CITY OF MARGATE
Together We Make It Great

*****UPDATED*****

NORTHWEST COUNCIL OF ELECTED OFFICIALS
MEETING NOTICE

DATE: Wednesday, January 15, 2020

TIME: 12:00 Noon - Lunch will be served promptly; public meeting to be held concurrently.

HOST CITY: The City of Margate

NEW LOCATION: Jasmine Thai & Sushi
1785 N. State Road 7
Margate, FL 33063
(954) 974-4566

CHAIRMAN: Mayor Tommy Ruzzano

AGENDA

CALL TO ORDER

1. APPROVAL OF MINUTES
   A. Minutes of December 9, 2019 meeting hosted by the City of Coral Springs

2. OLD BUSINESS

3. NEW BUSINESS
   A. School Resource Officers

4. SCHEDULE OF NEXT MEETING – Monday, February 10, 2020, at Malbec Grill, 7351 N. State Road 7, Parkland, FL hosted by the City of Parkland.

ADJOURNMENT

Please RSVP by Thursday, January 9, 2020, to cityclerk@margatefl.com with the number of representatives from your municipality who plan to attend and advise of any agenda items for the meeting.

There will be a Buffet Style lunch with the following delicious dishes:

- **Appetizer: Combination/Sushi Rolls Served in the Boat**
- **Tornado Chicken**
- **Tenderloin of Beef Pepper Corn Basil Sauce**
- **Panang Curry with Chicken**
- **Padthai Noodle with Shrimp**
- **Loh Mein Noodle with Shrimp**
- **Vegetable Fried Rice**
- **Dessert: Thai Donuts and Fried Ice Cream**

Notice is hereby given to all interested parties that if any persons should desire to appeal any decision made at the Northwest Council of Elected Officials meeting, such person will need a record of the proceedings conducted at such meeting and for such purpose, s/he may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. Any person with a disability requiring auxiliary aids and services for this meeting may call the City Clerk's office at (954) 972-6454 with their request at least two (2) business days prior to the meeting date.

Members of the public need not purchase a meal in order to attend this meeting.

CORAL SPRINGS
EVERYTHING UNDER THE SUN

NORTHWEST COUNCIL OF ELECTED OFFICIALS
Monday, December 9, 2019

The Northwest Council of Elected Officials' meeting was called to order by Coral Springs Mayor Scott Brook at 12:10 p.m. The meeting was held at Tavolino Della Notte, 10181 West Sample Road, Coral Springs, Florida. Self-introductions were made around the room. Those in attendance included:

COCONUT CREEK
Mayor Sandy Welch
Commissioner Becky Tooley
Commissioner Mikkie Belvedere

CORAL SPRINGS
Mayor Scott Brook
Vice Mayor Joy Carter
Commissioner Larry Vignola
Deputy City Manager Horace McHugh
City Clerk Debra Thomas

LAUDERDALE LAKES
Mayor Hazelle Rogers
Commissioner Beverly Williams

LAUDERHILL
Mayor Ken Thurston
Vice Mayor Howard Berger

MARGATE
Mayor Tommy Ruzzano
Vice Mayor Anthony Caggiano
Commissioner Antonio Arserio
Commissioner Arlene Schwartz
Commissioner Joanne Simone

NORTH LAUDERDALE
Mayor Ana Ziade
Commissioner Richard Moyle
Commissioner Lorenzo Wood

PARKLAND
Mayor Christine Hunschofsky
Vice Mayor Bob Mayersohn
Commissioner Ken Cutler
Commissioner Stacy Kagan
Commissioner Richard Walker

1. Approval of November 4, 2019 Minutes from Lauderdale Lakes

Upon a motion by Commissioner Joanne Simone (Margate), second by Vice Mayor Anthony Caggiano (Margate), the meeting minutes of November 4, 2019, hosted by the City of Lauderdale Lakes were unanimously approved.

2. Presentation: City of Coral Springs Public Art Program

Julie Krolak, Assistant Director of Development Services, shared highlights of the City's Public Art Program. The program's history, goals, funding, and artwork selection process are described in the attached presentation document. The City's Public Art Master Plan establishes eight main functions for the program during the next five years: focusing on large-scale, interactive and integrated artworks, identifying sculptures for City entryways, and enhancing the Downtown redevelopment at the ArtWalk.

Parkland and Coral Springs, in partnership with the Coral Springs Museum of Art, received a $1 million grant from the Bloomberg Philanthropies' Public Art Challenge to fund temporary public art projects that address a civic issue impacting their communities. The five public art projects, "Inspiring Community Healing After Gun Violence: The Power of Art" supported public participation for healing in the wake of the tragedy.

3. Old Business: The consistency of county-wide school resource officers and guardians in the schools was led by Mayor Hazelle Rogers (Lauderdale Lakes). Overall the membership agreed it should be fair for everyone. Commissioner Beverly Williams (Lauderdale Lakes) serves on the Broward League of Cities. She reported that the topic has been discussed for the past three months and as recently as last week, however, it has not gone anywhere.

Mayor Sandra Welch (Coconut Creek) shared that the League assisted her city and results were reached with their involvement. The agreement with the school board was changed and it now allows access to live surveillance feeds. Officer Michael Leonard and his new K-9 partner will be going into the schools and is the only one in the United States. Several questions were raised by the membership and Mayor Welch provided Coconut Creek's agreement with the School Board (included with this meeting summary).

4. New Business: Each city had an opportunity to highlight previous or upcoming events.

Mayor Scott Brook (Coral Springs) asked for support to add a feature to each monthly meeting agenda. The following motion was made by Commissioner Joanne Simone (Margate), second by Mayor Sandy Welch (Coconut Creek) and approved unanimously.

MOTION: TO ADD A NEW ITEM TO EACH AGENDA TO SET ASIDE FIVE TO TEN MINUTES TO SHARE BEST PRACTICES.

5. Next Meeting: The City of Margate will host the next meeting at a time and place to be determined.

Mayor Brook shared best wishes to all and adjourned the meeting at 12:49 p.m.

s / Debra Thomas

_____

Debra Thomas, CMC
City Clerk

Attachments (2)

CORAL SPRINGS

EVERYTHING UNDER THE SUN

Public Art Program Overview
December 9, 2019

History of the Public Art Program

- In 2003, Ordinance 2003-114 was passed creating Land Development Code Chapter 6 entitled “Public Art Program,” creating a Public Art Program for new development & redevelopment in non-residential districts & mixed use/multi-family districts on plots +1 acre; providing general provisions for its organization & operation; creating a Public Art Committee; providing for a Public Art Fee for construction & installation of art.

Polyphony by
Cameron Van Dyke
(One Charter Place)

Goals

Unique to Coral Springs are the desires to produce artworks & an inventive, unexpected & surprising public art program, & to collaborate with our community through its festivals and cultural facilities. The public art program will be part of the community at all times.

City's Goals

1. Responsible City Government - Financially Sound City Providing Exceptional Services
2. City Investment in Today & Future - Upgraded City Infrastructure, Facilities and Parks
3. Downtown Becoming Vibrant - Creating a Sense of Place and a Destination
4. Growing Local Economy - Increased Business Investment and Jobs
5. Premier Community in South Florida - The Place for Families to Live in Great Neighborhoods

HD by Kimber Fiebiger (Artwalk)

Public Art Funding

- Special revenue fund where public art fees are collected during permitting process for new construction and renovations of existing structures. **No ad valorem tax dollars used to purchase public art.** General Fund does not finance this program.

	Development/Redevelopment	Remodeling/Converting
Impact	$0.50/sq. ft.	$0.25/sq. ft.
Onsite	$0.64/sq. ft.	$0.32/sq. ft.

Sun Rising in Spring by Cero (Cypress Park)

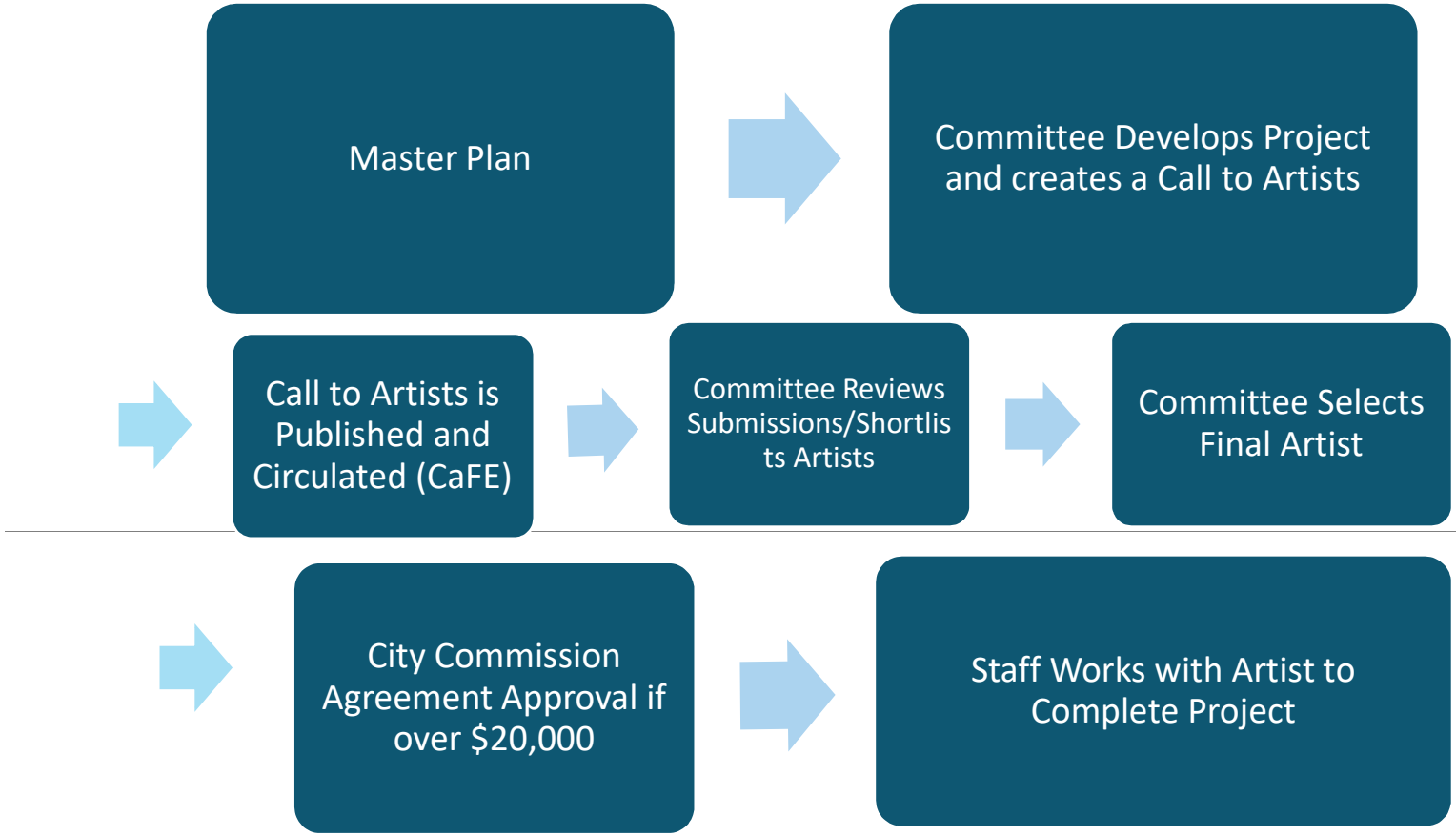
Program Implementation

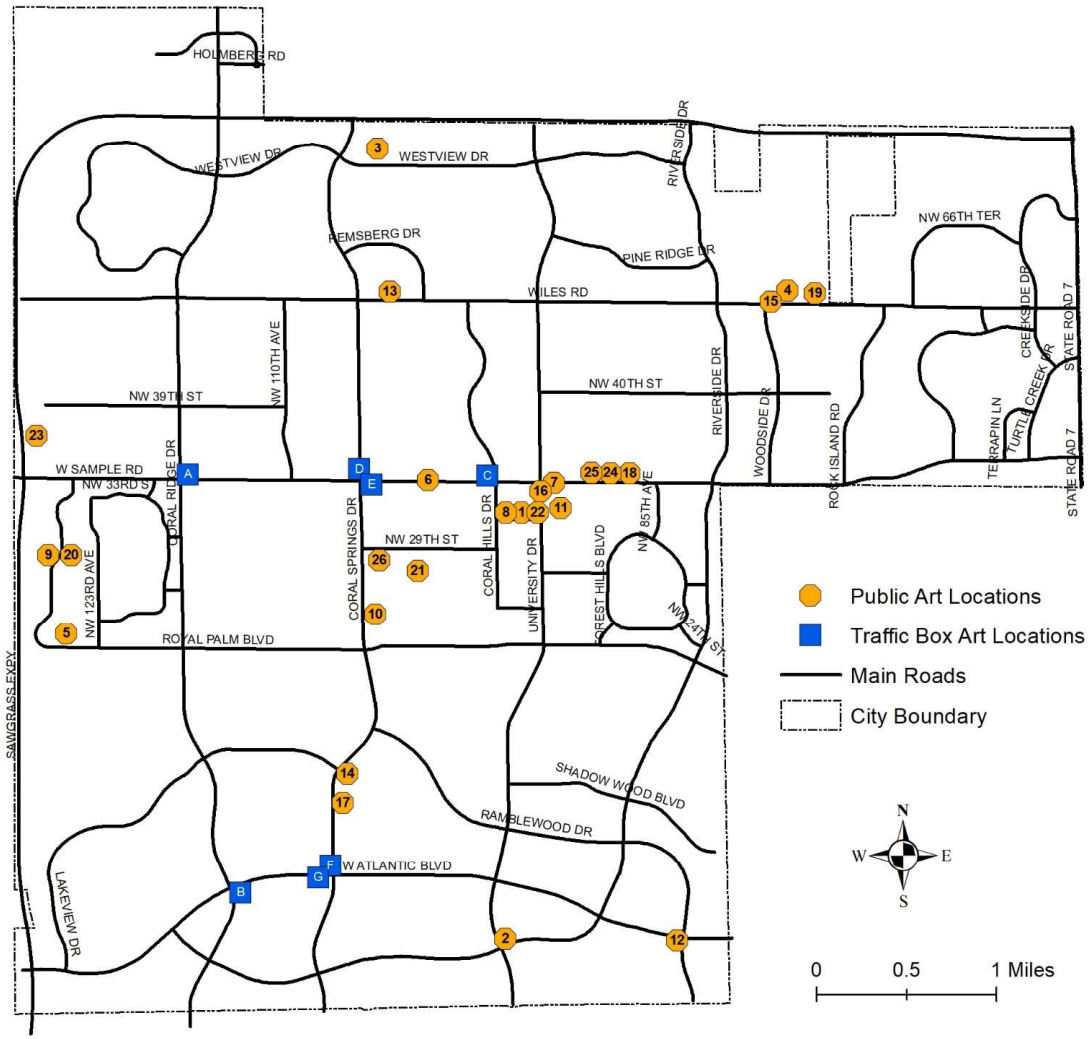
Public Art Program By the Numbers	
27	permanent artworks purchased.
5	onsite privately-owned artworks installed.
7	traffic signal box wraps completed.
1	artwork donated
6	Sculpture on Sample/ArtWalk Sculpture Exhibitions held.

Since 2003, $1.65M collected; $1.0M expended.

Tropical Toss by Kim Radocia
(Village Green Apartments/Sample Road)

Artwork Selection Process





CORAL SPRINGS

EVERYTHING UNDER THE SUN

EXISTING PUBLIC ART

1 HD (Humpty Dumpty)
2 Donna Dal Futuro
3 Baseball Players
4 Rock-et Man
5 Rotate
6 Laura's Ego
7 Polyphony
8 Union One
9 Gator and Grebe
10 City Gym Seating Area
11 In Harmony
12 ColorPlay
13 Cosmological Principle
14 Carwheel Kids
15 Burrowing Owl Habitat
16 Reclining Nude
17 Sun Rising in Spring
18 Tropical Toss*
19 Guardian Towers: Moon, Sun, Fire*
20 Parker**
21 Mosaic Glass Murals
22 Beyond
23 Gyro*
24 Origins*
25 Generations*
26 Slices of Springs

A Facets of Freedom
B Feathered Pink
C Coral Springs Covered Bridge
D Painted Bunting
E Sunset Heron
F Garden Dance
G Garden Delight

**Indicates artwork was donated
*Indicates artwork was purchased through the Public Art Program

#10839 cfermin 7-12-2018

Artworks in the City

Laura's Ego by James Burnes. Mixed media artwork.
(10021 Sample Road)

Guardian Towers: Moon, Sun, Fire by Gustavo Verano. Onsite Private Artwork purchased through Public Art Program.
(Whispering Woods Plaza)

ColorPlay by Steven Cannetto. Entryway artwork.
(Atlantic Boulevard across from Ramblewood Plaza)

Donna dal Futuro. Mosaic, Italian glass artwork.
(University Drive and Riverside Drive)

Mullins Park Murals by McMow Glass, Inc. Mosaic Glass mural.
(Mullins Park)

Cartwheel Kids by Gary Lee Price. Bronze Sculpture.
(Cypress Park)

Gator by Doug Makemson. Metal Assemblage artwork.
(Sportsplex Drive)

Artworks in the City – Public Property

Celestial by Ray King. Integrated artwork.
(Municipal Complex)

Noise by Robin Morgan. Purchased through Sculpture on Sample/ArtWalk 2018.
(Center for the Arts)

LowPoly Heart No. 4 by Matthew Duffy. Purchased through Sculpture on Sample/ArtWalk 2018.
(9890 Sample Road)

2014- 2018 - Focused Effort in Downtown Area

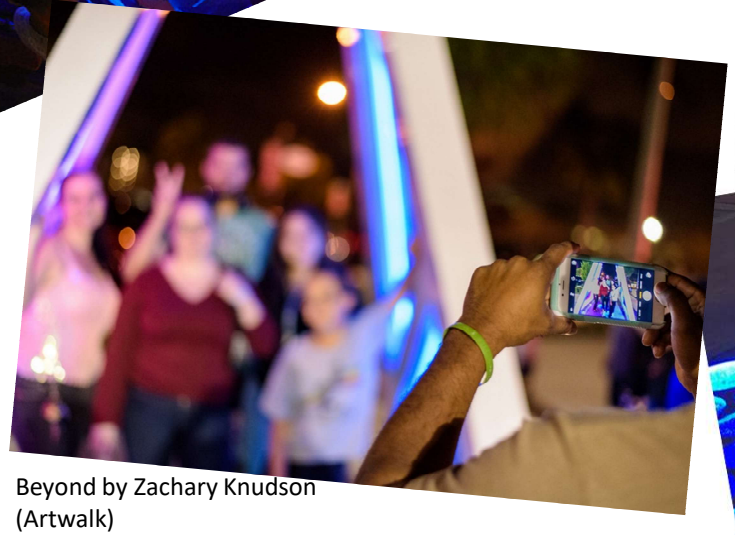
Beyond by Zachary Knudson. Interactive artwork. (ArtWalk)

Coral Springs Bridge by Carlos Gonzalez. Traffic Box vinyl wrap. (Coral Hills Drive and Sample Road)

Ascent by Jen Lewin. Interactive artwork. (ArtWalk)

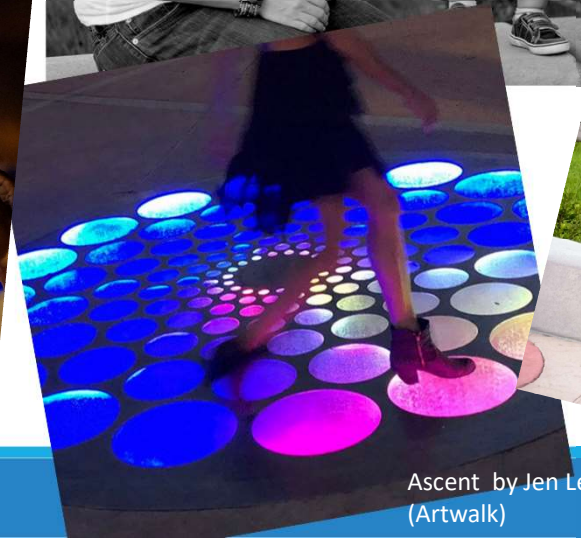
Union One by Kevin Barrett. Metal sculpture. (ArtWalk)

Interactive Artworks



Beyond by Zachary Knudson
(Artwalk)

HD by Kimber Fiebiger
(Artwalk)

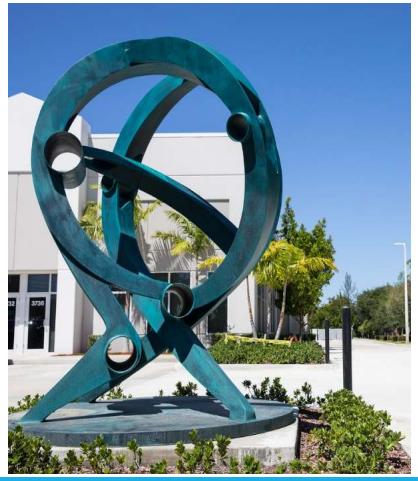


Ascent by Jen Lewin
(Artwalk)

Artworks in the City - Private Property

Generations by Claudia Jane Klein.
The Reserve at Coral Springs.

Origins by Claudia Jane Klein. The Reserve at Coral Springs



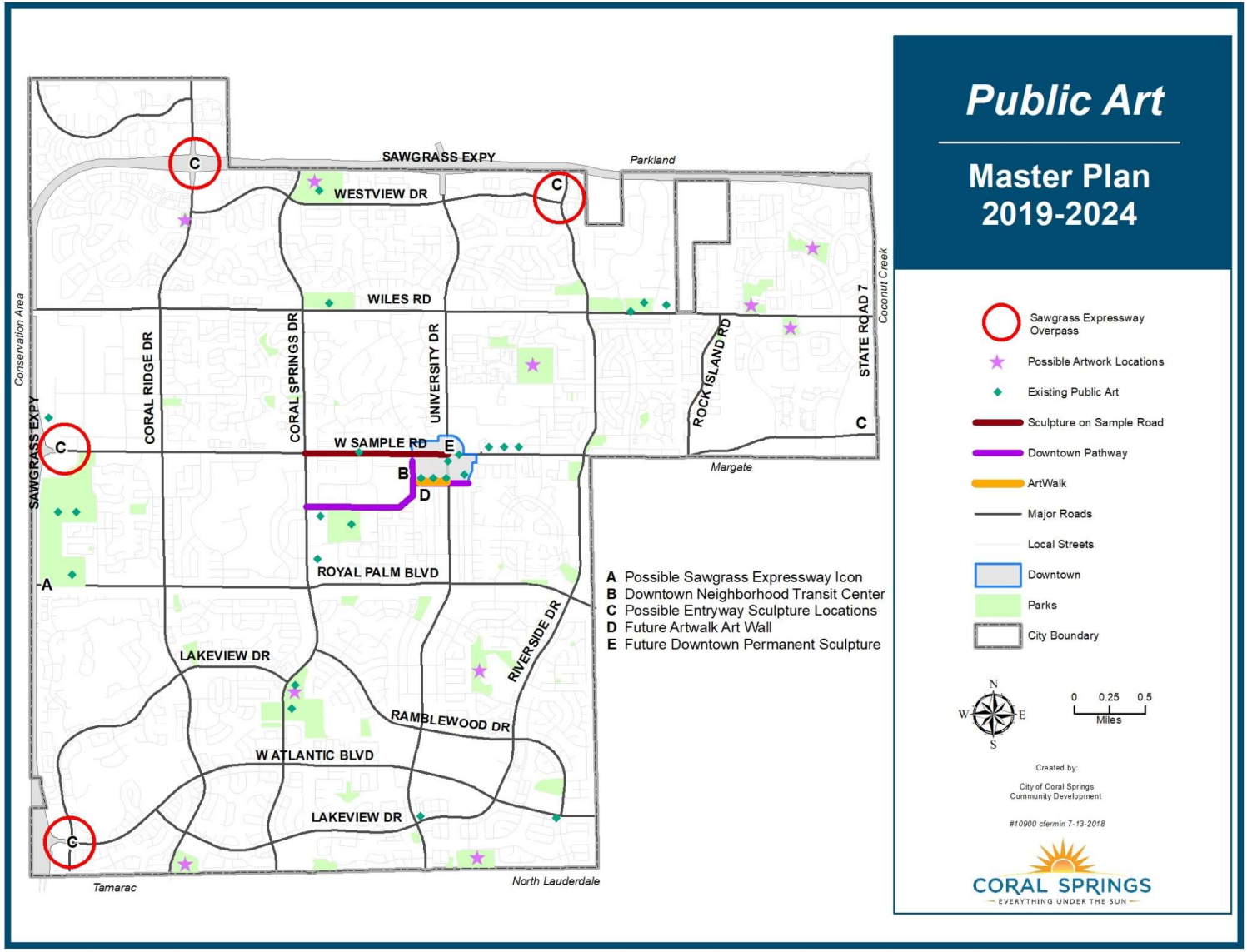
Gyro by Claudia Jane Klein. 3700 NW 126th Ave.

2019-2024 Public Art Master Plan

Establishes 8 main functions for the public art program during the next five years.
Public art will enhance:

- Focus on large-scale, interactive and integrated artworks.
- Enhance Downtown redevelopment with focus on NW 31st Court ArtWalk and artistic ideas.
- Identify Sculptures for City entryways and Cultural Facilities.
- Increase economic value.
- Incorporate art into development.
- Increase quality of life of residents through artworks.
- Create a public identity of Coral Springs in future pieces with a focus on City's core values.
- Promote, educate and perform outreach of the program.

Reclining Nude by
Micajah Bienvenu
(One Charter Place)


SAWGRASS EXPY
Parkland
WESTVIEW DR
WILES RD
CORAL RIDGE DR
CORAL SPRINGS DR
UNIVERSITY DR
ROCK ISLAND RD
STATE ROAD 7
Coconut Creek
Conservation Area
SAWGRASS EXPY
W SAMPLE RD
Margate
ROYAL PALM BLVD
LAKEVIEW DR
RIVERSIDE DR
RAMBLEWOOD DR
W ATLANTIC BLVD
LAKEVIEW DR
Tamarac
North Lauderdale
A Possible Sawgrass Expressway Icon
B Downtown Neighborhood Transit Center
C Possible Entryway Sculpture Locations
D Future Artwalk Art Wall
E Future Downtown Permanent Sculpture
Public Art
Master Plan
2019-2024
Sawgrass Expressway Overpass
Possible Artwork Locations
Existing Public Art
Sculpture on Sample Road
Downtown Pathway
ArtWalk
Major Roads
Local Streets
Downtown
Parks
City Boundary
N
W
E
S
0 0.25 0.5
Miles
Created by:
City of Coral Springs
Community Development
#10900 cfermin 7-13-2018
CORAL SPRINGS
EVERYTHING UNDER THE SUN

20-Year Potential

A successful public art program requires 20 years before the program has a substantial impact on the civic image and lives of the citizens. In addition, as the program reaches its 15th year in existence, it is important to look ahead 20 years to direct future purchases of artwork & to help direct the program into a nationally recognized Public Art Program. As a result, a determined persistence is necessary to achieve the goals of the Master Plan. The Master Plan strongly recommends that future updates & Public Art Committees not abandon the master plan goals without due consideration and public input.

In Harmony by Hanna Jubran

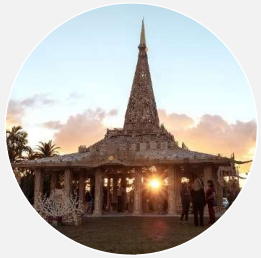
Focus on Future of the Public Art Program

- Larger Pieces
- Primary Focus: Downtown Area
- Secondary Focus: Entryways
- Continue to bring different types of artwork
  - Interactive artworks, Fountains, Bronze, Metal, etc.

Rock-et Man by Craig Berube-Gray
(Whispering Woods Park)

Cosmological Principle by
Hanna Jubran
(Betti Stradling Park)

Inspiring Community Healing After Gun Violence: The Power of Art
2019 - 2020



David Best

Built February 2019

Former City Hall Site (CS)

On view: through May 19, 2019

Steven and William Ladd

Workshops: April 8-19, 2019

On view: June 8, 2019 through June 1, 2020 in PRec Building/Parkland

Kate Gilmore

Performance:

November 8, 9 & 10, 2019

3 days/18 hours a day

Location: ArtWalk

Carl Juste

Workshops: Summer 2019

Projection and Installation: February 14, 2020 through May 2020

Pine Trails Park - Parkland

R&R Studios

Workshops: Jan. 2020

Dedication: February 2020

On view: through May 2020

Sample Rd/Sawgrass Exp.

Projects on the Horizon

Questions?

SOLE-SOURCE / SINGLE-SOURCE JUSTIFICATION

It is unlawful for a public servant, with corrupt intent to obtain a benefit for any person or to cause unlawful harm to another, to circumvent a competitive bidding process required by law or rule by using a sole-source contract for commodities or service. Florida Statute, Chapter 838.22

Sole Source Definition:
A source selected for the purchase of goods or service over $3,000.00 when there are no other sources capable of providing the goods or services except for the one selected.

Single Source Definition:
A source selected for the purchase of goods or service over $3,000.00 due to the compatibility of equipment, replacement parts, training, warranty, or some other unique purpose even though other sources are available.

****

General Information:

Date:	August 22, 2019	Requestor's Name:	Pamela Asencio
Total Amount:	$25,000.00	Requestor's Title:	Police Admin Spec
Requesting Department:	Police		

****

Vendor Information:

Vendor Name:	VWK9, LLC
Vendor Contact:	Kristie Dober
Street Address:	1791 O.G. Skinner Drive
City/State/Zip:	West Point / GA / 31833
Email Address:	kdober@vwk9.org
Phone:	(256) 241-6905 Fax: (___) -

****

Please check all statements applicable to the purchase of the particular good/service you are requesting as a sole or single source purchase.

- ☒ Sole provider of a licensed or patented good or service
- ☐ Sole provider of items that is compatible with existing equipment, inventory, systems, programs or services
- ☐ Sole provider of goods and services for which the City has established a standard
- ☐ Sole provider of factory-authorized warranty service
- ☒ Sole provider of goods or services that will meet the specialized needs of the City or perform the intended function (attach documentation)
- ☐ None of the above apply. A detailed explanation and justification for this sole source request is attached.

SCANNED 09109/19

SOLE-SOURCE / SINGLE-SOURCE JUSTIFICATION

Goods/Services Information:

Features Requirements
List the major features/capabilities that are required. What unique design/performance features does this good or provider of the services have that are essential to your requirements? Provide a brief technical explanation as to why these features are essential. Identify the manufacture/model of your existing equipment if applicable:

Vapor Wake dogs have been socially and/environmentally raised to work in high-flow pedestrian areas. They are tested for the ~~physiological~~ psychological, and sociological traits that allow Vapor Wake technology to excel in any environment. Can screen large crows without impeding traffic flow. They are trained to recognize the scents of weapons, weapons parts, ammunition, and related orders.

Competing Brands Investigated
Did you consider other goods or providers of services with similar capabilities? Indicate specific brands/models of competitors' products that were investigated and describe why they do not meet listed Features Requirements. List all contact names and phone numbers for competitors.

No, the advantage of vapor wake dogs over traditional detection dogs is that vapor wake dogs can "inspect" hundreds of people at one time rather than having to approach each person individually with the handler.

Brand Name Source
Is the specific brand/model being recommended for procurement available from more than one source (i.e. more than one dealer or distributor)? If yes, list all ruled out vendors, why they were ruled out, and the contact name and phone numbers of those vendors.

No, Vapor Wake technology is patented (US 8,931,327 B2)

SOLE-SOURCE / SINGLE-SOURCE JUSTIFICATION

****

Statement of Need:

My department's recommendation for sole source is based upon an objective review of the product/service required and appears to be in the best interest of the City. I know of no conflict of interest on my part or personal involvement in any way with this request. No gratuities, favors or compromising action have taken place. Neither has my personal familiarity with particular brands, types of equipment, materials or firms been a deciding influence on my request to sole source this purchase when there are other known suppliers to exist. I have attached the pertinent documentation showing what market research was conducted to preclude other items from consideration.

****

Policy:

Sole source purchases exceeding $50,000 require City Commission approval. A Notification of Intent to Award a Sole Source / Single Source will be posted electronically for at least 7 business days as per Section 287.05(3)(c), Florida Statute as amended from time to time.

****

Authorization:

A minimum of two different individual approval signatures are required.

Researcher: _____ Date: 8/22/19

Requestor: _____ Date: 8/22/19

Department Director: _____ Date: 8/26/2019

*Purchasing & Contracts Mgr.: _____ Date: 8/26/19

*Chief Financial Officer: _____ Date: 8/27/19

If Purchase is over $10,000:

*City Manager: _____ Date: 8/28/19

****

PURCHASING USE ONLY:

Advertise Sole Source Notification: ☐ Yes ☒ No Electronic Posting Date: PATENT

Statements of Disagreement Received: ☐ Yes ☐ No Electronic Removal Date: _____

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ **Go to *www.irs.gov/FormW9* for instructions and the latest information.**

Give Form to the requester. Do not send to the IRS.

Print or type. See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

VWK9, LLC

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☐ S Corporation ☑ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.

1791 O.G. Skinner Drive

6 City, state, and ZIP code

West Point, GA 31833

Requester's name and address (optional)

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

			–			–				

or

Employer identification number

8	1	–	4	9	4	4	5	8	7

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here | **Signature of U.S. person** ▶ K J Dover | **Date** ▶ 29 JANUARY 2019

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9.*

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

QUOTE

21 August 2019

ONE Vapor Wake® - Explosives Detection Canine/Weapons with Handler Course

For: Coconut Creek Police Department ATNN: Michael Leonard

Description of Proposed Services: Provide **ONE Vapor Wake® School Safety Dog™** and 7-week Handler Course that meets and/or exceeds the Auburn University Evaluation Certification Guidelines. The canine will be trained to detect a weapons, weapons parts, ammunition, and related odors. The following are additional terms:

- Purpose bred working Labrador or, with approval of customer, other sporting breed
- 24-month replacement guarantee for genetically linked conditions that limit service capacity or life (VWK9 reserves the right for evaluation by qualified veterinarian of their choosing)
- 12-month retrain/replace (VWK9 option) warranty for performance problems provided customer has not performed training activities inconsistent with those that handler was originally trained by VWK9 to conduct or engaged trainers other than those of VWK9 to correct a problem without concurrence of VWK9
- 7-week Handler Course: Handler-Canine Detection Team concluding with certification of team
- Includes basic canine handling equipment and course materials
- In addition to typical detection handling and training in vehicles, building, luggage, freight/cargo, and Vapor Wake®, the course includes instruction on canine health, safety, and welfare, principles of conditioning, explosive material safe handling and storage and documentation
- Free phone/e-mail technical support and, on a space/time available basis, limited assistance with performance problems at VWK9 Academy for service life of dog

1- Vapor Wake® - SSD™ **$36,000.00**
DISCOUNT FOR SSD™ PILOT ($21,000.00)
1- Vapor Wake® Handler Course **$15,000.00**
DISCOUNT ON HANDLER COURSE ($5,000.00)

TOTAL: ONE Vapor Wake®/ SSD™ & Handler Course: $25,000.00

****Does not include: Lodging, Food, Handler Trainee/Dog Transportation**

Lodging at VWK9 rate is $83.00 per night with an estimate of 48 Nights (3,942.72 per handler)

Please send the Purchase Order to John Pearce at: **jpearce@vwk9.org** or

VWK9 (Attn: John Pearce)
265 Rucker Street
Anniston, AL 36205

Should you have further questions, please call John Pearce at 256.310.0705 or Contact our Director of Business Development Kristie Dober @573-433-0970 or **kdober@vwk9.org**. Thank-you for your interest in our program, we look forward to serving you.

August 22, 2019

ATTN: Coconut Creek Police Department (ATTN: Michael Leonard)

SUBJECT: Vapor Wake® Explosive Detection Canines and Vapor Wake® School Safety Dogs™

VWK9, LLC is the only provider in the industry with over a decade of body-worn explosive detection past performance. Auburn University has a copyright and patent to protect the Vapor Wake® technology. As a privately-owned business VWK9, LLC is Auburn University's "commercial arm" of the patented Vapor Wake® technology which includes training processes, handler training, certification, and advanced training protocols that ensure that the long-term proficiency of the proven scientific theory and its applications are maintained. Therefore, through an exclusive licensing agreement, VWK9, LLC is the only entity in the world that provides the Vapor Wake® capability through trained canines and supporting handler training.

Additionally, VWK9,LLC through the Auburn license trains canines, handlers, trainers, and program managers in the performance of all facets of body-worn explosive canine detection work, and weapons detection with the Vapor Wake® School Safety Dog™. Instruction at VWK9 blends the craftsmanship of expert canine training professionals with the most recent technological advances.

The exclusivity of the Vapor Wake® technology and partnership with Auburn University provides VWK9 unique access to one of the worlds most recognized Canine Performance Science Programs, and its highly successful Detector Dog Breeding Program. This breeding program serves as a foundation to the Vapor Wake® technology, Labrador's are specifically bred for desired characteristics and drives that have been genetically quantified to produce canines that are inherently successful at detection work. These bloodlines have been further developed to meet the needs of specialized tasks of today's Vapor Wake® Explosive Detection Canine. These canines are exposed to extensive environmental and social conditioning programs, and then begin the Vapor Wake® training protocols at VWK9 Academy.

Vapor Wake® Canines are certified yearly and can only be certified by a member of the VWK9 Academy. As VWK9 trainers are the only entities that have a comprehensive understanding of the training methodologies and complex requirements. Every effort is made to protect the decade of research and proven theories that have advanced Explosive Detection Canine capability to effectively mitigate the risks of body-worn or carried explosives in high pedestrian traffic venues.

Vapor Wake® can only be obtained from VWK9, LLC in Anniston, AL. Should you have any questions regarding our exclusivity please feel free to contact the undersigned at kdober@vwk9.org or (256)241-6905.

Kristie Dober
Director of Business Development
VWK9, LLC

US 20120111285A1

(19) **United States**

(12) **Patent Application Publication**

Pearce et al.

(10) **Pub. No.: US 2012/0111285 A1**

(43) **Pub. Date: May 10, 2012**

(54) **DYNAMIC CANINE TRACKING METHOD FOR HAZARDOUS AND ILLICIT SUBSTANCES**

(75) Inventors: **John Pearce**, Jacksonville, AL (US); **L. Paul Waggoner**, Jacksonville, AL (US); **Jeanne S. Brock**, McClellan, AL (US); **Timothy Baird**, Jacksonville, AL (US); **David A. Baffa**, Towaco, AL (US); **Daniel McAfee**, Piedmont, AL (US); **Robert E. Leonard, JR.**, Weaver, AL (US)

(73) Assignee: **AUBURN UNIVERSITY**, Auburn, AL (US)

(21) Appl. No.: **12/870,732**

(22) Filed: **Aug. 27, 2010**

Related U.S. Application Data

(60) Provisional application No. 61/240,049, filed on Sep. 4, 2009.

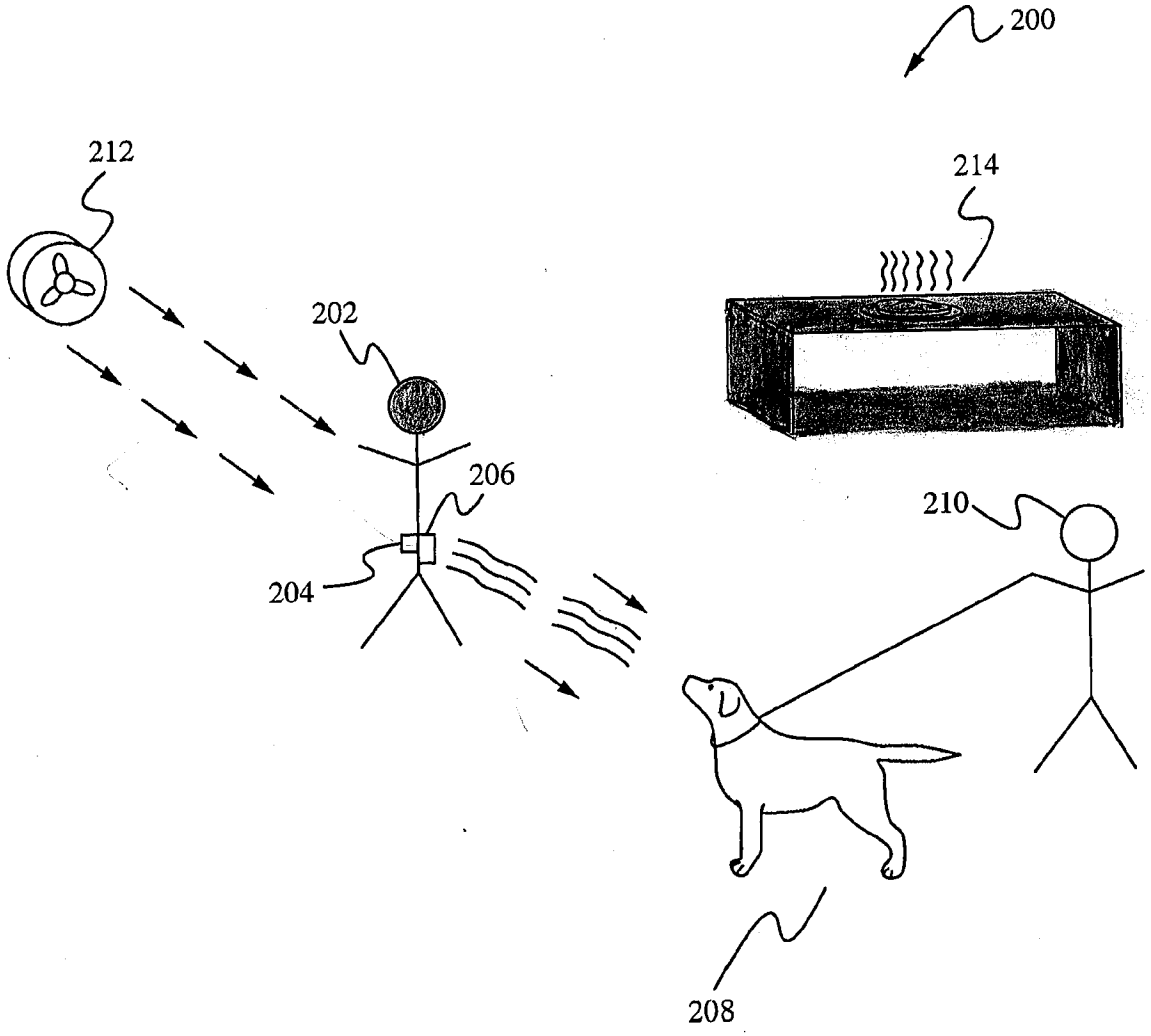
Publication Classification

(51) **Int. Cl.**
A01K 15/00 (2006.01)

(52) **U.S. Cl.** **119/712**

(57) **ABSTRACT**

Vapor wake detection is a highly advantageous method and system for detecting explosives and other illicit substances. With vapor wake detection, a canine and a handler are used; however, unlike other detection schemes, the canine leads the handler. After the handler positions the canine in a desired location, the canine detects scents in the air that come to the canine. When the canine detects a trained scent, the canine leads the handler to or follows behind the carrier of the item with the scent. Once the carrier is identified by the handler, the proper personnel are contacted. To implement vapor wake detection effectively, specific rigorous training is utilized.



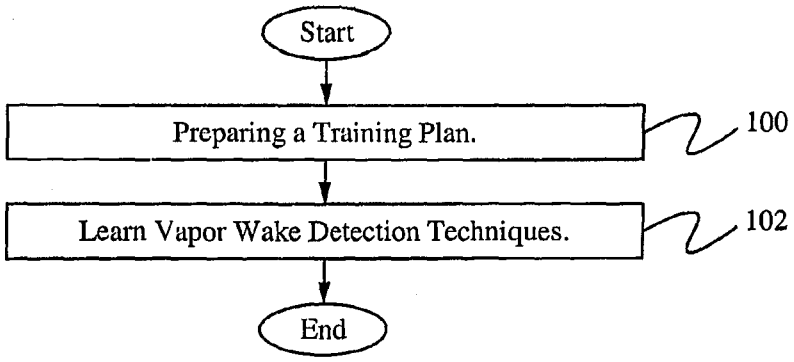

Start
Preparing a Training Plan.
100
Learn Vapor Wake Detection Techniques.
102
End

Fig. 1

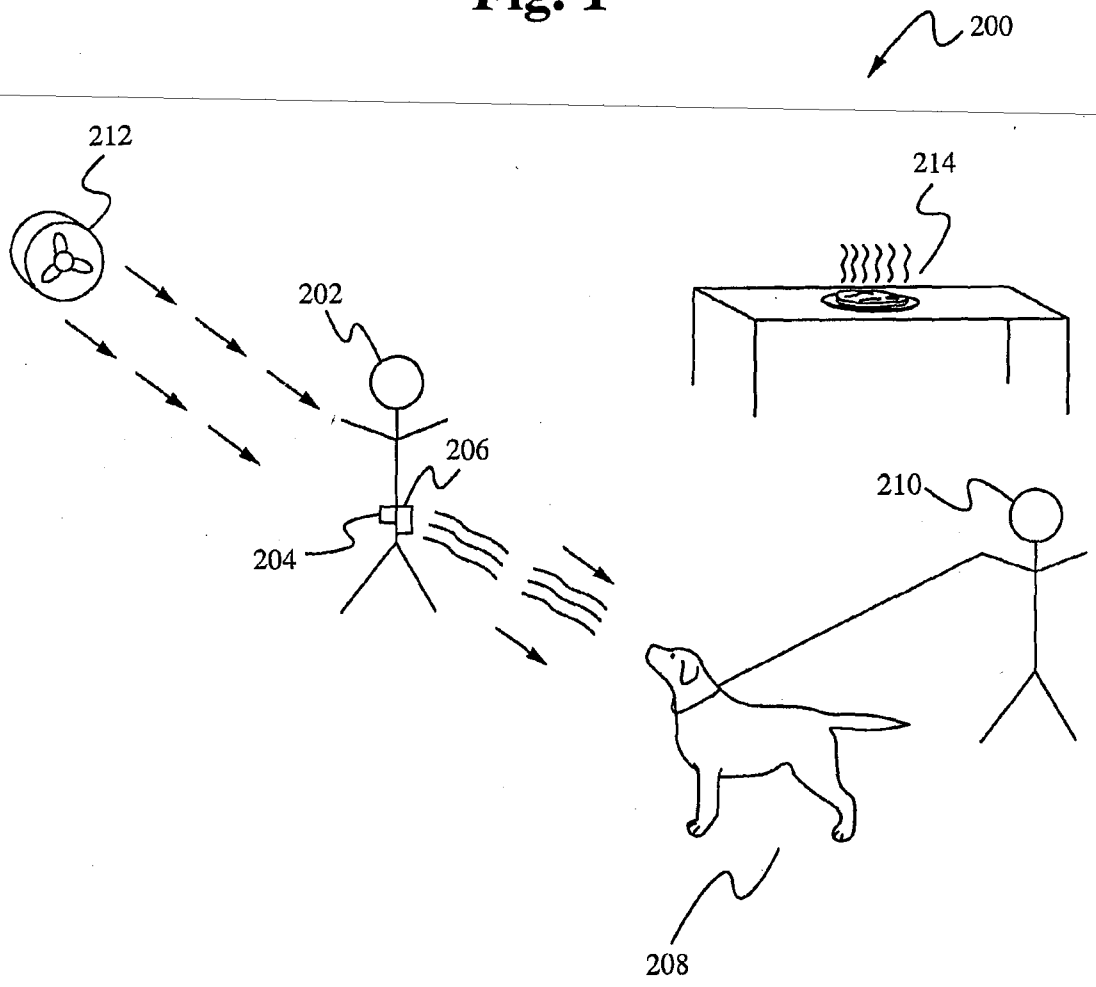

200
212
214
202
206
210
204
208

Fig. 2

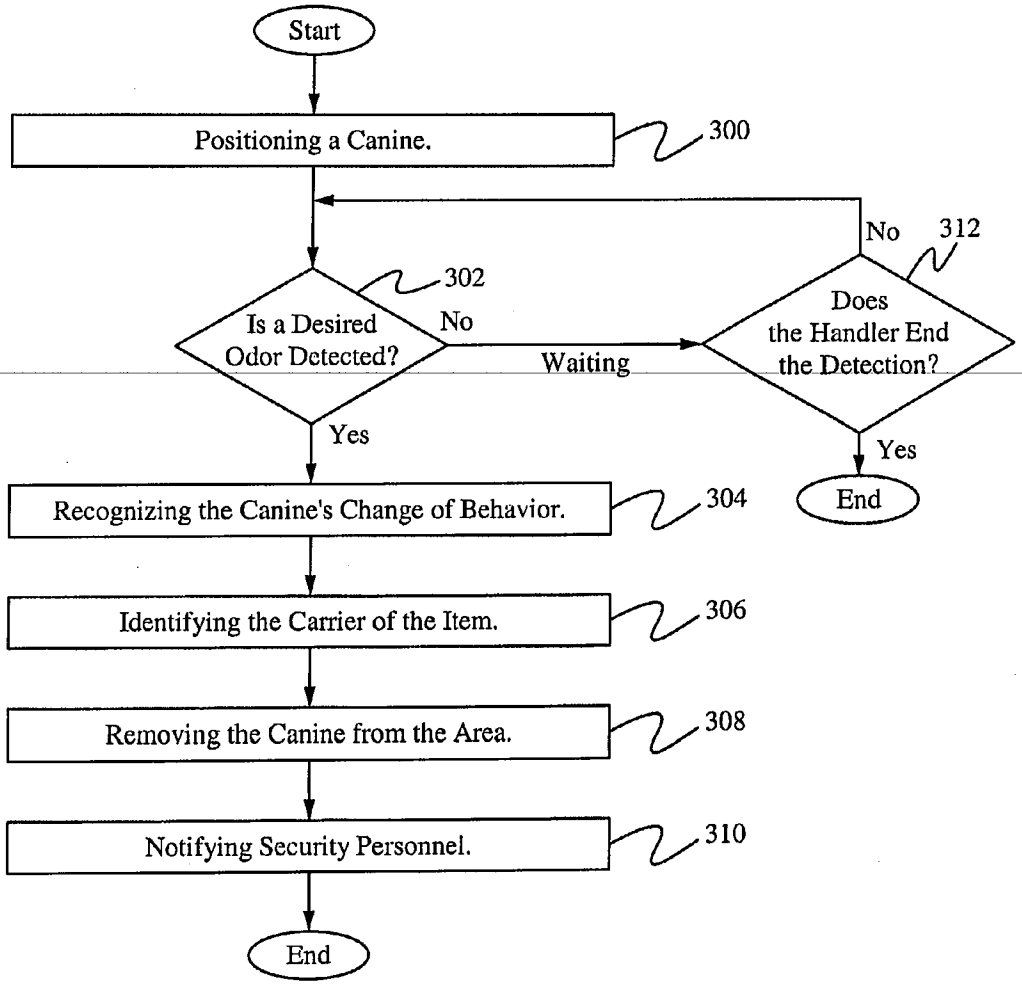

Start
Positioning a Canine.
300
302
Is a Desired Odor Detected?
No
Waiting
Does the Handler End the Detection?
No
312
Yes
Yes
End
Recognizing the Canine's Change of Behavior.
304
Identifying the Carrier of the Item.
306
Removing the Canine from the Area.
308
Notifying Security Personnel.
310
End

Fig. 3

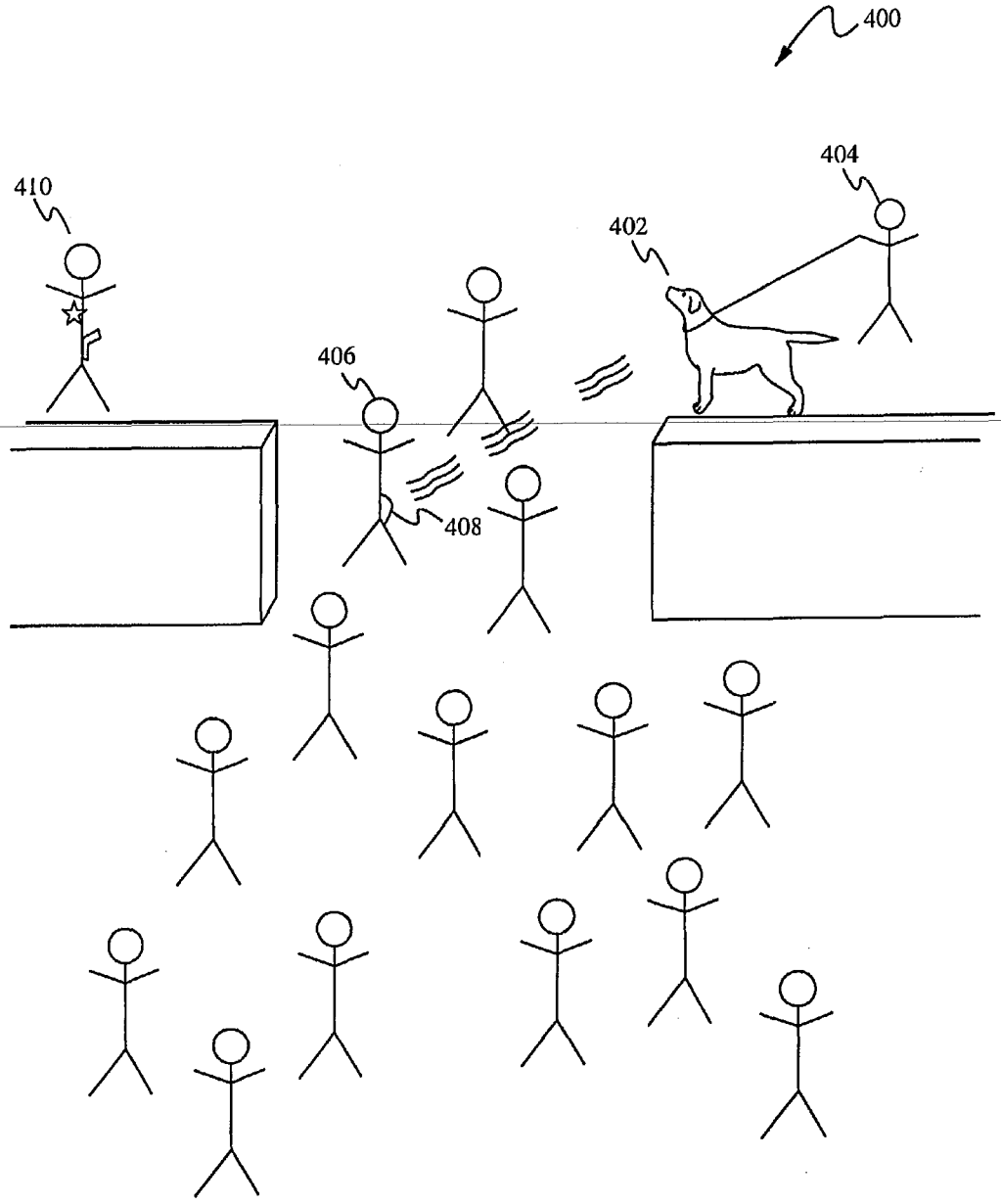


Fig. 4

DYNAMIC CANINE TRACKING METHOD FOR HAZARDOUS AND ILLICIT SUBSTANCES

CROSS-REFERENCE TO RELATED APPLICATION(S)

[0001] This application claims priority under 35 U.S.C. 119(e) of the U.S. Provisional Patent Application Ser. No. 61/240,049, filed Sep. 4, 2009, and entitled, "DYNAMIC CANINE TRACKING METHOD FOR HAZARDOUS AND ILLICIT SUBSTANCES," which is hereby incorporated by reference in its entirety for all purposes.

FIELD OF THE INVENTION

[0002] The present invention relates to the field of substance, material and object detection. More specifically, the present invention relates to detection of hazardous or illicit substances, materials or objects using a canine.

BACKGROUND OF THE INVENTION

[0003] Drug sniffing dogs have been utilized for many years in areas such as ports and airports to sniff for and locate illegal drugs. A handler leads the dog to each container or luggage, and the dog attempts to pick up a scent of any drugs. The handler is the one who directs the search and the dog is merely used as a sniffing mechanism. The dog searches the target (a person, a vehicle, luggage, a warehouse, etc.) for any odor it has been trained to recognize and gives the handler a final response if any such odor is detected.

[0004] Similarly, bomb sniffing dogs have been utilized at airports and other locations to sniff for and locate bomb devices. Again, a handler guides the dog to search luggage and other items and locations. These techniques are very simplistic and have many flaws.

[0005] Although many explosives and thousands of pounds of drugs have been uncovered in this manner, "handler driven" canine detection has some disadvantages. One disadvantage is the narrowness of the search. For example, if the handler does not stop every single person walking through an airport to let the dog search them for explosives, then the dog may miss a person carrying a bomb under his shirt. The dog can only search those targets that the handler instructs the dog to search. In other words, the dog only gets to search those targets that the handler deems are necessary to search. Another disadvantage is the obtrusiveness of the search. It is very obvious that officers are searching for something if a handler is leading a dog around while pointing to things for the dog to sniff.

SUMMARY OF THE INVENTION

[0006] Vapor wake detection is a highly advantageous method and system for detecting explosives and other illicit substances. With vapor wake detection, a canine and a handler are used; however, unlike other detection schemes, the canine leads the handler. After the handler positions the canine in a desired location, the canine detects scents in the air that come to the canine. When the canine detects a trained scent, the canine leads the handler to or follows behind the carrier of the item with the scent. Once the carrier is identified by the handler, the proper personnel are contacted. To implement vapor wake detection effectively, specific rigorous training is utilized.

[0007] In one aspect, a dog-driven detection method of detecting hazardous or illicit substances, comprises detecting a source of a target odor and leading a handler to the source of the target odor via a canine, wherein the source of the target odor comes within a detectable range of the canine. The canine searches the air for vapor trails or scent pools of the target odor generated by a moving or stationary target. The canine accommodates dissipation of the target odor over time.

[0008] In another aspect, a method of training canines to carry out detection, wherein the canines are chosen based on a canine selection process comprises choosing canines that are motivated to sniff and search independently in a manner to disguise their handlers, documenting the canines' sniffing capabilities and choosing healthy canines that pass medical examinations. The method further comprises choosing canines that are not overly sociable. The medical examinations include testing for dexterity and freedom from bone, joint and musculature pathologies.

[0009] In another aspect, a method of training a canine for detection, the method comprises choosing a detector canine that demonstrates a high level of independent search behavior, teaching the canine that the source of a target odor is not limited to stationary objects, teaching the canine to follow a vapor-wake of a moving target, teaching the canine to sample air currents and teaching the canine to follow the vapor-wake to the target and give a final response.

[0010] In yet another aspect, a method of implementing vapor wake detection comprises positioning a canine, detecting a target odor, recognizing the canine's change of behavior when the target odor is detected, identifying a carrier of an item emitting the target odor and notifying security personnel of the carrier. Positioning the canine depends on a location type and air currents throughout a location. The location type is selected from the group consisting of a choke point, a crowd, people standing in line, people moving and people standing still. The method further comprising manipulating the air currents using an air manipulation device. The change in behavior includes following the carrier from behind at a distance determined by a handler. The target odor is selected from the groups consisting of an explosive and an illicit substance.

[0011] In yet another aspect, a system for implementing vapor wake detection comprises a canine for detecting a target odor and following a carrier of an item emitting the target odor and a handler for positioning the canine, recognizing a change in behavior of the canine, identifying the carrier and notifying security personnel of the carrier. Positioning the canine depends on a location type and air currents throughout a location. The location type is selected from the group consisting of a choke point, a crowd, people standing in line, people moving and people standing still. The air currents are manipulated using an air manipulation device. The change in behavior includes following the carrier from behind at a distance determined by a handler. The target odor is selected from the groups consisting of an explosive and an illicit substance.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 illustrates a flowchart of a method of training a team in vapor wake detection according to some embodiments.

[0013] FIG. 2 illustrates a diagram of a training system according to some embodiments.

[0014] FIG. 3 illustrates a flowchart of a method of utilizing vapor wake detection according to some embodiments.

[0015] FIG. 4 illustrates a diagram of a vapor wake detection system according to some embodiments.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0016] A method of detection of or person-screening of hand-carried and/or body-worn hazardous or illicit substances, materials or objects in dynamic environments is described. The method is a novel "dog-driven" detection method which is distinguished from traditional canine detection methods which are "handler driven." In this manner, a sniffing target comes to the dog (usually on a lead) rather than the dog going to the sniffing target.

[0017] A method of canine interrogation and detection of the vapor or volatiles wake emanating from persons is described. The method is referred to as Vapor-wake Detection. Some features of this method include the ability to 1) screen large numbers of persons passing through a given space without affecting the throughput of the persons through the space; 2) a specific dog deployment strategy; 3) dogs are able to accommodate dissipation or decay of target odor over time; and 4) dogs are able to overcome distractions such as noise, commotion and ancillary environmental odors, to prevent loss of tracking of the target odorant.

[0018] A method of training dogs to carry out Vapor-wake Detection is described. The method includes a canine selection process containing the following selection criteria: 1) documented sniffing capability (dogs trained to sniff selected targets; 2) healthy dogs capable of passing medical examination including dexterity, freedom from bone, joint and musculature pathologies; 3) not overly sociable animals; 4) motivated to sniff and search independently and in a non-obvious manner to disguise handler (handler takes over once a person has been identified); and 5) a manual for dog maintenance and conditioning for the ultimate dog handler.

[0019] The method of canine training also includes a procedure/protocol for training which includes specific steps including 1) modulating behavioral aspects such as aggressiveness; 2) maneuvering around various obstacles and distractions during the screening/detection process; and 3) operation in high human density environments.

[0020] Applications of the methodology include the interdiction and capture of suicide bombers, narcotics handlers and purveyors of illicit chemical/biological warfare materials. The methodology is able to be applied in varied environments such as transit systems, venues for large public event gatherings such as stadiums and buildings, areas of commerce such as shopping malls and military environments.

Vapor Wake Detection Canines

[0021] A vapor wake detection canine is a detector dog with formal training to indicate a trained substance carried on or worn by a person. The canine is non-aggressive towards people, pets and other harmless objects. The vapor wake detection canine is worked on-leash. In particular, the vapor wake detection canine is able to analyze a vapor wake which is a path or course a target has taken, leaving behind an invisible suspension in the air of odor emitted from the target.

[0022] A handler assesses air currents/movement in the search area (e.g. predetermined boundaries within which the dog operates) and ensures the canine has access to productive areas (e.g. specific locations in a search area that provide the dog higher probability to encounter the substance odor), determined by air currents/movement. The handler does not influence the canine once the canine has initially encountered the substance odor. The canine searches independently of the handler—without guidance or direction to work differential thresholds to target. The canine is specifically searching the air for the substance odor vapor trails and/or scent pools generated by a moving or stationary target. The target is the location from which the odor originates. The canine is not searching people. The canine's deployment is adaptable to various environments to include but not be limited to stationary checkpoints, crowds, moving lines of people and any area of pedestrian activity.

[0023] Vapor wake training begins with a detector dog that demonstrates a high level of independent search behavior (e.g. a dog's capability to perform without assistance or being influenced by a handler). The canine learns the source of the target odor is not limited to stationary objects. The canine learns to follow a moving target. Following a moving target includes: upon identifying a moving target, the dog pursues the target from behind, at a distance determined by the handler. The canine learns to sample air currents. The canine learns to follow the vapor-wake to the target and give a final response (e.g. a behavior that a dog has been trained to exhibit in the presence of a target odor source such as sitting).

Vapor Wake Screening

[0024] When a canine team is screening people, if the handler is dressed in uniform, the team serves as a very valuable deterrent to explosives and contraband being carried into an area. Or, if the vapor wake screening is to be conducted in a less apparent manner, the handler is able to be in street clothes, appearing to be walking a pet dog or a service dog for the handicapped.

[0025] During vapor wake screening activities, the canine detects an explosive odor, but the handler is important to the process. The handler positions the canine in an area that compliments vapor wake screening, and in particular, the types of vapor wake screening to be conducted. The team is trained to detect explosives in different scenarios, including, but not limited to, areas in which people are walking or standing, lines of people and crowds in which people are standing or moving.

[0026] If explosive odor is detected while air screening, the canine is trained to follow behind the perpetrator or approach a non-moving perpetrator from behind. Upon recognizing the canine's change in behavior (e.g. a characteristic pattern of behaviors as interpreted by the handler that occurs when the dog detects a trained odor) and identifying the person carrying explosives, the handler should remove the canine from the area as to not alert the perpetrator. This is able to be done any time before the canine begins the final response (sit). The handler then discreetly notifies other security personnel so they are able to covertly approach or follow and observe the perpetrator to take further action in accordance with agency standard operating procedures.

Choke Points

[0027] This is a very effective way to screen people for explosives. The canine is allowed to freely move side-to-side within the choke point, without interfering or making physical contact with persons passing through the choke point.

This utilizes good leash manipulation by the handler. The canine becomes increasingly more effective as the width of the choke point narrows. As pedestrians walk past the canine, the canine is cast at leash length behind the person or group of people as the handler maintains a loose static position. The vapor wake screening dogs are trained to sample the plume of air coming off the person's body as they walk past the team.

Crowds

[0028] Screening of crowds is conducted throughout an area. This is more difficult than at a choke point but is achievable for the canine team. The handler is conscious of air currents; however, these currents become more disturbed with the movement within the crowd. The handler utilizes leash manipulation to navigate the canine through and around the people forming the crowd.

[0029] If the crowd is moving in a certain direction, the canine should be cast from side-to-side behind the crowd while moving in the same direction. This requires the handler to move from side-to-side to allow the canine to sample the plume of air coming off the individuals.

[0030] If the crowd of people is moving various directions, the handler takes advantage of available air currents while moving the canine in and out of the crowd to air scent in all directions.

[0031] If the crowd is standing still, the handler moves to the downwind flank of the crowd and discretely begins to move the canine into the crowd in a quartering fashion.

People Standing in Line

[0032] If the team is to screen people standing in line, a screening point or choke point where the line of people must pass by the canine team should be established. When necessary to screen an established line of people, the handler first evaluates existing air currents in determining the best way to conduct the screening. The best scenario to screen people standing in line is to have an air current perpendicular to the direction of the line. The handler would then move the canine in the direction of the line while staying on the downwind side of the line.

[0033] When the air current is moving in the direction of the line, the handler begins downwind of the line. As the team approaches the line, the handler moves the canine close to the people in the direction of the line, occasionally moving through the line to the other side and then again in the direction of the line.

Manipulation of Air Currents

[0034] A very important factor the handler should fully understand about positioning the canine properly is direction of air currents. This is a constant process since air current direction is able to change with changes in the environment. Factors which affect air currents include, as examples, air vents, arrivals and departures of various large transportation conveyances and the opening and/or closing of doors and/or windows. Canines trained are able to be used with natural air currents in the environment within which the team is working or with manipulated wind currents.

[0035] Fan(s), or other air current manipulators, while not a necessity, are able to be utilized to establish air currents which assist the canine in detecting explosive odor. The fans are positioned at predetermined distances from the area the canine is to be utilized. Fan placement is made to produce a light breeze toward the canine team. A hard or fast breeze will reduce the width of the scent cone and lessen the canine's capability. The direction of the breeze is determined by the performance of the team during training while using the fans. Therefore, the following are possible fan placements in various operational settings.

[0036] Choke Points

[0037] As pedestrians pass through a choke point, a fan is placed so a light breeze is blowing into the face of the people passing though the choke point. As people pass by the canine team, the handler casts the canine behind the people, positioning the canine downwind of the people moving through the choke point.

[0038] Crowds

[0039] When screening is conducted through a crowded area, fan(s) are placed on the perimeter of the area to establish a light breeze. The team begins screening the area at the farthest point of the area, downwind of the crowd. The team quarters the area. The team moves in and out of the crowd while quartering upwind. The handler at all times maintains an awareness of the teams position in relation to the air currents.

[0040] People Standing in Line

[0041] When screening people standing in line, fan(s) are placed in a position to generate a light breeze perpendicular to the line of people. The team then moves up and down the line of people while remaining downwind of the line.

Maintenance/Proficiency Training

[0042] Objective-oriented training is planned before each training session to maintain and advance the canine's current level of proficiency. Vapor wake screening training is conducted with more focus on the canine because the canine is air scenting and works very independently. Therefore, it is acceptable for the handler to be knowledgeable of the person acting as the training perpetrator in earlier stages of training. Eventually, however, the training is conducted without the handler knowing the location or the training perpetrator. During training, the handler continually analyzes the canine's behavior. Upon recognizing the canine's change of behavior to explosive odor, the handler allows the canine to follow the training perpetrator. The handler maintains a taut leash and allows the canine to pull with considerable force. The handler maintains a distance from the training perpetrator and this distance is able to be increased through successive approximation during training; however, the handler should not run with the canine. The canine is allowed to continue to follow the training perpetrator carrying the training aid until the perpetrator comes to a complete stop. Upon the training perpetrator coming to a complete stop, the canine should give the final response of "sit" a few feet behind the perpetrator. After a pre-determined time, the training perpetrator turns around to face the dog, removes the hidden reward, and tosses the reward directly to the dog's mouth. In some embodiments, the training is not conducted until the following variables are fully planned:

1. The type of explosives training aid to be used.
2. How the training aid is to be carried or packaged.
3. The type of vapor wake screening to be conducted.
4. Air currents (natural or manipulated) and their direction.
5. The amount of time before or between exposure to explosive odor.
6. The direction and route the person carrying the explosives is to take.

7. The number of times the canine gives a final response and/or the time the dog remains in the final response before being rewarded.
8. Distracters to be used during the training.

Explosive Training Aids

[0043] All explosive training aids the canine is trained to detect should be used, at different times, when conducting maintenance/proficiency training Care is taken in storage and handling of explosive training aids used in vapor wake screening to prevent cross-contamination of training aids. In addition, these training aids should be stored separately from training aids used in regular explosive detection training. There is a likelihood that the training aids used in vapor wake screening will become contaminated with human odor since some of the training requires the placement of the aid being carried close to a person's body. However, every precaution should be taken to prevent such contamination, such as not allowing the training aid to ever make direct contact with a human. The training aid should be wrapped in barrier material to prevent human contamination.

[0044] When conducting vapor wake screening, the type of explosives and quantity should be varied so the canine remains proficient at detecting all the different types of trained explosives odor and different quantities.

Training Aid Placement

[0045] Training aids are placed in items including, but not limited to, backpacks, rolling luggage, carried luggage, purses and packages. Any possibility is replicated, and the training perpetrator is able to look like any pedestrian or commuter. When replicating a suicide bomber, the use of a second-chance vest (after removing the body armor) works well and is covered with clothing. Additionally, a hunter's vest or jacket with interior pockets works well depending on the season.

[0046] During training, the amount of time the training aid is in place before training begins is varied. When training first begins with a new team, the training aid is in place at least 30 minutes prior to the canine encountering the explosive odor. This time is able to be slowly reduced using successive approximation. Eventually, the canine is capable of detecting explosives placed out for shorter amounts of time.

[0047] During vapor wake screening training, the canine is not able to cue visually off the training perpetrator by noticing unusual bulk or recognition of the person and/or baggage. Therefore, frequently new training perpetrators are used along with new baggage, backpacks, packages and garments. The same training perpetrator is able to be used several times during a training day, but once it is determined to change training perpetrators, the old training perpetrator departs the area. The canine should not encounter this person even outside of training until after the person has bathed and changed clothes to remove all explosives odor, especially when replicating a suicide bomber scenario.

Training the Vapor Wake Screening Team

[0048] Again, planning is important to good objective-oriented training sessions. Prior planning ensures the training objective is achieved and increases the canine's proficiency. The type of vapor wake screening training varies between choke point, crowds and people moving and/or standing still through the canine's working life. Prior to training, determine where and how the canine works the training scenario. Air currents are determined throughout the area in which the canine team is working. This is to include the training perpetrator's entire route of travel. It is also determined if any air currents are to be manipulated with the use of fan(s).

[0049] When conducting training, extension of the time in which the canine is capable of effective vapor wake screening is done by using successive approximation. Good documentation of training sessions and a strong objective-oriented training program is essential to achieving this objective. Variation of time before encountering explosive odor, from the shortest to the longest times achieved in training, is important. If training always is consistent with a certain amount of time, the canine begins to anticipate this time and not search during other periods of time. Occasionally, extending the longest time searched, by adding a couple of minutes before the canine encounters explosive odor, is beneficial. As long as the canine is successful, continue to occasionally extend the time is helpful, but variation of the search time is more important to the success of the canine's capability.

[0050] While doing vapor wake screening training, support from various people to perform the role as the training perpetrator is used. Enlisting a variety of people to perform this function, utilizing various sizes, races, males and females is beneficial. Since inevitably the person used will not be familiar with vapor wake screening, canine training, or even dogs in some cases, precise instructions should be given to ensure proper behavior and performance. They should understand the following:

1. If they are moving, the should know where to position themselves in a crowd of people and how close to come to the canine as they move through a choke point or area.
2. After they walk past the canine, they should know the precise direction of travel, exact route to take.

Additionally, they should understand if at any time they are to stop and how soon they should remain still before moving again, and then the final location they should stop at. Upon stopping they should understand how long they should remain still before they turn 180 degrees, face the canine, remove the canine's reward and toss the reward directly to the canine's mouth. During training, the number of stops the perpetrator makes before stopping at the reward stop should be varied. Additionally, various paces for the canine to follow should be used, from a slow walking pace to a run. This is the only time the handler is allowed to run with the canine; however, the handler should still maintain a taut leash for better leash manipulation and control.

Use of Distraction

[0051] Vapor wake screening canine's ability to work around distractions, ignore them and remain focused on the task is only able to be achieved if proper objective oriented training is conducted. One distraction that is incorporated into training is the blank (non-explosive carrying) or non-perpetrator actor carrying the canine reward. This actor is able to carry several reward objects simultaneously to enhance the opportunity to see if the canine is prone to exhibit an interest that is able to be confused with explosive training aid detection, especially early in operational training. These actors and the reward objects they carry are carefully staged/handled to ensure they do not inadvertently contact explosive odor. Quarantining all potential "other odor" distractions (e.g. food) from explosive training aids is important.

[0052] Non-odor-based distractions include all of the probable sights, sounds and circumstances the canine is able to encounter and will effectively work around in its operational mission. Distractions include people blocking the canine's path as it follows the training perpetrator, or having someone attempt to pet or physically distract the canine while it is following a training perpetrator or working explosive odor. As with any environmental conditioning of a canine, intense, sudden or otherwise potentially startle or fear inducing stimuli should be introduced through careful gradual exposure and successive approximations to approaching the stimuli. The greater the variety of potential distractions to which the dog is conditioned, the more likely the dog is going to handle novel distractions it encounters without perturbing its working performance. Handlers should be vigilant in identifying potential new distractions and incorporating those into their maintenance training activities.

Blank Searches

[0053] It is important for the search team to occasionally use a scenario in which there is no aid present. Should, in training, an aid always be found, the team, when conducting a search in which no aid is present, is able to become anxious and induce a false response. Since many actual searches result in no explosive present, the team should regularly train for blank searches.

Maintenance Training

[0054] Upon successful completion of basic training, the team should continue with regularly scheduled and ongoing maintenance training The maintenance training, continued for the life of the working team, maintains competence in basic principles and allows the team to develop in those areas in which they are operational.

[0055] Each training session has specific goals—each session is carefully planned to meet specific objectives. This ongoing training is important for the continued effectiveness and success of the team.

[0056] In some embodiments, the training is conducted at least three times weekly with two of the sessions being devoted to Vapor Wake Screening.

[0057] The maintenance training should include training at actual deployment sites to further learn about air currents, human traffic flow and best practices for deployment. The maintenance training should also include new or unknown areas to the team allowing them to practice the best option for deployment.

[0058] In some embodiments, the team includes a canine, a handler and one or more spotters. The spotter is a person who trains regularly with the canine team and is familiar with the canine team operation. The spotter surveys the crowd and environment and assists the handler in deployment of the canine.

Documentation

[0059] Training is documented. The more detail, the better since it is able to assist a user in determining future training objectives and scenarios. Aspects of the training program should be varied, and good documentation helps vary these aspects by providing a user with something to look back at when planning the next training session. If areas, days, times, explosives, quantities or other items are repeated too frequently, the user should change so that the canine is not inadvertently learning aspects not desired to be learned. In some embodiments, at a minimum, the following should be documented:

[0060] 1. Date/Time/Location of training.

[0061] 2. Explosives—types and quantities.

[0062] 3. Packaging of explosive training aid.

[0063] 4. Sniff time—how long a dog works before detecting an explosive and each subsequent explosive if additional training aids are used.

[0064] 5. Deficiency—identify any training deficiency the canine has that prevents it from performing at peak levels.

[0065] 6. Corrective action—if a training deficiency is identified, a correct action for future training sessions is developed.

[0066] 7. Follow-up training—describing how the corrective action is working to remedy the deficiency.

[0067] FIG. **1** illustrates a flowchart of a method of training a team in vapor wake detection according to some embodiments. In some embodiments, a canine is first selected based on demonstrating a high level of independent search behavior. In the step **100**, training planning occurs. Training planning includes determining the type of vapor wake screening such as choke point, crowds, people moving and people standing still. Training planning also includes determining air currents throughout the area and determining if any air currents are to be manipulated (e.g. with a fan). In the step **102**, the canine learns vapor wake detection techniques. The vapor wake detection techniques include learning to sample air currents. The vapor wake detection techniques include learning that the target odor is not limited to stationary objects, identifying a moving target and learning to follow the moving target. Following the moving target also includes pursuing the target from behind at a distance determined by the handler. The vapor wake detection techniques also include giving a final response (e.g. sitting). The canine is rewarded for performing correctly. In some embodiments, rewarding the canine includes a training perpetrator turning around to face the dog, removing a hidden reward and tossing the reward into the canine's mouth. The training sessions vary in time and odors. The training perpetrator is varied also. For example, the training perpetrator characteristics vary such as size, race and gender. In some training, distractions are implemented. The distractions are able to be any distractions such as blanks and distracting sights, sounds and circumstances. In some embodiments, documenting is utilized to track progress and retain other information. In some embodiments, maintenance training is implemented to hone the team's skills. Maintenance training includes focusing on deficiencies and addressing them. Each maintenance training session has specific goals that the team attempts to meet. The maintenance training occurs at actual deployment sites and/or new or unknown areas to further practice. Although specific steps are described, in some embodiments, fewer or more steps are included, and/or the order of the steps is able to be changed.

[0068] FIG. **2** illustrates a diagram of a training system according to some embodiments. In the training system **200**, a training perpetrator **202** has a hidden reward **204** as well as a detectable item **206** to be detected such as an explosive. A canine **208** with a handler **210** train to implement vapor wake detection with the training perpetrator **202**. After careful planning, the canine **208** and handler **210** are positioned appropriately to detect the scent of the detectable item **206**. Appropriate positioning is such that the air flows to that area, and the canine is able to detect a scent. In some embodiments, a fan

212 or other device manipulates the air flow. The positioning is also based on the features of the location such as whether there is a choke point, a large area of people or a line of people. As described herein, the canine and handler position themselves appropriately depending on the situation to maximize the air flow and scents that the canine is able to analyze. Once the canine **208** detects the scent of the item **206**, the canine **208** follows the protocol and follows the training perpetrator **202** and the item **206** until the appropriate time to give the final response. The handler **210** ensures the canine **208** stays at the appropriate distance. Once the final response is given, the training perpetrator **202** gives the canine **208** the hidden reward **204**. Other training features are able to be implemented as well, such as distractions **214** or the training perpetrator **202** does not have the detectable item **206**. Any other variations or features are able to be implemented in the training sessions.

[0069] FIG. **3** illustrates a flowchart of a method of utilizing vapor wake detection according to some embodiments. In the step **300**, a canine is positioned in an area that compliments vapor wake screening depending on the scenario. As described, the scenario is able to be people walking or standing, lines of people or people walking through a choke point, among other possible scenarios. In the step **302**, if a desired odor (e.g. explosive) is detected, the canine follows behind the carrier of the item or approaches a stopped carrier of the item. In the step **304**, the handler recognizes the canine's change in behavior. In the step **306**, the handler identifies the carrier of the item. In some embodiments, in the step **308**, the handler removes the canine from the area. The canine is removed any time before the final response. In the step **310**, the handler notifies security personnel to take the appropriate action such as follow and observe or apprehend the person. If a desired odor is not detected, the canine continues to wait until a desired odor is detected or the handler ends the detection, in the step **312**. Although specific steps are described, in some embodiments, fewer or more steps are included, and/or the order of the steps is able to be changed.

[0070] FIG. **4** illustrates a diagram of a vapor wake detection system according to some embodiments. The vapor wake detection system **400** includes a canine **402** and a handler **404**. The canine **402** and the handler **404** are positioned properly so that the canine **402** is able to detect specific vapors such as bomb scents. In the example shown, the canine **402** and the handler **404** are positioned at a choke point. Once the canine **402** detects a target vapor, the canine **402** and the handler **404** follow the person **406** who has the item **408** emitting the vapor. The handler **404** determines who has the item **408** and contacts law enforcement personnel **410** to follow and/or apprehend the person **406**. A fan (as shown in FIG. **2**) is able to be used to direct air currents in a specified manner if desired. In some embodiments, the canine **402** and the handler **404** appear as law enforcement for a deterrent effect. In some embodiments, the canine **402** and the handler **404** appear without law enforcement uniforms such as a blind person and a seeing-eye dog to covertly detect illegal substances.

[0071] To utilize the dynamic canine tracking method, training is performed initially. The training includes determining a canine appropriate for training, preparing a training plan and having the canine learn to detect target odors, follow the carrier of the odor and take an action such as sitting when the carrier is identified. Then, once the training is completed, the canine is utilized by placing the canine in an appropriate location (e.g. near a choke point), allowing the canine to sniff the air attempting to detect a specified odor, following a carrier of the item emitting the odor, identifying the carrier and contacting the appropriate personnel to monitor and/or apprehend the carrier.

[0072] In operation, the method is a "dog-driven" detection method which is distinguished from traditional canine detection methods which are "handler driven." The method is referred to as Vapor-wake Detection. Some features of this method include the ability to screen large numbers of persons passing through a given space without affecting the throughput of the persons through the space and dogs are able to overcome distractions such as noise, commotion and ancillary environmental odors, to prevent loss of tracking of the target odorant. Applications of the methodology include the interdiction and capture of suicide bombers, narcotics handlers and purveyors or illicit chemical/biological warfare materials. The methodology is able to be applied in varied environments such as transit systems, venues for large public even gatherings such as stadiums and buildings and areas of commerce such as shopping malls and military environments.

[0073] The present invention has been described in terms of specific embodiments incorporating details to facilitate the understanding of principles of construction and operation of the invention. Such reference herein to specific embodiments and details thereof is not intended to limit the scope of the claims appended hereto. It will be readily apparent to one skilled in the art that other various modifications may be made in the embodiment chosen for illustration without departing from the spirit and scope of the invention as defined by the claims.

What is claimed is:

1. A dog-driven detection method of detecting hazardous or illicit substances, comprising:
- a. detecting a source of a target odor; and
- b. leading a handler to the source of the target odor via a canine, wherein the source of the target odor comes within a detectable range of the canine.

2. The method of claim **1**, wherein the canine searches the air for vapor trails or scent pools of the target odor generated by a moving or stationary target.

3. The method of claim **1**, wherein the canine accommodates dissipation of the target odor over time.

4. A method of training canines to carry out detection, wherein the canines are chosen based on a canine selection process comprising:
- a. choosing canines that are motivated to sniff and search independently in a manner to disguise their handlers;
- b. documenting the canines' sniffing capabilities; and
- c. choosing healthy canines that pass medical examinations.

5. The method of claim **4** further comprising choosing canines that are not overly sociable.

6. The method of claim **4** wherein the medical examinations include testing for dexterity and freedom from bone, joint and musculature pathologies.

7. A method of training a canine for detection, the method comprising:
- a. choosing a detector canine that demonstrates a high level of independent search behavior;
- b. teaching the canine that the source of a target odor is not limited to stationary objects;
- c. teaching the canine to follow a vapor-wake of a moving target;

d. teaching the canine to sample air currents; and

e. teaching the canine to follow the vapor-wake to the target and give a final response.

8. A method of implementing vapor wake detection comprising:

a. positioning a canine;

b. detecting a target odor;

c. recognizing the canine's change of behavior when the target odor is detected;

d. identifying a carrier of an item emitting the target odor; and

e. notifying security personnel of the carrier.

9. The method of claim **8** wherein positioning the canine depends on a location type and air currents throughout a location.

10. The method of claim **9** wherein the location type is selected from the group consisting of a choke point, a crowd, people standing in line, people moving and people standing still.

11. The method of claim **8** further comprising manipulating the air currents using an air manipulation device.

12. The method of claim **8** wherein the change in behavior includes following the carrier from behind at a distance determined by a handler.

13. The method of claim **8** wherein the target odor is selected from the groups consisting of an explosive and an illicit substance.

14. A system for implementing vapor wake detection comprising:

a. a canine for:

i. detecting a target odor; and

ii. following a carrier of an item emitting the target odor; and

b. a handler for:

i. positioning the canine;

ii. recognizing a change in behavior of the canine;

iii. identifying the carrier; and

iv. notifying security personnel of the carrier.

15. The system of claim **14** wherein positioning the canine depends on a location type and air currents throughout a location.

16. The system of claim **15** wherein the location type is selected from the group consisting of a choke point, a crowd, people standing in line, people moving and people standing still.

17. The system of claim **15** wherein the air currents are manipulated using an air manipulation device.

18. The system of claim **14** wherein the change in behavior includes following the carrier from behind at a distance determined by a handler.

19. The system of claim **14** wherein the target odor is selected from the groups consisting of an explosive and an illicit substance.

* * * * *

VAPOR WAKE® Technology Granted Patent (https://www.vetmed.auburn.edu/blog/cvm-news/vapor-wake-technology-granted-patent/)

August 17, 2015

The VAPOR WAKE® detector dog technology created by researchers and canine training experts at the Auburn University College of Veterinary Medicine has received a U.S. patent. VAPOR WAKE® is a scientifically-based method for selecting, training, and employing dogs for the detection of hand-carried and body-worn hazardous materials such as person-borne improvised explosive devices.

(https://www.vetmed.auburn.edu/wp-content/uploads/2015/08/060915-Auburn-071.web_.jpg)

Detector dogs are trained to follow the scent, or vapor, of odors.

"VAPOR WAKE® is an excellent example of the security advancements that can be made when industry and academia work together," noted Dr. Calvin Johnson, dean of the College of Veterinary Medicine at Auburn University.

"Once the need was described, scientists in the College of Veterinary Medicine began conducting experiments to provide proof-of-concept. Afterward, each variable was defined and tested. Those variables included canine genetics, puppy selection protocols, canine training methods, handler training, interdiction strategies, establishment of detection standards, and certification/recertification.

"We are now working to characterize the optimal genetic background for VAPOR WAKE® dogs, and to Deestablish detection standards that can be applied internationally in the detector dog arena as a method for validation of sensitivity and specificity of canine explosive detection," Johnson said. "Licensing of VAPOR WAKE® technology through the ARTF to

ITC Security Partners has given Auburn a unique opportunity to more effectively market these dogs, while allowing our scientists to focus on what we do best: advancing the science of detection."

VAPOR WAKE® was invented by Canine Performance Sciences program members Dr. Paul Waggoner and Jeanne Brock, and former Auburn University employees John Pearce, Tim Baird, Daniel MacAfee and Robert Leonard, now employees of AMK9 Academy, and David Baffa, now with the Transportation Security Administration.

VAPOR WAKE® has proven effective in multiple independent field tests and is the only detector dog technology certified by the National Center for Spectator Sports Safety and Security. This method of detector dog use is uniquely suited for screening large numbers of persons at events, high throughput pedestrian traffic areas, and mass transit hubs without impeding their movement.

"VAPOR WAKE® evolved like many of the innovations in detector dog technology made by CPS over the last two decades: The operational community came to us with a problem, the interdiction of hand-carried and body-worn explosives in circumstances where obstructing pedestrian movement was not an option," said Waggoner, recently named co-director of CPS.

"We analyzed the operational requirements, looked for information that could guide us in deriving a solution, and then designed a system of dog selection, preparation, and operational procedures to address the problem.

"However, it took several years of our canine training professionals working with feedback from our operational partners to tweak this system to arrive at a repeatable and robust technological solution."

We often hear comments like 'dogs have always done this' and 'any good explosive detection dog can be taught to do this'," said Jeanne Brock, chief canine instructor with CPS who has extensive experience in canine training. "In detecting explosives, for example, the question is not whether it's been done by some dog sometime in the past or there is some dog and handler team that has on occasion demonstrated the ability to do it, but rather, can you consistently produce a capability to reliably and robustly interdict hand-carried and body-worn explosives.

"Vapor Wake®, when faithfully implemented as Auburn has designed, does that," she added.

VAPOR WAKE® detection is an advantageous method and system for detecting explosives and other illicit substances. With VAPOR WAKE® detection, a dog and handler work together as never before – the canine leads the handler. Once the handler positions the dog in a desired location, the dog leads the handler, actually following behind the carrier of the illicit substance.

To do this, however, these working canines undergo rigorous training from an early age to teach them how to correctly detect explosive vapors, and then weeks working with handlers on how to work with the animal to develop a perfect team.

ARTF has a license agreement for VAPOR WAKE® technology with ITC Security Partners, which in conjunction with the College of Veterinary Medicine, offers the patented VAPOR WAKE® technology to government and industry.

CPS, a division of the College of Veterinary Medicine, is an international leader in scientifically understanding the physical, physiological and psychological performance characteristics of working dogs. CPS research discoveries provide human canine handler the ability to take full advantage of a dog's superb sense of smell.

Research by CPS staff to develop a superb detection working dog begins before birth. CPS has identified desired traits in working canines and selectively breeds animals which demonstrate superiority for those traits. From birth, puppies are carefully reared and developed to optimize each stage of their growth.

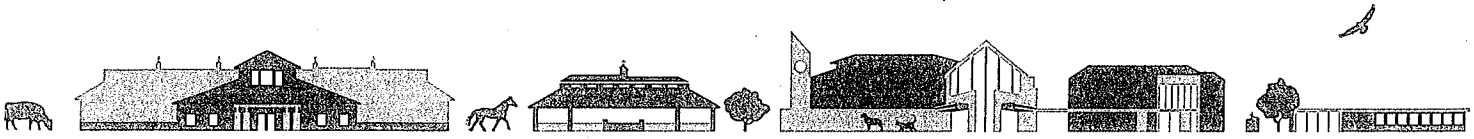
VAPOR WAKE® is one of many successful and ongoing research technologies being developed by Canine Performance Sciences researchers and staff. CPS's mission is to continually improve animal detection science and technology through research, teaching, and public outreach to serve and defend the nation and society.

Questions, story ideas or want more information?

Please contact: communications@vetmed.auburn.edu (communications@vetmed.auburn.edu)

Categories

125th veterinary medical education (https://www.vetmed.auburn.edu/blog/category/125th-veterinary-medical-education/)
Academics (https://www.vetmed.auburn.edu/blog/category/academics/)
Administration (https://www.vetmed.auburn.edu/blog/category/administration/)
Alumni (https://www.vetmed.auburn.edu/blog/category/alumni/)
Animal Healthcare (https://www.vetmed.auburn.edu/blog/category/animal-healthcare/)
Auburn University Veterinary Clinic (https://www.vetmed.auburn.edu/blog/category/auburn-university-veterinary-clinic/)
AURIC (https://www.vetmed.auburn.edu/blog/category/auric/)
Canine Performance Sciences (https://www.vetmed.auburn.edu/blog/category/canine-performance-sciences/)
Clincial Trial (https://www.vetmed.auburn.edu/blog/category/clincial-trial/)
Community (https://www.vetmed.auburn.edu/blog/category/community/)
Continuing Education (https://www.vetmed.auburn.edu/blog/category/continuing-education/)
Employee Recognition (https://www.vetmed.auburn.edu/blog/category/employee-recognition/)
Faculty (https://www.vetmed.auburn.edu/blog/category/faculty/)
J.T. Vaughan Large Animal Teaching Hospital (https://www.vetmed.auburn.edu/blog/category/j-t-vaughan-large-animal-teaching-hospital/)
Research (https://www.vetmed.auburn.edu/blog/category/research/)
Scott-Ritchey Research Center (https://www.vetmed.auburn.edu/blog/category/scott-ritchey-research-center/)
Southeastern Raptor Center (https://www.vetmed.auburn.edu/blog/category/southeastern-raptor-center/)
Students (https://www.vetmed.auburn.edu/blog/category/students/)
Uncategorized (https://www.vetmed.auburn.edu/blog/category/uncategorized/)
Vet Camp (https://www.vetmed.auburn.edu/blog/category/vet-camp/)
Wilford and Kate Bailey Small Animal Teaching Hospital (https://www.vetmed.auburn.edu/blog/category/wilford-and-kate-bailey-small-animal-teaching-hospital/)



Academic Affairs (https://www.vetmed.auburn.edu/about/office-of-academic-affairs/)

Research and Grad. Studies (https://www.vetmed.auburn.edu/about/office-of-research-and-graduate-studies/)

Communications/Marketing (https://www.vetmed.auburn.edu/newsroom/)

DEPARTMENTS

Anatomy, Phys. & Pharm. (https://www.vetmed.auburn.edu/academic-departments/dept-of-anatomy-physiology-pharmacology/)

Clinical Sciences (https://www.vetmed.auburn.edu/academic-departments/department-clinical-sciences/)

Pathobiology (https://www.vetmed.auburn.edu/academic-departments/dept-of-pathobiology/)

EDUCATION

Prospective Veterinary Students (https://www.vetmed.auburn.edu/education/prospective-students/)

Veterinary Students (https://www.vetmed.auburn.edu/education/veterinary-students/)

Undergraduate Students (https://www.vetmed.auburn.edu/education/undergraduates/)

Graduate Students (https://www.vetmed.auburn.edu/education/graduate-students/)

Reproductive Science & Health (https://www.vetmed.auburn.edu/education/reproductive-science-health/)

VETERINARIANS

Clin. Pharm. Lab (https://www.vetmed.auburn.edu/veterinarians/clinical-labs/)

Clinical Trials (https://www.vetmed.auburn.edu/veterinarians/clinical-trials/)

Consult a Specialist (https://www.vetmed.auburn.edu/veterinarians/consultations/)

Continuing Education (https://www.vetmed.auburn.edu/veterinarians/ce/)

Refer a Patient (https://www.vetmed.auburn.edu/veterinarians/refer-patient/)

Veterinary Teaching Hospital (https://www.vetmed.auburn.edu/veterinarians/veterinary-teaching-hospital/)

ANIMAL OWNERS

Appointments (https://www.vetmed.auburn.edu/animal-owners/appointments/)

AU Veterinary Clinic (https://www.vetmed.auburn.edu/animal-owners/au-veterinary-clinic/)

Large Animal Teaching Hospital (https://www.vetmed.auburn.edu/animal-owners/jt-vaughan-large-animal-teaching-hospital/)

Small Animal Teaching Hospital (https://www.vetmed.auburn.edu/animal-owners/bailey/)

RESEARCH

Canine Performance Sciences (https://www.vetmed.auburn.edu/research/cps/)

Scott-Ritchey Research Center (https://www.vetmed.auburn.edu/research/scott-ritchey-research-center/)

ALIAS Laboratory (https://www.vetmed.auburn.edu/research/alias/)

Joy Goodwin Lecture Series (https://www.vetmed.auburn.edu/research/joy-goodwin-lecture-series/)

Summer Scholars Program (https://www.vetmed.auburn.edu/research/summer-scholars-program/)

The Society of Phi Zeta (https://www.vetmed.auburn.edu/research/society-phi-zeta/)

RESOURCES

Jobs at the College (https://aufacultypositions.peopleadmin.com/postings/search?utf8=%E2%9C%93&query=&query_v0_posted_at_date=&query_organizational_tier_2_id=447&query_organizational_tier_3_id=any&commit=Search)

Vet Job Postings (https://www.vetmed.auburn.edu/careers/external-veterinary-employment-opportunities/)

Cary Veterinary Medical Library (https://www.lib.auburn.edu/vetmed/)

Outreach (https://www.vetmed.auburn.edu/outreach/)

(https://www.aavmc.org/Anniversary.aspx)

Auburn, Alabama 36849 | Phone: 334.844.4546 (tel:334.844.4546) | A - Z (/sitemap/) | Directions (https://www.google.com/maps/place/Auburn+University:+College+of+Veterinary+Medicine/@32.5907503,-85.5108363,19z/data=!4m16!1m13!4m12!1m4!2m2!1d-85.4807825!2d32.6098566!4e1!1m6!1m2!1s0x888cf30df5909e3d:0x8689c3134bb177d4!2s1010+Wire+Rd,+Auburn,+AL+36849!2m2!1d-85.4954472!2d32.6038307!3m1!1s0x0000000000000000:0x02d35c66fe1ebd53) | Privacy (http://www.auburn.edu/privacy) | Website Feedback (mailto:webmaster@vetmed.auburn.edu?Subject=Feedback) | Copyright (http://www.auburn.edu/copyright) | Accessibility (http://www.auburn.edu/accessibility)

Last Modified: March 15, 2017