papaya
passion fruit	peach	pear
persimmon	pineapple	plum
pomegranate	prune	pummelo
quihuna	quince	raspberry
sour cherry	strawberry	sweet cherry
tangelo	tangerine	youngberry

HERBS AND SPICES

allspice	anise	balm
basil	borage	burnet
chamomile	caperbuds	caraway
cardamom	catnip	celery seed
chervil	chicory	chives
cilantro/coriander	cinnamon	clary
coriander	costmary	cumin
curry leaf	dill	fennel
fenugreek	ginseng	horehound
hyssop	mace	marjoram
mint	mustard	nasturtium
nutmeg	oregano	paprika
pennyroyal	pepper (black/white)	peppermint
rosemary	rue	sage
saffron	savory	sesame
spearmint	sweet bay leaf	tansy

tarragon	thyme	wintergreen
woodruff	wormwood	

ORNAMENTALS, INCLUDING FLOWERS, FLOWERING AND FOLIAGE PLANTS, BEDDING PLANTS, GROUNDCOVERS, SHRUBS, VINES, EVERGREENS AND TREES

African lily	African violet	ageratum
alyssum	anthurium	arborvitae
ash	asparagus sprengeri	aster
atlas cedar	azalea	bald cypress
balsam fir	bamboo	barberry
beech	begonia	birch
Boston fern	bougainvillea	boxwood
bridal veil	cacti	caladium
calceolaria	calendula	calla lily
camella	camellias	carissa
carnation	ceanothus	celosia
chenille plant	cherro	Christmas cactus
chrysanthemum	cineraria	cleyera
coleus	cordyline	corylus avellana
cotoneaster	cottonwood	crabapple
crepe myrtle	crossandra	croton
cyclamen	cypress	daffodil
dahlia	daisy	delphinium
deodar cedar	dichondra	dieffenbachia
dogwood	Douglas fir	dracaena
dumb cane	Dusty Miller	elm
eucalyptus	ferns	ficus
fig	firethorn	fittonia
floss flower	foliage plants	forsythia
freesia	fuchsia	gardenia
geranium	gerbera	gerber daisy
gladiolus	gloxinia	grape
gynura	gypsophila	hackberry
hawthorn	hedera	hemlock
hibiscus	hickory	holly
honey suckle	hop bush	horsechesnut
hyacinth	hydrangea	iceplant
imitari	impatiens	India hawthorn
iris	ivy	Japanese aucuba
Japanese barberry	Japanese boxwood	Japanese spindle tree
Japanese yew	juniper	kalanchoe
lantana	larch	larkspur
laurel	leasianthus	leatherleaf fern
linden	lilac	lily
lithodora	lobelia	loquat
magnolia	mandevilla	maple
marigold	Mediterranean fan palm	mesembryanthemum
mimosa	monstera	mother-in-law plant
mountain laurel	myrtle	nandina
narcissus	oak	oleander
olive	orchid	ornamental kale
pachysandra	palms	pansy
parasol pine	pelargonium	peony
petunia	philodendron	phlox
photina	piggyback plant	pine
pink	pittosporum	planetree
podocarpus	poinsettia	poplar
pothos ivy	prayer plant	primrose
privet	pteris fern	pyracantha
rhododendron	rose	rubber plant
salvia	scabiosa	schefflera
schlumbegera	sedum	shrub verbena
shrubby cinquefoil	smoke tree	snapdragon
spathiphyllum	spruce	stock
sweet gum	sweet pea	sweet William
sycamore	syngonium	taxus
Texas sage	tulip	tulip tree
verbena	viburnum	vinca
Virginia creeper	walnut	wandering Jew
willow	yew	yucca
zinnia		

TURF, INCLUDING LAWN AND SOD TURF GRASSES

Bermuda grass	blue grass	fescue

St. Augustine grass zoysia grass

MIXING AND APPLICATION

Apply BotaniGard 22WP using hand-held, ground spray equipment and/or low-volume application equipment. Fill spray tank with half the desired amount of water, start agitation. Use a measuring cup, spoon or calibrated container to add BotaniGard 22WP to the spray tank and mix thoroughly. Add remainder of desired amount of water. Triple rinse empty container and add rinse water to spray tank. For best results, continue agitation during application. Do not mix more BotaniGard 22WP than can be sprayed in one day. One (1) cup contains approximately 4.5 ounces of BotaniGard 22WP. After mixing in water, spray within one day. Fungal spores in BotaniGard 22WP will die and lose effectiveness if left overnight or longer in water.

DOSAGE RATE FOR GREENHOUSE, NURSERY, LANDSCAPE AND INTERIORSCAPE

Typical Application Rates/100 Gallons of Spray Volume

Whitefly and Aphids…..…½ to 1 pound of BotaniGard 22WP/100 gallons spray volume
Thrips ……....1 to 2 pounds of BotaniGard 22WP/100 gallons spray volume
Other labeled insects…… to 2 pounds of BotaniGard 22WP/100 gallons spray volume
Rate depends on insect population.

Apply BotaniGard 22WP up to a maximum of 3 pounds per 100 gallons spray volume for high insect populations or dense foliage.

Use quantity of spray sufficient to thoroughly cover foliage infested with insects. Crop size, spray equipment and local practice will determine the volume of water needed. One hundred gallons of spray volume will typically cover 5,000-20,000 square feet. **SPRAY TO WET, BUT AVOID RUNOFF**.

Low Volume Application

Apply at a rate equivalent to area coverage of high volume spray. This would normally be ½ pound to 2 pounds of BotaniGard 22WP for 5,000 to 20,000 square feet. Follow spray equipment manufacturer's instructions for final spray volume to obtain adequate coverage. **DO NOT APPLY THROUGH A THERMAL PULSE FOGGER.**

Cuttings Dip

Applications of BotaniGard 22WP may be used as pre-plant dips for cuttings as noted below. To prepare dip solution, thoroughly mix ¼ - ½ oz. BotaniGard 22WP per gallon of water (2 ½ -5 oz. BotaniGard 22WP per 10 gallons water). Prepare only as much dip solution as can be used in one day. Do not use dip solution for more than one day. Spores in water for more than 24 hours will die. Dip a small number of plants in dip solution and observe for plant damage before using dip treatment. Do not use dips if there is any visible damage to test plants.

Unrooted Cuttings

Dip the unrooted cuttings in the BotaniGard 22WP solution just long enough to wet all surfaces, then removing to a flat area. For water-sensitive varieties, cover to protect until dry. Then proceed with normal planting and misting.

Rooted Cuttings

Holding by the roots, briefly dip in the BotaniGard 22WP solution just long enough to wet all surfaces, including leaves and stems. Once removed from the dip solution, cuttings can be potted, but allow plants to dry before watering.

DOSAGE RATE FOR TURF AND SOIL APPLICATIONS IN CONTAINER ORNAMENTALS

For most soil applications, apply 1-4 oz. (up to ¼ lb.) BotaniGard 22WP per 1,000 square feet. For difficult to control soil pests, especially citrus root weevil (*Diaprepes abbreviatus*), BotaniGard 22WP can be applied at 4 oz. per 1,000 square feet.

Do not apply to water-saturated soil. Apply BotaniGard 22WP in enough water to ensure good coverage of treated area, at least one gallon per 1,000 square feet. Irrigate treated area after application to disperse BotaniGard 22WP into soil.

APPLICATION FREQUENCY

Apply BotaniGard 22WP at 5-10 day intervals. High insect populations, especially whitefly and aphids, may require application at 2-5 day intervals. Repeat applications for as long as pest pressure persists. There is no limit on the number of applications or total amount of BotaniGard 22WP which can be applied in one season.

PHYTOTOXICITY

BotaniGard 22WP has shown plant safety but has not been tested on all plant varieties or in all available tank mixes. Use caution when making applications to open blooms, especially on varieties known to be sensitive. BotaniGard 22WP is non-phytotoxic to

melons, tomatoes, cole crops and a wide variety of ornamentals at specified label dosage rates.

For best results, foliage should be dry at time of spraying. Test BotaniGard 22WP on a small number of plants to check for potential damage before applying to larger number of plants

TANK MIX COMPATIBILITY

BotaniGard 22WP is physically and biologically compatible with a wide range of insecticides and spray adjuvants. It is compatible with some fungicides in tank mixtures. Fungicides may kill the spores. No label dosage should be exceeded. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

Adjuvants BotaniGard 22WP is designed for application without additional wetting agents and spreaders. If adjuvants are needed for some other reason, contact your dealer or LAM International Corporation for specific instructions. Some wetting agents and spreaders kill the spores, the active ingredient in BotaniGard 22WP, or contribute to poor mixing and spray problems. In all cases, pesticides must be used in accordance with their labels.

Compatibility With Chemical Insecticides BotaniGard 22WP is compatible with most chemical insecticides. However, some insecticide formulations can kill the fungal spores, the active ingredient in BotaniGard 22WP. If you are going to use BotaniGard 22WP in combination with other pesticides, contact your dealer or LAM International Corporation for specific information. In all cases, pesticides must be used in accordance with their labels.

Compatibility With Fungicides BotaniGard 22WP is compatible in tank mix with some fungicides. Contact LAM International or your dealer for specific instructions on using BotaniGard 22WP with fungicides.

CHEMIGATION

Do not apply this product through any type of irrigation system**.**

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

PESTICIDE STORAGE

Store in a cool, dry place. Avoid storage below freezing temperatures or above 85ºF. BotaniGard 22WP stability decreases with time at elevated temperatures above 85ºF. Tightly reclose the container of unused product. Do not contaminate unused product with water.

PESTICIDE DISPOSAL

To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

CONTAINER DISPOSAL

(For plastic containers) Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances.

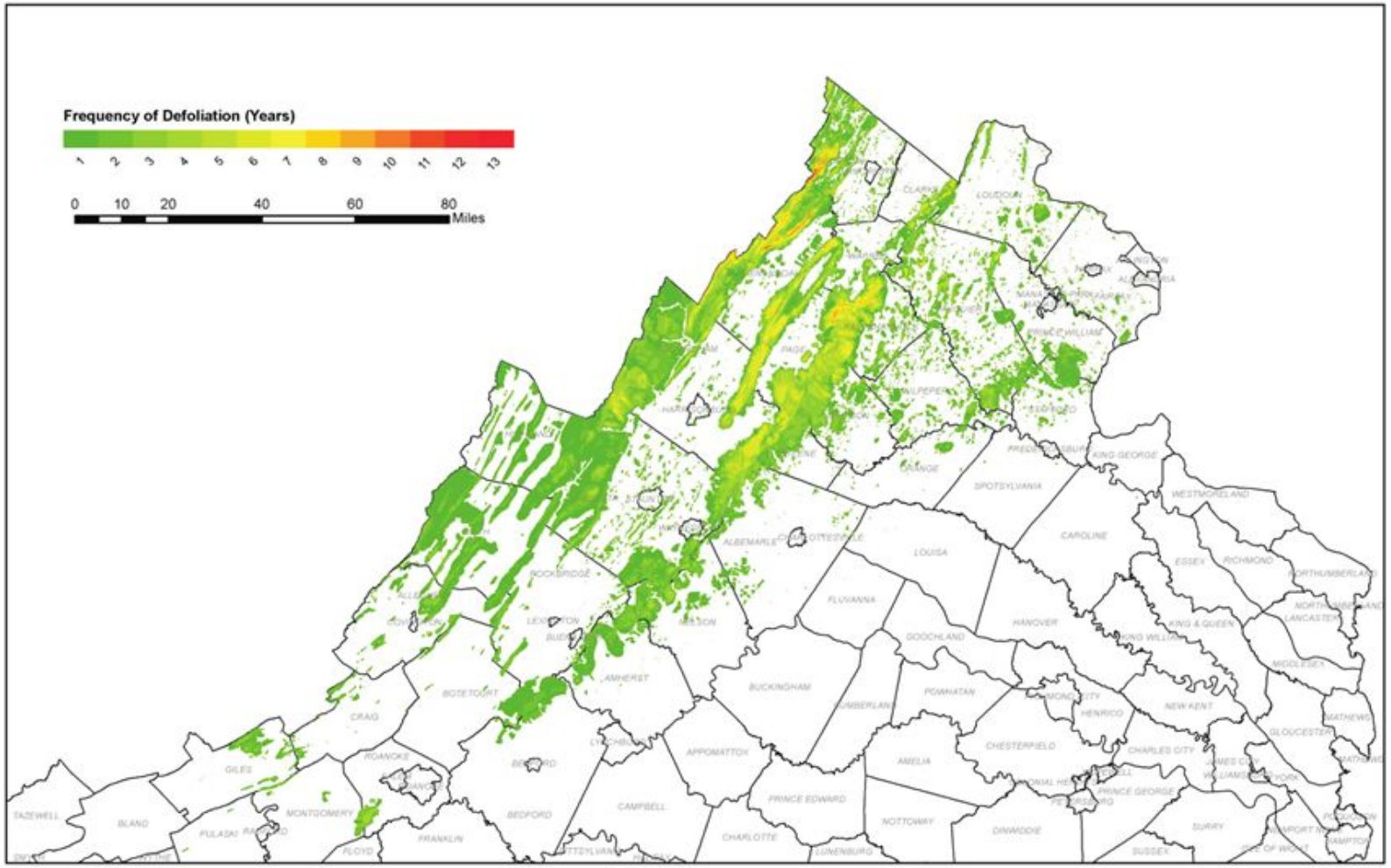
(For foil bags) Nonrefillable container. Do not reuse or refill this container. Completely empty bat into application equipment by shaking and tapping sides and bottom to loosen clinging particles. Then offer for recycling, if available, or dispose of empty bag in sanitary landfill or by incineration. Do not burn unless allowed by state and local ordinances.

WARRANTY AND DISCLAIMER

BotaniGard 22WP conforms to the description set forth on this label and is reasonably fit for the purposes described herein when used according to the label directions and specified conditions. The manufacturer disclaims any and all other express or implied warranties of merchantability and fitness for particular purpose. Buyers and users shall assume all risk and responsibility for potential loss or damage if this product is used, stored, handled or applied in a manner inconsistent with this labeling. To the extent permitted by law, manufacturer shall not be liable for more than the purchase price for the quantity involved including incidental, consequential or special damages.

Attachment XII

Gypsy Moth Cummulative Defoliation (1984-2009)



Acres affected within Virginia
Total - 2,426,956

Mapped by Todd Edgerton 2/17/2010

Pest Alert

United States
Department of
Agriculture

Forest Service

Northeastern Area
State and Private Forestry

NA–PR–09–05

August 2005

Hemlock Woolly Adelgid

Native to Asia, the hemlock woolly adelgid (*Adelges tsugae*) is a small, aphidlike insect that threatens the health and sustainability of eastern hemlock (*Tsuga canadensis*) and Carolina hemlock (*Tsuga caroliniana*) in the Eastern United States. Hemlock woolly adelgid was first reported in the Eastern United States in 1951 near Richmond, Virginia. By 2005, it was established in portions of 16 States from Maine to Georgia, where infestations covered about half of the range of hemlock. Areas of extensive tree mortality and decline are found throughout the infested region, but the impact has been most severe in some areas of Virginia, New Jersey, Pennsylvania, and Connecticut.

Hemlock decline and mortality typically occur within 4 to 10 years of infestation in the insect's northern range, but can occur in as little as 3 to 6 years in its southern range. Other hemlock stressors, including drought, poor site conditions, and insect and disease pests such as elongate hemlock scale (*Fiorinia externa*), hemlock looper (*Lambdina fiscellaria fiscellaria*), spruce spider mite (*Oligonychus ununguis*), hemlock borer (*Melanophila fulvogutta*), root rot disease (*Armillaria mellea*), and needlerust (*Melampsora parlowii*), accelerate the rate and extent of hemlock mortality.

Hosts

The hemlock woolly adelgid develops and reproduces on all species of hemlock, but only eastern and Carolina hemlock are vulnerable when attacked. The range of eastern hemlock stretches from Nova Scotia to northern Alabama and west to northeastern Minnesota and eastern Kentucky. Carolina hemlock occurs on dry mountain slopes in the southern Appalachians of western Virginia, North and South Carolina, Georgia, and Tennessee. Eastern hemlock is also commonly planted as a tree, shrub, or hedge in ornamental landscapes. At least 274 cultivars of eastern hemlock are known to exist.

Description

The hemlock woolly adelgid is tiny, less than 1/16-inch (1.5-mm) long, and varies from dark reddish-brown to purplish-black in color. As it matures, it produces a covering of wool-like wax filaments to protect itself and its eggs from natural enemies and prevent them from drying out. This "wool" (ovisac) is most conspicuous when the adelgid is mature and laying eggs. Ovisacs can be readily observed from late fall to early summer on the underside of the outermost branch tips of hemlock trees (figure 1).



FIGURE 1.—Hemlock woolly adelgid ovisacs.

Life History

The hemlock woolly adelgid is parthenogenetic (all individuals are female with asexual reproduction) and has six stages of development: the egg, four nymphal instars, and the adult. The adelgid completes two generations a year on hemlock. The winter generation, the sistens, develops from early summer to midspring of the following year (June–March). The spring generation, the progrediens, develops from spring to early summer (March–June). The generations overlap in mid to late spring.

The hemlock woolly adelgid is unusual in that it enters a period of dormancy during the hot summer months. The nymphs during this time period have a tiny halo of woolly wax surrounding their bodies (figure 2). The adelgids begin to feed once cooler temperatures prevail, usually in October, and continue throughout the winter months.

The ovisacs of the winter generation contain up to 300 eggs, while the spring generation ovisacs contain between 20 and 75 eggs. When hatched, the first instar nymphs, called crawlers, search for suitable feeding sites on the twigs at the base of hemlock needles. Once settled, the nymphs begin feeding on the young twig tissue and remain at that location throughout the remainder of their development. Unlike closely related insects that feed on nutrients in sap, the hemlock woolly adelgid feeds on stored starches. These starch reserves are critical to the tree's growth and long-term survival.



FIGURE 2.—Hemlock woolly adelgid nymphs in dormancy.



FIGURE 3.—Chemical treatment using the soil injection method.



FIGURE 4.—Predators introduced for control in the Eastern United States, left to right (origin): *Sasajiscymnus tsugae* (Japan), *Scymnus sinuanodulus* (China), and *Laricobius nigrinus* (Western North America).

Dispersal and movement of hemlock woolly adelgid occur primarily during the first instar crawler stage as a result of wind and by birds, deer, and other forest-dwelling mammals that come in contact with the sticky ovisacs and crawlers. Isolated infestations and long-distance movement of hemlock woolly adelgid, though, most often occur as the result of people transporting infested nursery stock.

Control

Cultural, regulatory, chemical, and biological controls can reduce the hemlock woolly adelgid's rate of spread and protect individual trees. Actions such as moving bird feeders away from hemlocks and removing isolated infested trees from a woodlot can help prevent further infestations. State quarantines help prevent the movement of infested materials into noninfested areas.

Chemical control options, such as foliar sprays using horticultural oils and insecticidal soaps, are effective when trees can be saturated to ensure that the insecticide comes in contact with the adelgid. Several systemic insecticides have also proven effective on large trees when applied to the soil around the base of the tree or injected directly into the stem (figure 3). Chemical control is limited to individual tree treatments in readily accessible, nonenvironmentally sensitive areas; it is not feasible in forests, particularly when large numbers of trees are infested. Chemical treatments offer a short-term solution, and applications may need to be repeated in subsequent years.

The best option for managing hemlock woolly adelgid in forests is biological control. Although there are natural enemies native to Eastern North America that feed on hemlock woolly adelgid, they are not effective at reducing populations enough to prevent tree mortality. Therefore, biological control opportunities using natural enemies (predators and pathogens) from the adelgid's native environment are currently being investigated. Several predators known to feed exclusively on adelgids have been imported from China, Japan, and Western North America and are slowly becoming established throughout the infested region (figure 4). It will likely take a complex of natural enemies to maintain hemlock woolly adelgid populations below damaging levels. Efforts to locate, evaluate, and establish other natural enemies continue.

Pesticide Precautionary Statement

Pesticides used improperly can be injurious to humans, animals, and plants. Follow the directions and heed all precautions on the labels.

Note: Some States have restrictions on the use of certain pesticides. Check your State and local regulations. Also, because registrations of pesticides are under constant review by the Federal Environmental Protection Agency, consult your county agricultural agent or State extension specialist to be sure the intended use is still registered.

For additional information or copies of this publication, visit http://www.na.fs.fed.us/fhp/hwa.

USDA Forest Service
Northeastern Area
State and Private Forestry
11 Campus Blvd., Suite 200
Newtown Square, PA 19073
www.na.fs.fed.us

USDA is an equal opportunity provider and employer.

Pest Alert

United States
Department of Agriculture
Forest Service
Northeastern Area
State and Private Forestry
NA–PR–02–10
Revised August 2010

Thousand Cankers Disease

Dieback and mortality of eastern black walnut (*Juglans nigra*) in several Western States have become more common and severe during the last decade. A tiny bark beetle is creating numerous galleries beneath the bark of affected branches, resulting in fungal infection and canker formation. The large numbers of cankers associated with dead branches suggest the disease's name—*thousand cankers disease*.

The principal agents involved in this disease are a newly identified fungus (*Geosmithia* sp. with a proposed name of *Geosmithia morbida*) and the walnut twig beetle (*Pityophthorus juglandis*). Both the fungus and the beetle only occur on walnut species. An infested tree usually dies within 3 years of initial symptoms.

Thousand cankers disease has been found in many Western States (figure 1). The first confirmation of the beetle and fungus within the native range of black walnut was in Tennessee (July 2010). The potential damage of this disease to eastern forests could be great because of the widespread distribution of eastern black walnut, the susceptibility of this tree species to the disease, and the capacity of the fungus and beetle to invade new areas and survive under a wide range of climatic conditions in the west.

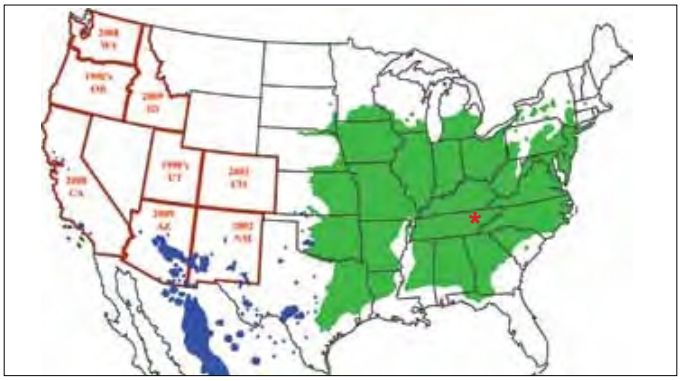


Figure 1. Thousand cankers disease occurs in eight western states (outlined in red) and in the east was first confirmed in Knoxville, TN in July 2010 (see *). In the west the year when symptoms were first noted is given. Native distributions of four species of western walnuts (blue) and eastern black walnut (green) are also shown. Eastern black walnut is widely planted in the West, but not depicted on this map.



Figure 2. Wilting black walnut in the last stages of thousand cankers disease.



Figure 3. Small branch cankers caused by *Geosmithia morbida*.

Disease Symptoms

The three major symptoms of this disease are branch mortality, numerous small cankers on branches and the bole, and evidence of tiny bark beetles. The earliest symptom is yellowing foliage that progresses rapidly to brown wilted foliage, then finally branch mortality (figure 2). The fungus causes distinctive circular to oblong cankers in the phloem under the bark, which eventually kill the cambium (figure 3). The bark surface may have no symptoms, or a dark amber stain or cracking of the bark may occur directly above a canker. Numerous tiny bark beetle entrance and exit holes are visible on dead and dying branches (figure 4), and bark beetle galleries are often found within the cankers. In the final stages of disease, even the main stem has beetle attacks and cankers.

Geosmithia sp.

Members of the genus *Geosmithia* have not been considered to be important plant pathogens, but

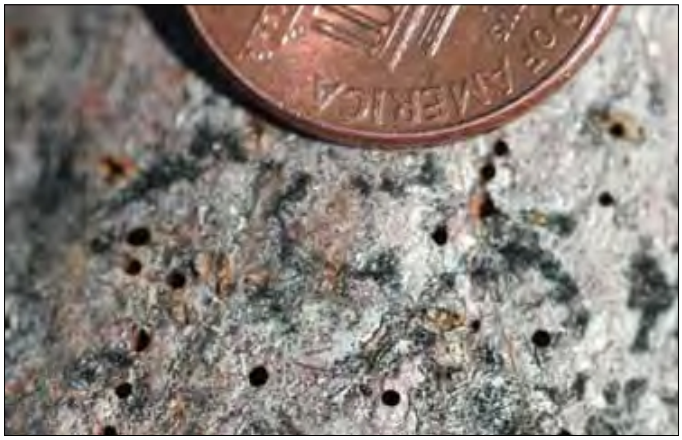


Figure 4. Exit holes made by adult walnut twig beetles.

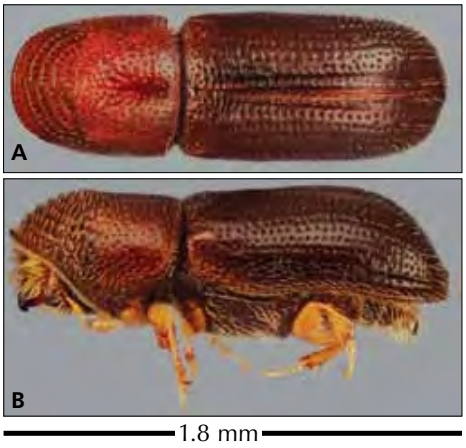


Figure 5. Walnut twig beetle: top view (A) and side view (B).

Geosmithia morbida appears to be more virulent than related species. Aside from causing cankers, the fungus is inconspicuous. Culturing on agar media is required to confirm its identity. Adult bark beetles carry fungal spores that are then introduced into the phloem when they construct galleries. Small cankers develop around the galleries; these cankers may enlarge and coalesce to completely girdle the branch. Trees die as a result of these canker infections at each of the thousands of beetle attack sites.

Walnut Twig Beetle

The walnut twig beetle is native to Arizona, California, and New Mexico. It has invaded Colorado, Idaho, Oregon, Utah, and Washington where walnuts have been widely planted. The beetle has not caused significant branch mortality by itself. Through its association with this newly identified fungus, it appears to have greatly increased in abundance. Adult beetles are very small (1.5 to 2.0 mm long or about 1/16 in) and are reddish brown in color (figure 5). This species is a typical-looking bark beetle that is characterized by its very small size and four to six concentric ridges on the upper surface of the pronotum (the shield-like cover behind and over the head) (figure 5A). Like most bark beetles, the larvae are white, C shaped, and found in the phloem. For this species, the egg galleries created by the adults are horizontal (across the grain) and the larval galleries tend to be vertical (along the grain) (figure 6).



Figure 6. Walnut twig beetle galleries under the bark of a large branch.

Survey and Samples

Visually inspecting walnut trees for dieback is currently the best survey tool for the Eastern United States. Look for declining trees with the symptoms described above. If you suspect that your walnut trees have thousand cankers disease, collect a branch 2 to 4 inches in diameter and 6 to 12 inches long that has visible symptoms. Please submit branch samples to your State's plant diagnostic clinic. Each State has a clinic that is part of the National Plant Diagnostic Network (NPDN). They can be found at the NPDN Web site (www.npdn.org). You may also contact your State Department of Agriculture, State Forester, or Cooperative Extension Office for assistance.

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Photographs:
Figure 1: Andrew Graves
Figure 2: Manfred Mielke, U.S. Forest Service
Figures 3, 4, 6: Whitney Cranshaw, Colorado State University, www.forestryimages.org
Figure 5: Steve Valley, Oregon Department of Agriculture

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Attachment XV

Pest Alert

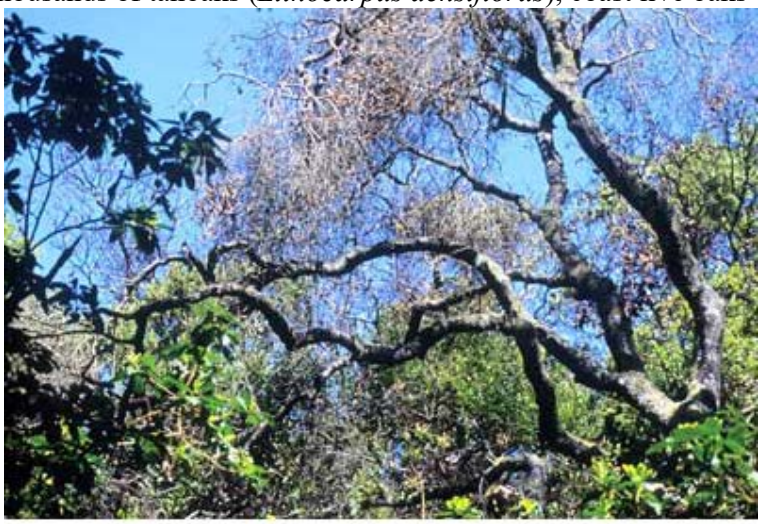
United States
Department of
Agriculture
Forest Service
State and Private
Forestry
Northeastern Area

NA-PR-02-02
January 2002

Sudden Oak Death

Oak mortality is caused by a new pathogen, *Phytophthora ramorum*

A phenomenon known as Sudden Oak Death was first reported in 1995 in central coastal California. Since then, tens of thousands of tanoaks (*Lithocarpus densiflorus*), coast live oaks (*Quercus agrifolia*), and California black oaks (*Quercus kelloggii*) have been killed by a newly identified fungus, *Phytophthora ramorum*. On these hosts, the fungus causes a bleeding canker on the stem. The pathogen also infects *Rhododendron* spp., huckleberry (*Vaccinium ovatum*), bay laurel (*Umbellularia californica*), madrone (*Arbutus menziesii*), bigleaf maple (*Acer macrophyllum*), manzanita (*Arctostaphylos manzanita*), and California buckeye (*Aesculus californica*). On these hosts the fungus causes leaf spot and twig dieback.



In California *Phytophthora ramorum*causes crown symptoms and tree mortality.

As of January 2002, the disease was known to occur only in California and southwestern Oregon; however, transporting infected hosts may spread the disease. The pathogen has the potential to infect oaks and other trees and shrubs elsewhere in the United States. Limited tests show that many oaks are susceptible to the fungus, including northern red oak and pin oak, which are highly susceptible.

On oaks and tanoak, cankers are formed on the stems. Cankered trees may survive for one to several years, but once crown dieback begins, leaves turn from green to pale yellow to brown within a few weeks. A black or reddish ooze often bleeds from the cankers, staining the surface of the bark and the lichens that grow on it. Bleeding ooze may be difficult to see if it has dried or has been washed off by rain, although remnant dark staining is usually present.

Necrotic bark tissues surrounded by black zone lines are usually present under affected bark. Because these symptoms can also be caused by other *Phytophthora* species, laboratory tests

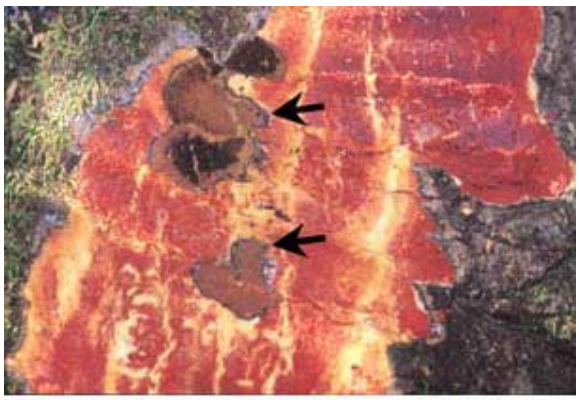
must be done to confirm pathogen identity.

In the Eastern United States, other disorders of oaks have similar symptoms. See the reverse of this sheet for descriptions. If unusual oak mortality occurs and symptoms do not match these regional disorders, evaluate affected trees for *Phytophthora ramorum*.

In the United States, sudden oak death is known to occur only along the west coast. However, the fact that widely traded rhododendron ornamentals can be infected with the pathogen and the demonstrated susceptibility of some important eastern oaks make introduction to eastern hardwood forests a significant risk. Early detection will be important for successful eradication. Oaks defoliated early in the growing season by insects or pathogens may appear dead, but leaves usually reflush later in the season. Canker rots, slime flux, leaf scorch, root diseases, freeze damage, herbicide injury, and other ailments may cause symptoms similar to those caused by *P. ramorum*. Oak wilt, oak decline, and red oak borer damage are potentially the most confusing. See the reverse of this sheet for comparisons with sudden oak death symptoms.



Ooze bleeds from a canker on an infected oak.



Black zone lines are found under diseased bark in oak.

To report infected trees or to receive additional information, please contact your State or Federal forest health specialist. On the Internet, visit the SOD home page at www.suddenoakdeath.org. To distinguish this new disease from diseases with similar appearance, visit http://www.na.fs.fed.us/SOD.

Eastern Oak Disorders That Resemble Sudden Oak Death

In eastern hardwood forests, sudden oak death can be confused, in particular, with oak wilt, oak decline, and red oak borer damage. Descriptions of these disorders and comparisons with sudden oak death follow.

Oak Wilt

Oak wilt is an aggressive fungus disease caused by *Ceratocystis fagacearum*. It is one of the most serious diseases in the Eastern United States, killing thousands of oak trees in forests, woodlots, and home landscapes. Susceptible hosts include most oaks in the red oak group and Texas live oak. Symptoms



Oak wilt quickly kills most infected trees. Wilting leaves turn brown at the margins (inset) and fall as the tree dies.

include wilting and discoloration of the foliage, premature leaf drop, and rapid death of the tree within days or weeks of the first symptoms. Trees become infected with oak wilt in two ways: through connections between root systems of adjacent trees, and through insects that carry the fungus to other trees that have been wounded.

Similarities: Oak wilt can also kill trees very quickly, especially if infection begins through root grafts. Differences: The oak wilt pathogen does not cause cankers on the stems, and no bleeding is associated with this disease. Dark staining may be evident under the bark of trees with oak wilt, but there are no conspicuous zone lines. Oak wilt typically causes red oak leaves to turn brown around the edges while the veins remain green. Leaves are rapidly shed as the tree dies. Conversely, in live oak with the sudden oak death pathogen, the veins first turn yellow and eventually turn brown. Leaves are often retained on the tree after it dies.

Oak Decline

Oak decline is a slow-acting disease complex that can kill physiologically mature trees in the upper canopy. Decline results from interactions of multiple stresses, such as prolonged drought and spring defoliation by late frost or insects, opportunistic root disease fungi such as *Armillaria mellea*, and inner-bark-boring insects such as the twolined chestnut borer and red oak borer. Progressive dieback of the crown is the main symptom of oak decline and is an expression of an impaired root system. This disease can kill susceptible oaks within 3-5 years of the onset of crown symptoms. Oak decline occurs throughout the range of eastern hardwood forests, but is particularly common in the Southern Appalachian Mountains in North Carolina, Tennessee, and Virginia, as well as the Ozark Mountains in Arkansas and Missouri.

Similarities: Oak decline can cause death of



Oak decline can take years to kill an entire tree.

many oaks on a landscape scale. Moist, dark stains may be present on the trunk of trees affected by oak decline. Differences: Oak decline shows evidence that dieback has occurred over several years from the top down and outside inward. Newly killed branches with twigs attached are usually found in the same crown as those in a more advanced state of deterioration killed years before. Dieback associated with sudden oak death occurs over a growing season or two. The inner bark beneath the dark stain associated with stem-boring-insect attacks has a discrete margin with no zone lines or evidence of canker development beyond the attack site.

Red Oak Borer

Red oak borer (*Enaphalodes rufulus* (Haldeman)) attacks oaks of both red and white groups throughout the eastern United States, but prefers members of the red oak group; however, it does not kill trees. Outbreaks are associated with stressed trees that eventually die from oak decline. The complete life cycle takes 2 years. Adults are 1-1.5 inches long with antennae one to two times as long as the body. Larvae are the damaging life stage. Adult females lay eggs in mid-summer in refuges in the crevices of the bark. Newly hatched larvae bore into the phloem, where they mine an irregular burrow 0.5-1 inch in diameter before fall. In spring and summer of the second year, dark, moist stains and fine, granular frass may be seen on the trunk. Exposure of the inner bark reveals the



Tunnels in the inner bark indicate the presence of red oak borer.

frass-packed burrow and the larva, if it has not bored more deeply into the wood to complete development. Mature larvae are stout, round-headed grubs about 2 inches long before they pupate deep in the wood.

Similarities: Moist, dark stains and fi ne frass may be present at sites of red oak borer attack. Differences: With red oak borer the inner bark beneath the dark stain contains a frass-packed burrow and has a discrete margin with no zone lines or evidence of canker development beyond it.

For further information on related disorders:
Oak Wilt: src="/spfo/pubs/howtos/ht_oakwilt/toc.htm
Oak Decline: src="/spfo/pubs/fidls/oakdecline/oakdecline.htm
Red Oak Borer: src="/spfo/pubs/fidls/Red%20Oak%20Borer/redoak.htm
Other Pest Publications: src="/pubs

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Pest Alert



United States
Department of Agriculture

Forest Service

**Animal and Plant
Health Inspection Service**

NA-PR-01-99GEN
Revised August 2008

Asian Longhorned Beetle *(Anoplophora glabripennis):*
A New Introduction

The Asian longhorned beetle (ALB) has been discovered attacking trees in the United States. Tunneling by beetle larvae girdles tree stems and branches. Repeated attacks lead to dieback of the tree crown and, eventually, death of the tree. ALB probably travelled to the United States inside solid wood packing material from China. The beetle has been intercepted at ports and found in warehouses throughout the United States.

This beetle is a serious pest in China, where it kills hardwood trees in roadside plantings, shelterbelts, and plantations. In the United States the beetle prefers maple species (*Acer* spp.), including ***boxelder, Norway, red, silver,*** and ***sugar maples***. Other preferred hosts are ***birches, Ohio buckeye, elms, horsechestnut,*** and ***willows***. Occasional to rare hosts include ***ashes, European mountain ash, London planetree, mimosa,*** and ***poplars***. A complete list of host trees in the United States has not been determined.

Currently, the only effective means to eliminate ALB is to remove infested trees and destroy them by chipping or burning. To prevent further spread of the insect, quarantines are established to avoid transporting infested trees and branches from the area. Early detection of infestations and rapid treatment response are crucial to successful eradication of the beetle.

The ALB has one generation per year. Adult beetles are usually present from July to October, but can be found later in the fall if temperatures are warm. Adults usually stay on the trees from which they emerged or they may disperse short distances to a new host to feed and reproduce. Each female usually lays 35-90 eggs during her lifetime. Some are capable of laying more than that. The eggs hatch in 10-15 days. The larvae feed under the bark in the living tissue of the tree for a period of time and then bore deep into the wood where they pupate. The adults emerge from pupation sites by boring a tunnel in the wood and creating a round exit hole in the tree.

For more information about Asian longhorned beetle in the United States, visit these U.S. Department of Agriculture Web sites:

www.na.fs.fed.us/fhp/alb/

www.aphis.usda.gov/plant_health/plant_pest_info/asian_lhb/index.shtml

If you suspect an Asian longhorned beetle infestation, please collect an adult beetle in a jar, place the jar in the freezer, and immediately notify any of these officials or offices in your State:

State Department of Agriculture:
- State Plant Regulatory Official
- State Entomologist

U.S. Department of Agriculture:
- Animal and Plant Health Inspection Service, Plant Protection and Quarantine
- Forest Service

County Cooperative Extension Office
State Forester or Department of Natural Resources

Asian Longhorned Beetle
WHAT TO LOOK FOR:



1. Adult beetles. Individuals are ¾ to 1¼ inches long, with jet black body and mottled white spots on the back. The long antennae are 1½ to 2½ times the body length with distinctive black and white bands on each segment. The feet have a bluish tinge.



2. Oval to round pits in the bark. These egg-laying sites or niches are chewed out by the female beetle, and a single egg is deposited in each niche.



3. Oozing sap. In the summer, sap may flow from egg niches, especially on maple trees, as the larvae feed inside the tree.



4. Accumulation of coarse sawdust around the base of infested trees, where branches meet the main stem, and where branches meet other branches. This sawdust is created by the beetle larvae as they bore into the main tree stem and branches.



5. Round holes, 3/8 inch in diameter or larger, on the trunk and on branches. These exit holes are made by adult beetles as they emerge from the tree.

Photo Sources:

USDA Forest Service

USDA Animal and Plant Health Inspection Service

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Pest Alert

Animal and Plant Health Inspection Service
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Spotted Lanternfly *(Lycorma delicatula)*

The spotted lanternfly is an invasive pest, primarily known to affect tree of heaven *(Ailanthus altissima)*. It has been detected on many host plants, including apples, plums, cherries, peaches, nectarines, apricots, almonds, and pine. It also feeds on oak, walnut, poplar, and grapes. The insect will change hosts as it goes through its developmental stages. Nymphs feed on a wide range of plant species, while adults prefer to feed and lay eggs on tree of heaven *(A. altissima)*.[1] If allowed to spread in the United States, this pest could seriously harm the country's grape, orchard, and logging industries.





Adult spotted lanternfly

Distribution and Spread

The spotted lanternfly is present in China, India, Japan, South Korea, and Vietnam. The insect was detected in Pennsylvania in September 2014. This was the first detection of spotted lanternfly in the United States.

Spotted lanternflies are invasive and can spread rapidly when introduced to new areas. While the insect can walk, jump, or fly short distances, its long-distance spread is facilitated by people who move infested material or items containing egg masses.

Damage

Both nymphs and adults of spotted lanternfly cause damage when they feed, sucking sap from stems and leaves. This can reduce photosynthesis, weaken the plant, and eventually contribute to the plant's death. In addition, feeding can cause the plant to ooze or weep, resulting in a fermented odor, and the insects themselves excrete large amounts of fluid (honeydew). These fluids promote mold growth and attract other insects.

Description

Adult spotted lanternflies are approximately 1 inch long and one-half inch wide, and they have large and visually striking wings. Their forewings are light brown with black spots at the front and a speckled band at the rear. Their hind wings are scarlet with black spots at the front and white and black bars at the rear. Their abdomen is yellow with black bars. Nymphs in their early stages of development appear black with white spots and turn to a red phase before becoming adults. Egg masses are yellowish-brown in color, covered with a gray, waxy coating prior to hatching.

Life Cycle

The spotted lanternfly lays its eggs on smooth host plant surfaces and on non-host material, such as bricks, stones, and dead plants. Eggs hatch in the spring and early summer, and nymphs begin feeding on a wide range of host plants by sucking sap from young stems and leaves. Adults appear in late July and tend to focus their feeding on tree of heaven *(A. altissima)* and grapevine

[1] In Pennsylvania, adult spotted lanternflies have also been found feeding and egg laying on willow, maple, poplar, and sycamore, as well as on fruit trees, like plum, cherry, and peach.

(Vitis vinifera). As the adults feed, they excrete sticky, sugar-rich fluid similar to honeydew. The fluid can build up on plants and on the ground underneath infested plants, causing sooty mold to form.

Where To Look

Spotted lanternfly adults and nymphs frequently gather in large numbers on host plants. They are easiest to spot at dusk or at night as they migrate up and down the trunk of the plant. During the day, they tend to cluster near the base of the plant if there is adequate cover or in the canopy, making them more difficult to see. Egg masses can be found on smooth surfaces on the trunks of host plants and on other smooth surfaces, including brick, stone, and dead plants.

Report Your Findings

If you find an insect that you suspect is the spotted lanternfly, please contact your local Extension office or State Plant Regulatory Official to have the specimen identified properly.

To locate an Extension specialist near you, go to the U.S. Department of Agriculture (USDA) Web site at **www.nifa.usda.gov/Extension**. A directory of State Plant Regulatory Officials is available on the National Plant Board Web site at **www.nationalplantboard.org/membership**.



Nymphs are black with white spots in early stages of development. *(Credit: itchydogimages)*



Nymphs turn red just before becoming adults. *(Credit: itchydogimages)*



Hatched and unhatched egg masses



Cluster of adults on the trunk of a tree at night

APHIS 81-35-024
Issued November 2014

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Pest Alert

United States
Department of Agriculture
Forest Service
Northeastern Area
State and Private Forestry
NA–PR–03–12
March 2012

Beech Bark Disease

Beech bark disease (BBD) has been deforming and killing American beech (*Fagus grandifolia*) trees in the Eastern United States since the 1930s. A beech scale insect (*Cryptococcus fagisuga*) first attacks tree bark, creating a wound that provides an entryway for two different fungi (*Neonectria coccinea* var. *faginata* and *Neonectria galligena*) to invade the tree. The fungus grows and kills the living tissue under the outer bark, resulting in cankers that can eventually girdle and kill a tree. Trees that survive may become disfigured.

Beech scale was accidentally introduced into Nova Scotia in 1890 on ornamental beech trees imported from Europe. By the early 1930s, the scale and the Neonectria fungus were found throughout the Maritime Provinces in Eastern Canada and in localized areas of Maine. Since then, BBD has affected New England, New York, New Jersey, Pennsylvania, and West Virginia (figure 1). Localized infestations have been found in Virginia, North Carolina, Tennessee, Ohio, Michigan, and Ontario.

The Beech Scale

Beech scales are yellow, soft-bodied insects that are 0.5-1.0 mm long as adults (figure 2). They feed only on American and European (*Fagus sylvatica*) beech trees.

The beech scale has one generation per year. Adults lay eggs on the bark in midsummer and then die. Eggs hatch from late summer until early winter. The immature insects, called first-stage nymphs, have functional antennae and legs and can move to new locations. Nymphs are also spread by wind, birds, and humans that move firewood that harbors nymphs. When a nymph finds a suitable host tree, it starts feeding. First-stage nymphs develop into legless second-stage nymphs that don't move. They secrete the "white wax" that eventually covers their bodies through adulthood (figure 3). The second-stage nymphs overwinter and molt into adults the following spring.

Trees newly infested with scale have small spots or patches of white wax on the trunk, usually on rough bark surfaces. As the scale population builds, large branches and the entire trunk of the tree may become covered with white wax.

The Fungus

The fungi produce fruiting bodies that are tiny, bright red, and lemon shaped in clusters on the bark (figure 4). The mature spores are released in the fall if there's enough moisture. Tarry spots (dead tissue that oozes reddish brown fluid) is also an early symptom that trees are infected with Neonectria species (figure 5).

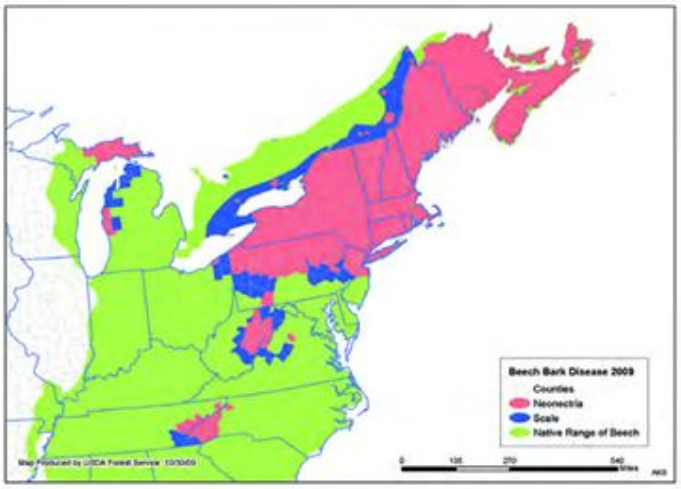

Figure 1.—Distribution map of beech bark disease as of 2009.



Figure 2.—The scale insect.



Figure 3.—White waxy covering.

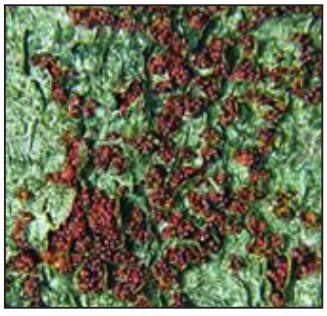

Figure 4.—Fungal fruiting bodies.

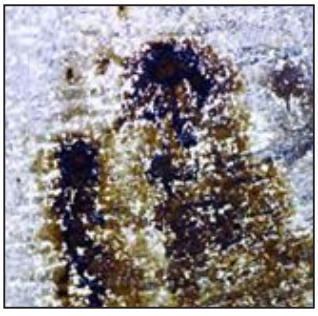

Figure 5.—Tarry spots on the bark.

Additional Symptoms

On some dying trees, the leaves do not fully form, which makes the tree crowns look thin. The leaves stay on the trees, but become yellowish as summer progresses. Another symptom of BBD is the distinct orange color when the outer bark is cut away where Neonectria is actively invading the bark. Other symptoms include noticeable cracking of the bark on the tree trunk; cankers; and deformed, defective wood. Other insects and fungi quickly invade the wood killed by beech bark disease. This weakens the tree and makes it more likely to break during wind events, which is called "beech snap" (figure 6).



Figure 6.—Beech snap.

Three Phases of BBD

- *Advancing Front:* Trees are infested with beech scale but not yet infected by Neonectria. Beech scale can be present for several years before Neonectria infection occurs.
- *Killing Front:* Beech scale populations are high, Neonectria infection is abundant, and tree mortality is heavy.
- *Aftermath Forest:* These areas have experienced the first wave of beech mortality. They typically have smaller beech scale populations. Residual beech trees are mostly defective and declining. Smaller beech trees usually sprout from the roots and can form dense thickets that are highly susceptible to the disease. Larger trees that remain and appear to have escaped BBD are thought to be resistant to BBD.

Control and Management

Some scale insects may die due to weather conditions, but it is generally not enough to reduce the impacts of this disease. There are few controls for beech bark disease. One important control method is preventing the movement of nursery stock or other materials that may harbor the beech scale insect. Insecticides, oils, and mechanical controls can be used on high-value ornamental trees, but they are labor intensive and not always successful.

Controlling BBD in a forest setting is costly. Using biological controls—the ladybird beetle (*Chilocorus stigma*) that preys on the beech scale insect and a fungus (*Nematogonum ferrugineum*) that parasitizes the Neonectria fungus—is not a realistic option because their impacts are limited and they have not been shown to effectively control BBD.

Using silvicultural methods to manage tree species composition, size, age, and vigor may reduce the development of BBD in a forest. It is important to use harvesting methods that minimize root injury of susceptible trees to reduce root sprouting. Retaining beech trees that are free of the scale and/or fungal infection in a forest provides a source of BBD-resistant seeds and sprouts, which helps increase the proportion of healthy, resistant beech trees.

Another developing approach to restoring and regenerating American beech is to identify, graft, and propagate BBD-resistant trees and develop seed orchards and enhanced seed productions areas from these resistant trees. These seed and tree sources can potentially be used to increase the proportion of healthy, resistant beech in a forest.

Using a combination of silvicultural methods and resistant seed stock may allow healthy American beech to remain a valuable component of North American forests throughout its natural range.

Photographs:

Figure 2: Joseph O'Brien, USDA Forest Service, Bugwood.org

Figure 3: Karen Felton, USDA Forest Service

Figure 4: Andrej Kunca, National Forest Centre - Slovakia, Bugwood.org

Figure 5: Joseph O'Brien, USDA Forest Service, Bugwood.org

Figure 6: Joseph O'Brien, USDA Forest Service, Bugwood.org

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i-Tree Eco

What Is i-Tree Eco?

i-Tree Eco version 6 is a flexible software application designed to use data collected in the field from single trees, complete inventories, or randomly located plots throughout a study area along with local hourly air pollution and meteorological data to quantify forest structure, environmental effects, and value to communities.

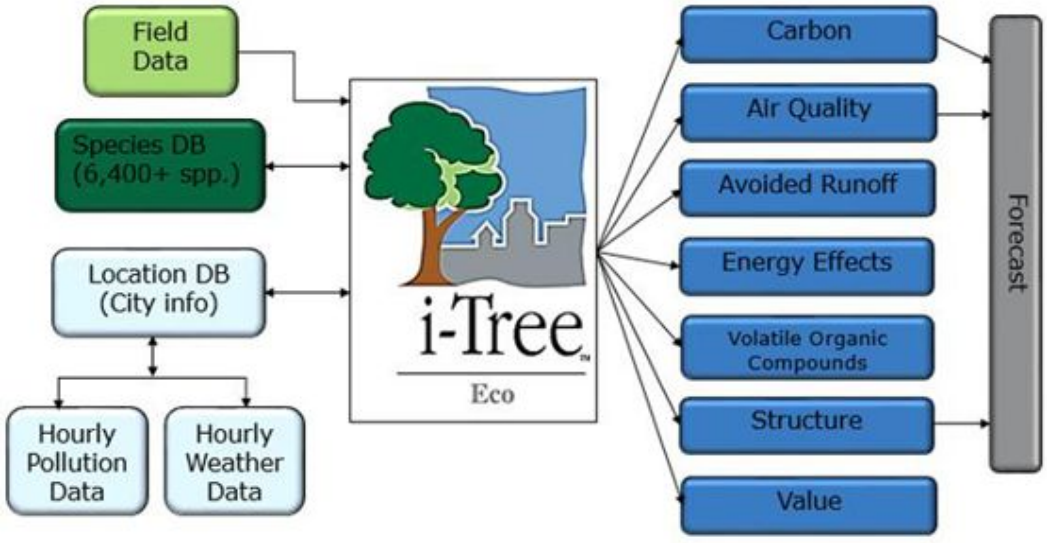
Eco v6 is a model that uses tree measurements and other data to estimate ecosystem services and structural characteristics of urban or rural forest.
Eco is a complete package that provides:

- **Sampling and data collection protocols** - For plot-based sample projects, total population estimates, and standard error of estimates are calculated based on sampling protocols. For complete inventories, eco calculates values for each tree.
- **Flexible data collection options** - Use the mobile data collection system with web-enabled smartphones and tablets, or traditional paper sheets.
- **Automated processing** - A central computing engine that makes estimates of the forest effects based on peer-reviewed scientific equations to predict environmental and economic benefits.
- **Reports** - Summary reports that include charts, tables, and a written report.

Eco Model Basics

How Eco Works

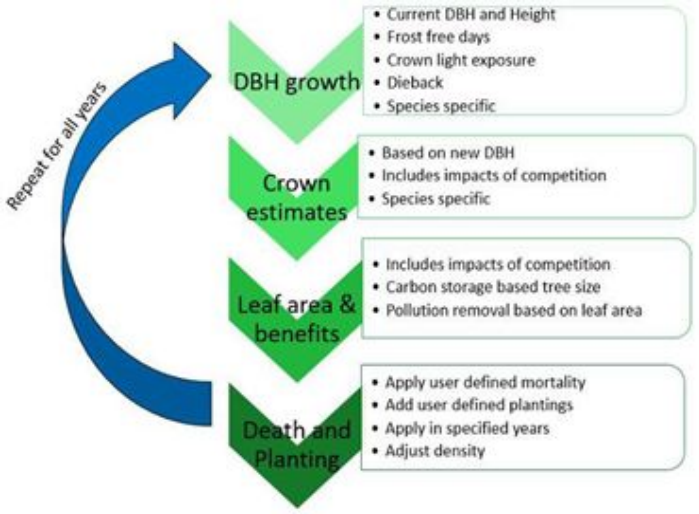
Tree measurements and field data are entered into the Eco application either by web form or by manual data entry; they are merged with local preprocessed hourly weather and air pollution concentration data. These data make it possible for the model to calculate structural and functional information using a series of scientific equations or algorithms.



i-Tree Eco

Forecast Modeling

The new forecast module can be run after Eco results are generated. Forecast uses structural estimates, environmental and location variables, species characteristics along with growth and mortality rates to forecast future tree DBH and crown size. Forecasted benefits such as pollution removal, carbon storage and carbon sequestration are then estimated based on the projected tree growth and leaf area. Tree planting inputs, pest and disease impacts, and storm effects can be modeled also.



i-Tree Eco Is Currently Designed To Provide Estimates Of:

- **Urban forest structure** - Species composition, number of trees, tree density, tree health, etc.
- **Pollution reduction** - Hourly amount of pollution removed by the urban forest, and associated percent air quality improvement throughout a year. Pollution removal is calculated for ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide and particulate matter 2.5 (<2.5 microns).
- **Public health impacts** – Health incidence reduction and economic benefit based on the effect of trees on air quality improvement for the United States only.
- **Carbon** - Total carbon stored and net carbon annually sequestered by the urban forest.
- **Energy Effects** - Effects of trees on building energy use and consequent effects on carbon dioxide emissions from power plants.
- **Avoided runoff** - Yearly avoided runoff attributed to trees summarized by tree species or strata.
- **Forecasting** - Models tree and forest growth over time; considers factors like mortality rates, tree planting inputs, pest and disease impacts and storm effects. Some ecosystem services including carbon and pollution benefits are also forecasted.
- **Bioemissions** - Hourly urban forest volatile organic compound emissions and the relative impact of tree species on net ozone and carbon monoxide formation throughout the year.
- **Values** - Compensatory value of the forest, as well as the estimated economic value of ecosystem services.
- **Potential pest impacts** - based on host susceptibility, pest/disease range and tree structural value.

Not all reporting options may be available depending on project configuration, data options, and project country location.

How Can I Get More Information About i-Tree Eco?

- Visit the i-Tree website at www.itreetools.org
- Register online and download the free software
- Contact i-Tree support staff at info@itreetools.org

Board Agenda Item
March 10, 2020

CONSIDERATION - 1

Approval of Resolution and Bylaws Stating the Purposes, Membership, and Procedures of the Young Adults Advisory Council

ISSUE:
Staff has drafted a proposed Resolution and Bylaws for the Young Adults Advisory Council setting forth the purposes, membership, and initial procedures of this new county advisory group, also known as a Board, Authority, Commission, or Committee (BAC).

TIMING:
Board action is requested on March 10, 2020, in time for appointments to be made on March 24, 2020, so the Young Adults Advisory Council can begin meeting this summer.

BACKGROUND:
At the January 28, 2020, Board of Supervisors meeting, Chairman McKay presented a Board Matter and motion to activate the Young Adults Advisory Council. The motion was approved by the Board. Staff is now presenting a draft Resolution to set forth the purposes, membership, and fundamental procedures of the Young Adults Advisory Council, as well as draft Bylaws that establish standard, additional procedures for this BAC.

FISCAL IMPACT:
None.

ENCLOSED DOCUMENTS:
Attachment 1 – Young Adults Advisory Council Resolution
Attachment 2 – Young Adults Advisory Council Bylaws
Attachment 3 – Chairman McKay's January 28, 2020 Board Matter

STAFF:
Rachel Flynn, Deputy County Executive
Rebecca Moudry, Director, Department of Economic Initiatives
Chase Suddith, Management Analyst, Department of Economic Initiatives
A. Kathy Corena, Management Analyst, Department of Economic Initiatives

ASSIGNED COUNSEL:
Martin R. Desjardins, Assistant County Attorney

RESOLUTION
STATING THE PURPOSES, MEMBERSHIP, AND PROCEDURES OF THE FAIRFAX COUNTY YOUNG ADULTS ADVISORY COUNCIL

At a regular meeting of the Board of Supervisors of Fairfax County, Virginia ("Board"), held in the Board Auditorium of the Fairfax County Government Center at 12000 Government Center Parkway in Fairfax, Virginia, on March 10, 2020, the following resolution was adopted:

WHEREAS, in 2019, nearly 20% of Fairfax County's population consisted of residents in the 20 to 34 age range, and

WHEREAS, there are few Fairfax County Boards, Authorities, and Commissions reflective of the young adult population, or working to identify young adults' interests as well as the challenges young adults face in the County, and

WHEREAS, the Board approved a motion activating the Fairfax County Young Adults Advisory Council ("Council") during its January 28, 2020, Board Meeting, and

WHEREAS, the Board has authority to establish the Council under Virginia Code § 15.2-1411, and

WHEREAS, it is appropriate for the Board to adopt a resolution stating the purposes, membership, and procedures of the Council,

NOW THEREFORE BE IT RESOLVED that the Council is authorized to function under the following provisions:

§ 1. PURPOSES. The purpose of the Council shall be to advise the Fairfax County Government, as coordinated through the Fairfax County Department of Economic Initiatives, by contributing young adults' experiences, knowledge, and solutions to County issues. In pursuance of this purpose, the Council shall:

(A) Consult with relevant County staff and the Chairman and members of the Board of Supervisors, as appropriate, to understand the most pertinent issues or challenges in the County which may benefit from the Council's perspective.

(B) Determine the topics to focus on and the process or means to present young adults' experiences, knowledge, and solutions to the Board and appropriate agencies of County Government.

(C) Consider issues including but not limited to affordable housing, cost of living, young adult talent retention and attraction, civic engagement, Fairfax County reputation and brand, and other matters as they pertain to young adults living and working in the County.

§ 2. MEMBERSHIP. The membership of the Council shall conform to the following:

(A) There shall be 15 members of the Council who shall be appointed by the Board for two-year terms. The membership of the Council shall include one member appointed by each District Supervisor of the Board. The membership of the Council shall include two at-large members appointed by the Chairman of the Board. The membership of the Council shall include one member who is an employee of Fairfax County Government and appointed by the Chairman of the Board. The membership of the Council shall include one member nominated by George Mason University. The membership of the Council shall include one member nominated by Northern Virginia Community College. The membership of the Council shall include one member nominated by Fairfax County Public Schools. All nominations, including nominations made by George Mason University, Northern Virginia Community College, and Fairfax County Public Schools, are subject to approval by the Board.

(B) The composition of the members should be reflective of various backgrounds, experiences, and interests. Age consideration for members is 20 to 34 years old.

(C) Each member is eligible to serve up to two, consecutive 2-year terms for a possible total of four years.

§ 3. PROCEDURES. The Council shall determine its own rules of procedure subject to the following:

(A) The Council shall have bylaws. All bylaws of the Council are subject to the approval of the Board.

(B) The Council shall comply with all Virginia laws, including, but not limited to, the Virginia Freedom of Information Act, Va. Code § 2.2-3700, *et. seq.*, as amended ("VFOIA"), and the Virginia State and Local Government Conflict of Interests Act, Virginia Code § 2.2-3100, *et seq.*, as amended, with all County ordinances, and with all County policies concerning the activities of its boards, authorities, and commissions.

(C) The Fairfax County Department of Economic Initiatives shall provide support to the Council, including a staff coordinator. The staff coordinator shall ensure compliance with the notice, meetings, and recordkeeping requirements of the VFOIA.

GIVEN under my hand this _____ day of _____, 2020.

_____
Jill G. Cooper
Clerk for the Board of Supervisors
Department of Clerk Services

BYLAWS OF THE FAIRFAX COUNTY YOUNG ADULTS ADVISORY COUNCIL

Draft of February 20, 2020

ARTICLE I – NAME

The name of this organization is the Fairfax County Young Adults Advisory Council, hereinafter referred to as the "Council."

ARTICLE II – PURPOSE

The Council has been established by the Board of Supervisors of Fairfax County, Virginia ("Board of Supervisors"), pursuant to Virginia law for the purposes set forth in the Resolution Stating the Purposes, Membership, and Procedures of the Fairfax County Young Adults Advisory Council, adopted by the Board of Supervisors on March 10, 2020.

These bylaws are effective as of March 10, 2020.

ARTICLE III – MEMBERSHIP AND TERM OF OFFICE

Appointments. Membership and appointments to the Council shall be made by the Board of Supervisors, and members shall serve for such term or terms as established by the Board of Supervisors.

Resignations and Vacancies. In the event a member cannot serve or resigns from office, then the Chairperson, Secretary, or County staff coordinator shall advise the Clerk for the Board of Supervisors of the vacancy in writing.

Holdovers. In the event a member completes his or her term of office, remains qualified to serve as a member, and the Board of Supervisors has not reappointed that member to another term or appointed a successor member, then that person may continue to serve until such time as the member is reappointed or a successor member is appointed.

ARTICLE IV – OFFICERS AND THEIR DUTIES

Elections. The Council shall be served by three officers: a Chairperson, a Vice-Chairperson, and a Secretary. The Chairperson shall be elected in accordance with the voting provisions of Article V by the Council members annually and such election shall be scheduled at the first meeting of each calendar year. Two months prior to the election meeting, a slate of candidates shall be nominated during a meeting held pursuant to Article V. After nomination, each candidate shall be polled on his or her willingness and ability to serve as Chairperson of the Council. At the election meeting, the Chairperson shall be elected from among the willing nominees in accordance with the voting provisions of Article V. At the meeting immediately following the election of the

Chairperson, the Chairperson shall nominate the Vice-Chairperson and Secretary. After nomination, each candidate shall be polled on his or her willingness and ability to serve as an officer of the Council. The Vice-Chairperson and Secretary shall then be elected from among the willing nominees in accordance with the voting provisions of Article V.

Chairperson. The Chairperson presides over meetings of the Council and is eligible to vote at all times. The Chairperson has the authority to delegate appropriate functions to Council members and to request assistance from the County staff supporting the Council.

Vice-Chairperson. In the absence of the Chairperson at a meeting, the Vice-Chairperson shall perform the duties and exercise the powers of the Chairperson. In the event that neither the Chairperson nor the Vice-Chairperson is available, the member present with the longest tenure on the Council shall act as Chairperson.

Secretary. The Secretary, or a duly appointed agent, shall be responsible for recording the minutes of meetings.

Replacement Officers. If an office becomes vacant for any reason, it shall be filled by an election at the next regular meeting having a majority of members present. The newly elected officer shall complete the unexpired term of the officer succeeded. Prior to the election of any replacement officer, all members shall be provided with notice of the proposed election before the meeting at which the replacement is elected.

ARTICLE V – MEETINGS

VFOIA. All meetings shall be open to the public except as provided under the Virginia Freedom of Information Act, Virginia Code § 2.2-3700 *et seq.,* as amended ("VFOIA"). Pursuant to Virginia Code § 2.2-3701, “meeting” or “meetings” means the meetings including work sessions, when sitting physically, or through electronic communication means pursuant to § 2.2-3708.2, as a body or entity, or as an informal assemblage of (i) as many as three members or (ii) a quorum, if less than three, of the constituent membership, wherever held, with or without minutes being taken, whether or not votes are cast, of any public body.

Notice and Agenda. Notice and the agenda of all meetings shall be provided as required under the VFOIA. All meetings shall be preceded by properly posted notice stating the date, time, and location of each meeting. Notice of a meeting shall be given at least three working days prior to the meeting. Notice of emergency meetings, reasonable under the circumstances, shall be given contemporaneously with the notice provided to Council members. Notices of all meetings shall be provided to the Office of Public Affairs for posting at the Government Center and on the County Web site. All meetings shall be conducted in public places that are accessible to persons with disabilities.

Frequency. The Council shall meet monthly or as determined by the Chairperson in consultation with the Department of Economic Initiatives. Meetings shall be held at a

time agreed to by a majority of the Council's members, and at a place arranged by the staff of the Department of Economic Initiatives.

Voting. A quorum is necessary for a vote. A majority of the membership of the Council shall constitute a quorum. In making any recommendations, adopting any plan, or approving any proposal, action shall be taken by a majority vote of Council members present and voting. Upon the request of any member, the vote of each member on any issue shall be recorded in the minutes. All votes of Council members shall be taken during a public meeting, and no vote shall be taken by secret or written ballot or by proxy.

Conduct. Except as otherwise provided by Virginia law or these bylaws, all meetings shall be conducted in accordance with *Robert's Rules of Order, Newly Revised*, and except as specifically authorized by the VFOIA, no meeting shall be conducted through telephonic, video, electronic, or other communication means where the members are not all physically assembled to discuss or transact public business.

Public Access. For any meeting, at least one copy of the agenda, all agenda packets, and, unless exempt under the VFOIA, all materials furnished to Council members shall be made available for public inspection at the same time such documents are furnished to the Council members. Pursuant to the VFOIA, any person may photograph, film, record, or otherwise reproduce any portion of a meeting required to be open, but such actions may not interfere with any Council proceedings.

Records. The Secretary or an appointed representative shall ensure that minutes of meetings are recorded as required under the VFOIA. Minutes shall include: (1) the date, time, and location of each meeting; (2) the members present and absent; (3) a summary of the discussion on matters proposed, deliberated, or decided; and (4) a record of any votes taken. Such minutes are public records and subject to inspection and copying by citizens of the Commonwealth or by members of the news media. The Department of Economic Initiatives shall provide staff support to review and approve records and minutes of the meeting.

Attorney-Client Privilege. Records containing legal advice from counsel to the Council, and advice provided in closed session by legal counsel to the Council, are protected by the attorney-client privilege and from disclosure under the VFOIA. Any such records or advice should not be disclosed by members of the Council to any third party, or the privilege against disclosure may be waived. Questions regarding the handling of records or advice subject to attorney-client privilege should be directed to the Council's legal counsel.

ARTICLE VI - ATTENDANCE AND PARTICIPATION

Any Council member who misses three consecutive meetings or more than half of the scheduled meetings within a 12-month period, or who fails to participate in the work of

the Council without good cause acceptable to a majority of the other Council members may be subject to removal from the Council.

ARTICLE VII - REMOVAL

Any Council member(s) may be recommended to the Board of Supervisors for removal from the Council for cause, including but not limited to cause as set forth in Article VI, by a two-thirds majority vote of all of the Council members. The members' authority to recommend removal under these bylaws neither limits nor waives the Board of Supervisors' authority to remove members from the Council as provided by law.

ARTICLE VIII – COMMITTEES

Standing. The Chairperson may appoint standing committees and a chairperson for each with the consent of a majority of the Council members present and voting.

Special. The Chairperson may appoint special committees and a chairperson for each with the consent of a majority of the Council members present and voting.

All meetings of any such committees shall comply with the notice and other requirements of the VFOIA. To the extent practicable, any such committees shall be composed of at least four members. Committee meetings may be held at the call of the Chairperson or at the request of two members, with notice to all members.

ARTICLE IX – COMPLIANCE WITH LAW AND COUNTY POLICY

The Council shall comply with all Virginia laws, including, but not limited to, the VFOIA, and the Virginia State and Local Government Conflict of Interests Act, Virginia Code § 2.2-3100 *et seq.*, as amended, with all County ordinances, and with all County policies concerning the activities of its boards, authorities, and commissions. In case of a conflict between a provision of these bylaws and any applicable ordinance or law, the provisions of the applicable ordinance or law, as the case may be, shall control.

ARTICLE X – AMENDMENT OF BYLAWS

These bylaws may be amended by the Council by adopting the proposed amendment or amendments and by presenting those proposed changes for approval to the Board of Supervisors. Any such amendments to bylaws shall become effective upon approval by the Board of Supervisors.

These bylaws of the Fairfax County Young Adults Advisory Council were approved by the Board of Supervisors of Fairfax County, Virginia during a regular meeting held on March 10, 2020.

GIVEN under my hand this _____ day of _____, 2020.

_____
Jill G. Cooper
Clerk for the Board of Supervisors
Department of Clerk Services

ATTACHMENT 3

COMMONWEALTH OF VIRGINIA
County of Fairfax
BOARD OF SUPERVISORS

SUITE 530
12000 GOVERNMENT CENTER PKWY
FAIRFAX, VIRGINIA 22035-0071

TELEPHONE: 703-324-2321
FAX: 703-324-3955
TTY: 711

chairman@fairfaxcounty.gov

JEFFREY C. MCKAY
CHAIRMAN

Board Matter

January 28, 2020

While there are many Boards, Authorities, and Commissions (BACs), there are few that are reflective of our young adult population in Fairfax County and even fewer working to identify issues and challenges facing young adults in the County.

Research indicates that localities which engage youth in the work of local government are consistently listed among the top places for young people to live. Many businesses are attracted to localities with this distinction, and there is increasing evidence that young adults want to reside in a community that valued them when they were young.

In 2019, approximately 20 percent of Fairfax County's population consisted of residents in the 20 to 34 age range. I feel strongly that it is up to our Board to find ways to better engage with this population.

I introduced a Board Matter at the March 19, 2019 board meeting, directing staff to create a Fairfax County Young Adults Advisory Council to specifically analyze issues and challenges facing young adults in the County. Since that time, much work has been done by staff to build this Council, though it has not yet been formally launched.

Therefore, I move that the Board activate the Young Adults Advisory Council to allow our young people to come together to provide meaningful opportunities for input to contribute their experiences, knowledge and solutions to County issues. I've included information about the charge, makeup, and terms of this new BAC on the back on this Board Matter.

Young Adults Advisory Council

Purpose: Allow young adults meaningful opportunities for input to contribute their experiences, knowledge, and solutions to County issues. Considerations for structure and topics that may be included:

- Addressing issues causing young adults to leave the County
  - Affordable housing challenges
  - Overall cost of living (transportation, childcare, health care)
- Challenges in attracting, retaining, and investing in young talent and recent graduates
- How to get youth and young adults to be engaged and active in the civic engagement process. What are the impediments to getting young adults engaged? And to remain active?
- How is Fairfax County "perceived" from the outside? Is Fairfax County attractive to a young people?

Terms: Two-year appointment, with the ability to serve up to two consecutive terms (for a possible total of four years). Members should remain in targeted age group throughout the course of their appointments.

Number of Seats: 15

Membership: Fifteen (15) members appointed and confirmed by the BOS, with one appointee from each district, and 6 at-large members, including an employee of Fairfax County Government and one representative from each George Mason University, Northern Virginia Community College, and Fairfax County Public Schools.

The composition should be reflective of various backgrounds, experiences, and interests. Age consideration 20-34 years old.

Staff: Department of Economic Initiatives

Board Agenda Item
March 10, 2020

INFORMATION - 1

Contract Award – Psychiatric Services for First Responders

The Fairfax County Police Department's (FCPD) scope of the contract provides a comprehensive array of services to its labor force to promote overall emotional and psychiatric wellness through the Department's Incident Support Services (ISS). The FCPD requires a Psychiatrist to work in conjunction with the FCPD psychologists to provide psychiatric care to not only members of the Police Department but also to other Public Safety agencies and first responders in Fairfax County, as requested. The psychiatrist will work with the Risk Management Division and other healthcare providers in the County.

The FCPD has validated the need to treat and manage trauma-related mental health injuries as well as other disorders, including substance abuse. The Psychiatrist shall be responsible for the medical management of wellness prescribed plans for first responders to identify and evaluate appropriate treatment plans and coordinate with psychiatric units and facilities for aftercare.

RFP 2000002930 seeking proposals for Psychiatric Services for first responders was publicly advertised and issued by the Department of Procurement and Material Management (DPMM) in accordance with the Fairfax County Purchasing Resolution. The County received one (1) response which was evaluated by the Selection Advisory Committee (SAC) in accordance with the award criteria established in the RFP.

The SAC successfully negotiated a fair and reasonably priced contract and unanimously recommended to the Purchasing Agent that the contract be awarded to Northern Virginia Psychiatric Group, located in Fairfax, Virginia. The business is fully qualified and possesses all required professional licenses and insurance to provide psychiatric services in the Commonwealth of Virginia. The term of the professional services contract is 3 years with 2 additional one-year renewal options.

The Department of Tax Administration will verify if Northern Virginia Psychiatric Group is required to have a Fairfax County Business, Professional and Occupational License (BPOL).

FISCAL IMPACT:
The estimated total fiscal impact to the County is $25,000 per year ($125,000 including all option years). Funding is currently available in the FY 2020 Revised Budget Plan to cover this FY's cost.

Board Agenda Item
March 10, 2020

Unless otherwise directed by the Board of Supervisors, the Purchasing Agent will proceed to award the contract to Northern Virginia Psychiatric Group.

ENCLOSED DOCUMENTS:
Attachment 1 – Offeror List for RFP 2000002930

STAFF:
Joseph Mondoro, Chief Financial Officer
David Rohrer, Deputy County Executive
Cathy A. Muse, Director, Department of Procurement and Material Management
Colonel Edwin C. Roessler, Jr, Chief of Police, Fairfax County Police Department

Attachment 1

OFFEROR LIST

Name	**SWAM Status**
Northern Virginia Psychiatric Group 8500 Executive Park Ave, STE 200 Fairfax, VA 22031	Small Business

Board Agenda Item
March 10, 2020

10:20 a.m.

Matters Presented by Board Members

Board Agenda Item
March 10, 2020

11:10 a.m.

CLOSED SESSION:

(a) Discussion or consideration of personnel matters pursuant to Virginia Code § 2.2-3711(A) (1).

(b) Discussion or consideration of the acquisition of real property for a public purpose, or of the disposition of publicly held real property, where discussion in an open meeting would adversely affect the bargaining position or negotiating strategy of the public body, pursuant to Virginia Code § 2.2-3711(A) (3).

(c) Consultation with legal counsel and briefings by staff members or consultants pertaining to actual or probable litigation, and consultation with legal counsel regarding specific legal matters requiring the provision of legal advice by such counsel pursuant to Virginia Code § 2.2-3711(A) (7).

1. *Jennie Klenner v. Fairfax County Government*, Case No. CL-2019-0005281 (Fx. Co. Cir. Ct.)

2. *Carolyn J. Harris v. Darnell Sibert*, Case No. GV19-029549 (Fx. Co. Gen. Dist. Ct.)

3. *Anna Elena Gordon, by GEICO, subrogee v. Kevin Lee Keyes*, Case No. GV20-001213 (Fx. Co. Gen. Dist. Ct.)

4. *Leslie B. Johnson, Fairfax County Zoning Administrator, and Elizabeth Perry, Property Maintenance Code Official for Fairfax County, Virginia v. Walter R. Mahler and Shyamala K. Mahler*, Case No. CL-2019-0015999 (Fx. Co. Cir. Ct.) (Dranesville District)

5. *Leslie B. Johnson, Fairfax County Zoning Administrator and Elizabeth Perry, Property Maintenance Code Official for Fairfax County, Virginia v. Hsing-Cheng Chen and Marina L. Chen*, Case No. CL-2016-0014720 (Fx. Co. Cir. Ct.) (Dranesville District)

6. *Leslie B. Johnson, Fairfax County Zoning Administrator v. Christopher M. Castle and Susan G. Castle*, Case No. GV19-023078 (Fx. Co. Gen. Dist. Ct.) (Dranesville District)

7. *Elizabeth Perry, Property Maintenance Code Official for Fairfax County, Virginia v. Natalie S. Wozniak*, Case No. CL-2019-0009693 (Fx. Co. Cir. Ct.) (Hunter Mill District)

8. *Leslie B. Johnson, Fairfax County Zoning Administrator, and Elizabeth Perry, Property Maintenance Code Official for Fairfax County, Virginia v. Harry Marshall Studds*, Case No. CL-2018-0007593 (Fx. Co. Cir. Ct.) (Lee District)

9. *Leslie B. Johnson, Fairfax County Zoning Administrator v. Juan Carlos Cadima*, Case No. CL-2018-0012765 (Fx. Co. Cir. Ct.) (Mason District)

10. *Leslie B. Johnson, Fairfax County Zoning Administrator v. Iftikhar Khan*, Case No. CL-2019-0003971 (Fx. Co. Cir. Ct.) (Mason District)

11. *Leslie B. Johnson, Fairfax County Zoning Administrator v. Ahora Company, L.C., and Peenong, LLC, d/b/a Thai Herb a/k/a El Patio*, Case No. CL-2019-0017133 (Fx. Co. Cir. Ct.) (Mount Vernon District)

12. *Leslie B. Johnson, Fairfax County Zoning Administrator v. Mahlon C. Hawker*, Case No. CL-2019-0015198 (Fx. Co. Cir. Ct.) (Mount Vernon District)

13. *Elizabeth Perry, Property Maintenance Code Official for Fairfax County, Virginia v. Michael Hausenfleck and Susan Brassfield-Hausenfleck*, Case No. CL-2019-0014369 (Fx. Co. Cir. Ct.) (Mount Vernon District)

14. *Board of Supervisors of Fairfax County and William Hicks, Director, Fairfax County Department of Land Development Services v. Charles J. Barber, Sr., Living Trust*, Case No. CL-2020-0002173 (Fx. Co. Cir. Ct.) (Springfield District)

TO BE DEFERRED

Board Agenda Item
March 10, 2020

REVISED

3:30 p.m.

Public Hearing on PCA 89-D-007-02 (Milestone Tower Limited Partnership IV D/B/A Milestone; Fairfax County School Board) to Amend the Proffers for RZ 89-D-007, Previously Approved for Public Uses to Permit a Telecommunications Facility and Associated Modifications to Proffers and Site Design with an Overall Floor Area Ratio of 0.24, Located on Approximately 40.68 Acres of Land Zoned R-3 (Dranesville District) (Concurrent with SE 2019-DR-012)

and

Public Hearing on SE 2019-DR-012 (Milestone Tower Limited Partnership IV D/B/A Milestone; Fairfax County School Board) to Permit a Telecommunications Facility, Located on Approximately 40.68 Acres of Land Zoned R-3 (Dranesville District) (Concurrent with PCA 89-D-007-02)

This property is located on N. side of Bennett St. and E. side of Dranesville Rd. Tax Map 10-2 ((1)) 6A.

This property is located at 700 Bennett St., Herndon, 20170. Tax Map 10-2 ((1)) 6A.

The Board of Supervisors deferred this public hearing at the February 25, 2020, meeting until March 10, 2020, at 3:30 p.m.

PLANNING COMMISSION RECOMMENDATION:
On February 26, 2020, the Planning Commission voted 12-0 to defer the decision only on these applications to a date certain of March 4, 2020. **On March 4, 2020, the Planning Commission voted 12-0 to further defer the decision to a date certain of March 18, 2020.** The Planning Commission's recommendation will be forwarded following decision.

ENCLOSED DOCUMENTS:
Planning Commission Verbatim Excerpt and Staff Report available online at:
https://www.fairfaxcounty.gov/planning-development/board-packages

STAFF:
Tracy Strunk, Director, Zoning Evaluation Division, Department of Planning and Development (DPD)
Jerrell Timberlake, Planner, DPD

Board Agenda Item
March 10, 2020

4:00 p.m.

Public Hearing to Consider Adopting an Ordinance to Establish the Lindsay Park Community Parking District (Braddock District)

ISSUE:
Proposed amendment to Appendix M, of *The Code of the County of Fairfax, Virginia* (Fairfax County Code), to establish the Lindsay Park Community Parking District (CPD).

RECOMMENDATION:
The County Executive recommends that the Board adopt the amendment to the Fairfax County Code shown in Attachment I to establish the Lindsay Park CPD.

TIMING:
On February 11, 2020, the Board authorized advertisement of a public hearing to consider the proposed amendment to Appendix M of the *Fairfax County Code* to take place on March 10, 2020, at 4:00 p.m.

BACKGROUND:
Fairfax County Code Section 82-5B-2 authorizes the Board to establish a CPD for the purpose of prohibiting or restricting the parking of the following vehicles on the streets in the CPD: watercraft; boat trailers; motor homes; camping trailers; and any other trailer or semi-trailer, regardless of whether such trailer or semi-trailer is attached to another vehicle; any vehicle with three or more axles; any vehicle that has a gross vehicle weight rating of 12,000 or more pounds, except school buses used on a current and regular basis to transport students; any vehicle designed to transport 16 or more passengers including the driver, except school buses used on a current and regular basis to transport students; and any vehicle of any size that is being used in the transportation of hazardous materials as defined in Virginia Code § 46.2-341.4.

No such CPD shall apply to (i) any commercial vehicle when discharging passengers or when temporarily parked pursuant to the performance of work or service at a particular location, (ii) utility generators located on trailers and being used to power network facilities during a loss of commercial power, (iii) restricted vehicles temporarily parked on a public street within any such CPD for a maximum of 48 hours for the purpose of loading, unloading, or preparing for a trip, or (iv) restricted vehicles that are temporarily parked on a public street within any such CPD for use by federal, state, or local public agencies to provide services.

Pursuant to Fairfax County Code Section 82-5B-3, the Board may establish a CPD if: (1) the Board receives a petition requesting establishment and such petition contains the names, addresses, and signatures of petitioners who represent at least 60 percent of the addresses within the proposed CPD, and represent more than 50 percent of the eligible addresses on each block of the proposed CPD, (2) the proposed CPD includes an area in which 75 percent of each block within the proposed CPD is zoned, planned, or developed as a residential area, (3) the Board receives an application fee of $10 for each petitioning property address in the proposed CPD, and (4) the proposed CPD must contain the lesser of (i) a minimum of five block faces or (ii) any number of blocks that front a minimum of 2,000 linear feet of street as measured by the centerline of each street within the CPD.

Staff has verified that the requirements for a petition-based CPD have been satisfied.

The parking prohibition identified above for the Lindsay Park CPD is proposed to be in effect seven days per week, 24 hours per day.

FISCAL IMPACT:
The cost of sign installation is estimated to be $300. It will be paid from Fairfax County Department of Transportation funds.

ENCLOSED DOCUMENTS:
Attachment I: Amendment to the *Fairfax County Code*, Appendix M (CPD Restrictions)
Attachment II: Area Map of Proposed Lindsay Park CPD

STAFF:
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ASSIGNED COUNSEL:
Patrick Foltz, Assistant County Attorney

Attachment I

PROPOSED CODE AMENDMENT

THE CODE OF THE COUNTY OF FAIRFAX, VIRGINIA
APPENDIX M

M-92 Lindsay Park Community Parking District

(a) *District Designation*.

(1) The restricted parking area is designated as the Lindsay Park Community Parking District.

(2) Blocks included in the Lindsay Park Community Parking District are described below:

Lindsay Street (Route 4686)
From Zion Drive to Rippon Lodge Drive.

Steven Lee Court (Route 7780)
From Lindsay Street to the cul-de-sac inclusive.

(b) *District Provisions*.

(1) This District is established in accordance with and is subject to the provisions set forth in Article 5B of Chapter 82.

(2) Parking of watercraft; boat trailers; motor homes; camping trailers; any other trailer or semi-trailer, regardless of whether such trailer or semi-trailer is attached to another vehicle; any vehicle with three or more axles; any vehicle that has a gross vehicle weight rating of 12,000 or more pounds except school buses used on a current and regular basis to transport students; any vehicle designed to transport 16 or more passengers including the driver, except school buses used on a current and regular basis to transport students; and any vehicle of any size that is being used in the transportation of hazardous materials as defined in Virginia Code § 46.2-341.4 is prohibited at all times on the above-described streets within the Lindsay Park Community Parking District.

(3) No such Community Parking District shall apply to (i) any commercial vehicle when discharging passengers or when temporarily parked pursuant to the performance of work or service at a particular location or (ii) utility generators located on trailers and being used to power network facilities during a loss of commercial power or (iii) restricted vehicles temporarily parked on a public street within any such District for a maximum of 48 hours for

the purpose of loading, unloading, or preparing for a trip or (iv) restricted vehicles that are temporarily parked on a public street within any such District for use by federal, state, or local public agencies to provide services.

(c) *Signs*. Signs delineating the Lindsay Park Community Parking District shall indicate community specific identification and/or directional information in addition to the following:

NO PARKING
Watercraft
Trailers, Motor Homes
Vehicles ≥ 3 Axles
Vehicles GVWR ≥ 12,000 lbs.
Vehicles ≥ 16 Passengers

FAIRFAX COUNTY CODE §82-5B

Attachment II

