NEOFIX
Northeast Ohio Flight Information Exchange

First quarterly report on the Northeast Ohio Information Exchange: Digital Infrastructure for Drone Services in Cuyahoga County project

Period thru March 31, 2023

Stuart C. Mendel
Project Director

BW
BALDWIN
WALLACE
UNIVERSITY

Report Agenda

Report hyperlink:

TAB 1   Quarterly report narrative

     a) Report pages number 1 to 6 including Tables I to V

Page 4 Table I	List of all expenditures made during the preceding quarter (page 4)
Page 5 Table II	List of project goals achieved during the preceding (first) quarter
	List of project goals in progress as of the end of the (first) preceding quarter
Page 5 Table III	List of project goals to be completed during the current (second) quarter.
Page 6 Table IV	Itemized list of project goals to be completed (third) quarter.
Page 6 Table V	Fourth quarter workplan and goals.

TAB 2   a) Cuyahoga County executed funding resolution document
     b) Cuyahoga County/BW Contract

TAB 3   Baldwin Wallace NEOFIX advisory committee briefing

TAB 4   a) Feb 8 NEOFIX stakeholder notes
     b) March 8 NEOFIX stakeholder notes
     c) NEOFIX Community Stakeholders roster
     d) NEOFIX Date Asset Shopping List

TAB 5   Materials on NEOFIX presentation to state of Ohio
House committee on Aerospace and Aeronautics

Questions directed to Stuart Mendel, Affiliate Professor and NEOFIX Project Director
smendel@bw.edu

April 11, 2023

County's address for notification is:
Cuyahoga County Office of the Council
2079 East 9th Street
Cleveland, Ohio 44115
Attention: Cynthia Mason, Research and Policy Analyst

With a copy to:
Cuyahoga County Department of Law
2079 East 9th Street
Cleveland, Ohio 44115
Attention: Director of Law

Dear Ms. Mason,

This document and attached booklet TABS comprise the first quarterly report on the Northeast Ohio Information Exchange: Digital Infrastructure for Drone Services in Cuyahoga County, abbreviated hereafter as the NEOFIX project.

The format narrative of this document is drawn from the reporting items listed in section 4 of the agreement (**TAB 2 below, second document**) between Cuyahoga County and Baldwin Wallace University for funding the NEOFIX, cut and pasted as:

Recipient shall submit quarterly reports to the Clerk of the Cuyahoga County Council. Reports shall be submitted no later than thirty (30) days after the end of each calendar quarter. In each report, recipient shall provide the following:

1. An itemized list of all expenditures made during the preceding quarter (**see Table I below**).
2. An itemized list of project goals achieved during the preceding quarter; (**see Table II below**).
3. An itemized list of project goals in progress as of the end of the preceding quarter (**see Table II below**).
4. An itemized list of project goals to be completed during the current quarter and an itemized list of project goals to be completed in the next quarter (**see Table III below**).

Summary Narrative

What is the NEOFIX
The Northeast Ohio Information Exchange (NEOFIX) is a program for local government and public safety agencies to post information for each other and drone operators for the purpose of keeping the airspace open, secure, and safe. This program is vital technology infrastructure

NEOFIX

necessary to promote a friendly setting for drone use, repair, manufacturing and assembly and jobs development.

Why we are doing this

The interest for the NEOFX work originates with local emergency, first response and public safety officials, regional health institutions and private business stakeholders engaged in drone operations. The NEOFIX is devised as a public private partnership whose purpose is the creation of public infrastructure but also in setting conditions for private industry to develop drone or Unmanned Aircraft Systems (UAS) operations, manufacturing, repair, education and training and related business development outcomes throughout Cuyahoga County with emphasis on District 2 and the region bound by the Aerozone District plan.

Nationally, authority for drone infrastructure contributing to safe advanced air mobility (AAM) operations resides with the Federal Aeronautics Administration (FAA). Other Federal and State government interests include Homeland Security and Transportation. The FAA has clearly identified a role for state and local government as the host actors for drone infrastructure advancements and policy recommendations, and for advising the FAA on how industry efforts can reasonably integrate into any given community, and within the regulation environment overseen by the FAA.

Benefits to Cuyahoga County for doing this

The NEOFIX is a public private partnership, where public sector first-in resources will be amplified well beyond a dollar-for-dollar return for an emerging $10B private industry benefiting residents of the County and the state of Ohio. NEOFIX will provide public safety in Cuyahoga County with a *Common Operating Picture* of drone operations, supporting safe operations and counter-UAS. The NEOFIX puts the County and its airspace within the leading the communities in the nation, applicable as a model program for the state of Ohio.

First Quarter Timeline

From August through October 2022 presentations were made to Cuyahoga County Council district 2 and district 5 representatives, the district 2 ARPA proposal review subcommittee and the September 20, 2022 meeting of the County Council Public Safety and Justice Affairs Committee. (See TAB 2 of this report for final project approval documentation).

Beginning in September 2022, the NEOFIX website was designed and made live with a small start-up investment of $2,500 from Baldwin Wallace University. The web site has since been incrementally populated with drone use case content and information. See: https://bw-centers-tech-partnerships.org/neofix/

An advisory committee of the Baldwin Wallace leadership and faculty was also formed and presented with the concept and planning for the NEOFIX (see TAB 3 of this report).

In December 2022 County funding was provided to Baldwin Wallace University and project consultants were quickly organized to form the project team.

In January 2023, stakeholders were identified, informed of the NEOFIX concepts and an initial sequence of working meetings was set for first quarter 2023. The initial meeting of stakeholders was held on the campus of Baldwin Wallace University on February 8, but then also March 8 with subsequent dates scheduled for April, May and June. Notes from the February and March meetings along with the stakeholder participants are listed with affiliations under TAB 4 of this report.

The growing stakeholder roster includes corporate participants many of whom are new to Ohio or operate already but are considering increasingly their presence in the state.

Meetings involving a larger complimentary but separate concept known as "Advanced Air Mobility" or AAM promoted by the state of Ohio through the Department of Transportation and JobsOhio coincide with the NEOFIX project. Coordination between the two includes BW's collaboration with the Manufacturing Works organization (https://www.mfgworkscle.org/) including, a daylong session held with Kent State University.

In March 2022 Stuart Mendel, Baldwin Wallace NEOFIX project director - along with the Presidents of Kent State and Bowling Green State Universities, and also faculty from Ohio State University - was invited to present the NEOFIX concepts before the Ohio House Committee on Aerospace and Aeronautics March 22, the agenda and notes are provided under TAB 5 of this report.

An outcome thereafter of the presentation before the statehouse committee was a zoom call with a subsequent site visit at BW scheduled for late April 2023 at Baldwin Wallace to brief Joseph Zeis - (https://www.linkedin.com/in/joe-zeis-618bb330/) Governor DeWine's Senior Advisor for Aerospace and Defense, (a cabinet-level position Governor DeWine created to focus on Ohio's military and aerospace) and Michelle Gillcrist, Northern Ohio Regional Liaison and Governor's Aerospace and Defense Liaison (https://www.linkedin.com/in/michelle-gillcrist-42b64b4) who has expressed strong interest in the NEOFIX.

The NEOFIX web interface will be made live in the second quarter of 2023 (June) and be presented to stakeholders for use and refinement. Further buildout for use by private sector corporations, the state of Ohio, residents and other stakeholders will take place in quarters three and four of this calendar year.

Report

First quarter NEOFIX project performance
Goal 1 To build interest among local, regional, state and national drone (UAS) stakeholders.
Goal 2 To design and build data for service of the NEOFIX accessible to the public.

These intertwined first quarter goals focus on convening and organizing UAS stakeholders. The stakeholders will advise on desirable use-configurations of the NEOFIX to best account for flight operations throughout the region. The early organizing concepts essential in the NEOFIX design (included with TAB 3 materials) are to focus on identification of physical hazards, infrastructure obstructions such as power and cellular communications structures, transportation features, restricted operational areas, ground hazards, and natural topography. Additional concepts for the project overall mapping based on drone operations advisories, weather advisories, large scale sporting and social events including high school athletics for example, emergences in progress, surveillance operations and related issues of resident privacy. Future data requirements and considerations for the NEOFIX will include those necessary for public and private use for filing of flight plans, operations compliance with local ordinances and FAA regulations for tracking, rules enforcement and operator accountability.

NEOFIX design must also account for user-friendly interface, privacy and where necessary, planned deconfliction by authorities.

Progress toward NEOFIX goals are reported in the following Tables.

Table I. Itemized list of all expenditures made during the preceding quarter.

Budgeted and Expense items First Quarter thru 03/31/2023

Line Item	Annual Budget	Actual	Notes
Program Development Expenses	$105,000	$25,250	Salary/fringe
Technical / Software	$ 75,000	$37,500	ATA
Stakeholder Outreach	$ 19,500	$ 8,510	EHM, Vaux
Data Governance	$ 0	$ 0	contributed
Use Case Development	$ 25,000	$ 3,120	Critical Ops, Food, travel
Total Direct Costs	$224,500	$74,380	

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Table II: First Quarter Goal and task Objectives

First Quarter	Goals/Action
December – January	1. Establish website and social media funnels 2. Populate website with relevant content 3. Inventory Data Assets 4. Review Web Interface Style for BW 5. Identify and cultivate stakeholders to participate in project work 6. Onboard USS/UTM project partners
February	1. Initial User Group Meeting (held February 8) 2. Data Governance Briefing for User Group 3. Design NEOFIX data mappings and supplemental language 4. Outreach to additional USS/UTM programs
March	1. Second User Group Meeting (held March 8) 2. Review Web interface Style 3. Model NEOFIX data maps and language 4. Recruit additional stakeholders for NEOFIX User Group 5. Development funding sustainability models

Table III: An itemized list of project goals to be completed during the second quarter
and an itemized list of project goals to be completed in the third quarter.

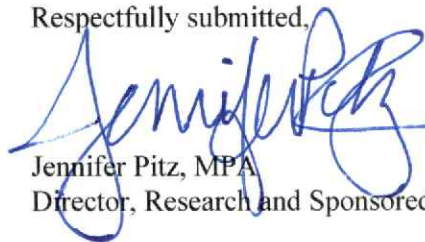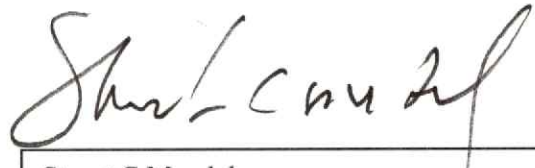| Second Quarter	Goals/Action
April	1. Commence collaboration with interested partners to facilitate turn up and deployment of new public safety and commercial industry drone services 2. Third User Group Meeting (April 12) 3. Start collecting and mapping data assets 4. Initial NEOFIX System Standup for Testing 5. Approve Production NEOFIX 6. Finalize and approve initial data mappings and supplemental language 1. Guidance for identifying and describing data
May	2. Initial data integrations to capture digital infrastructure data and sensor / tools integrations. 3. Establish data security model documentation. 4. Establish API credentials 5. Load initial production data 6. Complete onboarding initial USS/UTM partners
June	1. Fourth User Group Meeting to Deploy Production NEOFIX 2. Stablish processes for work listed below for July and August (third quarter).

NEOFIX

Table IV Third quarter performance goals

Third Quarter	Goals/Action
July	1. Timely response to technical support and technical inquiries 2. Maintenance of new requirements and features 3. Successful provision of API access as needed 4. Hosting of NEOFIX with support during regular business hours 5. Ability to train new users 6. Ability to connect (onboard) USS/UTM providers and critical infrastructure providers 7. Provision of data governance manuals and guidance materials 8. Successful loading of data into the platform; and 9. Support for user group meetings.
August	1. Secure County Funding for year 2 operations 2. Submit proposal for sensors and other capital equipment 3. Create user-fee model for fiscal sustainability of the NEOFIX
September	1. Monthly user group meeting 2. Ongoing Onboarding of USS/UTM partners 3. Ongoing onboarding of BW partner agency systems 4. Continued collection, mapping and loading of data assets 5. Review, extend, update and maintain data mapping

Table V

Fourth Quarter	
Monthly Thereafter	Monthly User Group Meeting Ongoing Onboarding of USS/UTM Partners Ongoing onboarding of BW partner agency systems Continued collection, mapping, and loading of data assets. Review, extend, updated and maintain data mappings and supplemental language.
Quarterly Thereafter	System Maintenance and Ongoing Security Compliance Minimum quarterly release of updated application and new features

Respectfully submitted,

Jennifer Pitz, MPA
Director, Research and Sponsored Programs

Stuart C Mendel
Affiliate Professor and Project Director

NEOFIX

County Council of Cuyahoga County, Ohio

Resolution No. R2022-0259

Sponsored by: **Councilmember Miller** Co-sponsored by: **Councilmembers Conwell, Jones and Turner**	**A Resolution** awarding a total sum, not to exceed $225,000, to Baldwin Wallace University for the Northeast Ohio Flight Information Exchange: Digital Infrastructure for Drone Services Project from the District 2 ARPA Community Grant Fund; and declaring the necessity that this Resolution become immediately effective.

WHEREAS, Cuyahoga County received $239,898,257 from the Federal Government through the American Rescue Plan Act ("ARPA"); and

WHEREAS, Cuyahoga County calculated 100% of the ARPA dollars as loss revenue under the U.S. Department of the Treasury Final Rule; and

WHEREAS, since all the ARPA dollars have been calculated as loss revenue, the ARPA dollars have been deposited in the County's General Fund; and

WHEREAS, the County Executive and County Council have authorized $86 million of the ARPA dollars for community grants to benefit the residents of Cuyahoga County (the "ARPA Community Grant Fund"); and

WHEREAS, of the $86 million for community grants, $66 million have been encumbered for equal distribution to each County Council District; and

WHEREAS, the Cuyahoga County Council desires to provide funding from the District 2 ARPA Community Grant Fund in the amount of $225,000 to Baldwin Wallace University for the Northeast Ohio Flight Information Exchange: Digital Infrastructure for Drone Services Project; and

WHEREAS, Baldwin Wallace University estimates approximately 18,000 people will be served annually through this award; and

WHEREAS, Baldwin Wallace University estimates approximately 25 permanent and temporary jobs will be created or retained through this project; and

WHEREAS, Baldwin Wallace University estimates the total cost of the project is $499,000; and

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WHEREAS, Baldwin Wallace University indicates the other funding source(s) for this project includes:

      A. $53,485 in private match dollars
      B. $33,652 in overhead fee waiver from Baldwin Wallace University
      C. $100,000 of in-kind private investments for two years; and

WHEREAS, Baldwin Wallace University is estimating the start date of the project will be August 2022 and the project will be completed by July 2024; and

WHEREAS, Baldwin Wallace University requested $450,000 from the District 2 ARPA Community Grant Fund to complete this project; and

WHEREAS, the Cuyahoga County Council desires to provide funding in the amount of $225,000 to Baldwin Wallace University to ensure this project is completed; and

WHEREAS, this Council by a vote of at least eight (8) members determines that it is necessary that this Resolution become immediately effective in order that critical services provided by Cuyahoga County can continue to provide for the usually, daily operations of the County.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNTY COUNCIL OF CUYAHOGA COUNTY, OHIO:

SECTION 1. That the Cuyahoga County Council hereby awards a not-to-exceed amount of $225,000 to Baldwin Wallace University from the General Fund made available by the American Rescue Plan Act revenue replacement provision for the Northeast Ohio Flight Information Exchange: Digital Infrastructure for Drone Services Project.

SECTION 2. If any specific appropriation is necessary to effectuate this agreement, the Director of the Office of Budget and Management is authorized to submit the requisite documentation to financial reporting to journalize the appropriation.

SECTION 3. That the County Council staff is authorized to prepare all documents to effectuate said award.

SECTION 4. That the County Executive is authorized to execute all necessary agreements and documents consistent with said award and this Resolution.

SECTION 5. If requested or necessary, the Agency of the Inspector General or Department of Internal Audit is authorized to investigate, audit, or review any part of this award.

SECTION 6. To the extent that any exemptions are necessary under the County Code and contracting procedures, they shall be deemed approved by the adoption of this Resolution.

SECTION 7. It is necessary that this Resolution become immediately effective for the usual daily operation of the County; the preservation of public peace, health or safety in the County; and any additional reasons set forth in the preamble. Provided that this Resolution receives the affirmative vote of at least eight members of Council, it shall take effect and be in force immediately upon the earliest occurrence of any of the following: (1) its approval by the County Executive through signature, (2) the expiration of the time during which it may be disapproved by the County Executive under Section 3.10(6) of the Cuyahoga County Charter, or (3) its passage by at least eight members of Council after disapproval pursuant to Section 3.10(7) of the Cuyahoga County Charter. Otherwise, it shall take effect and be in force from and after the earliest period allowed by law.

SECTION 8. It is found and determined that all formal actions of this Council concerning and relating to the adoption of this Resolution were adopted in an open meeting of the Council, and that all deliberations of this Council and of any of its committees that resulted in such formal action were in meetings open to the public, in compliance with all legal requirements, including Section 121.22 of the Ohio Revised Code.

On a motion by Mr. Miller, seconded by Ms. Conwell, the foregoing Resolution was duly adopted.

Yeas: Miller, Sweeney, Tuma, Gallagher, Schron, Conwell, Turner, Stephens, Simon, Baker and Jones

Nays: None

_____
County Council President

10/13/22
Date

_____
County Executive

10-17-22
Date

_____
Clerk of Council

10/13/22
Date

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First Reading/Referred to Committee: August 2, 2022
Committee(s) Assigned: Public Safety & Justice Affairs

Additional Sponsorship Requested in Committee: September 20, 2022

Committee Report/Second Reading: September 28, 2022

Additional Sponsorship Requested: September 30, 2022

Journal CC048
October 11, 2022

Northeast Ohio Flight Information Exchange (NEOFIX) Brief

What is Northeast Ohio Flight Information Exchange (NEOFIX)?

The Northeast Ohio Flight Information Exchange (NEOFIX**)** is a program **funded by Cuyahoga County** for local government and public safety agencies to post information for each other and drone operators which keep the airspace open, secure, and safe. This program is vital technology infrastructure necessary to promote a friendly setting for drone use, repair, manufacturing and assembly and jobs development. You are receiving this brief as a perceived stakeholder of this project which include those making use of drones for purposed of public safety and emergency preparedness, transportation, economic development, recreation, and health care utility to name just a few.

NEOFIX will use proven technology to inform drone operators of ground rules and conditions, local issues and events, public safety incidents, hazards, and sensitive and critical infrastructure. It allows information sharing in the most open way possible while also respecting operational security, privacy requirements, and public safety, enabling multiple ways to connect and share information via Internet and flight programs.

What is Data Governance?

Data Governance is the policies, processes, activities, and documentation to ensure that data is described, collected, and published in a consistent, useful manner. NEOFIX Data Governance consists of three governance areas: i) user governance (policies and processes for user access); ii) information governance (policies and processes for how information is described and shared through; and iii) data governance (policies and processes for how data is physically loaded, prepared, and published). The NEOFIX User Group exists as part of a system governance structure within Baldwin Wallace.

What is the NEOFIX User Group?

The NEOFIX User Group advises the administrator of NEOFIX, BW, on policy and implementation of user governance, information governance, and data governance and supports the activities of the NEOFIX team in working with stakeholders to identify, load, and publish data assets. The NEOFIX User Group focuses on four activities:

- User Governance, including rules and procedures for authorizing users and agencies;
- Information Governance, including specification and management of Advisory Types and the model for how advisory information gets share;
- Data Governance, including retention and data management policies, mapping data to Advisory Types, and data formatting and quality guidelines; and
- Asset Discovery, supporting engagement of regional NEOFIX state and local stakeholders in identifying local data and ensuring this data is properly described, managed, and published.

Stuart Mendel, Project Director
Baldwin Wallace University
smendel@bw.edu, cellular: 216-407-2673

Northeast Ohio Flight Information Exchange (NEOFIX) Brief

NEOFIX User Group Data Discovery Activities

All direct users of the system are de facto members of the NEOFIX user group advising BW. In addition to supporting BW in its role as NEOFIX administrator with data governance, the NEOFIX User Group will work with BW along with state and local agencies to discover AAM assets (e.g., take-off and landing areas, critical infrastructure, local guidance and rules, existing sensors, etc.) that can be properly and consistently described and published through NEOFIX into the AAM system.

Roles in the NEOFIX User Group

The NEOFIX User Group includes NEOFIX system users including representatives of state and local government, representatives of Cuyahoga County Public Safety, UAS Service Suppliers, UAS Operators, local Critical Infrastructure Providers, and other representatives of industry and the public. Each of these stakeholder roles provides input to BW in the administrator role to help reach consensus on how to configure the ground space for local integration of UAS operations.

NEOFIX Will:

1. Set up Cuyahoga County for private investment in infrastructure, education, and jobs from drone industry as communities that have drone infrastructure first will get the lion's share of investments as the industry continues to grow
2. Support job growth and creation for industry related positions including remote pilots, flight operations personnel, data analysts, maintenance personnel, and drone manufacturing.
3. Position Cuyahoga County position to be one of the nation's leaders in aviation as it would one of the first utilizing this platform, ensuring the safety and efficiency of drones.

Stuart Mendel, Project Director
Baldwin Wallace University
smendel@bw.edu, cellular: 216-407-2673

NEOFIX Data Asset Shopping List

- Groundspace configuration data such as hazards, obstacles, and obstructions
  - Geo-buffered sensitive infrastructure (cell towers / power lines / substations) to assist with safe flight operations and compliance with regulations (e.g., infrastructure that would be harmed if a vehicle collided with it)
  - Hazardous ground conditions such as chemical and oil plants and storage facilities
  - Construction cranes
  - Tall (>100') buildings and structures
- Groundspace configuration such as take-off and landing area rules (preferred, notification required, permission required, and prohibited)
  - Standing supplemental rules, requirements, or restrictions for take-off and landing on public property such as parks, garages, and schools
  - Areas restricted to the public (public safety, city yards, etc.) where a vehicle operators would not normally have access for take off and landing outside of an emergency situation
- Event data
  - Public safety data such as operations and public safety sensitive or restricted areas that are time bound
  - Access to local 911 Computer Aided Dispatch centers to integrate relevant dispatch calls
  - Sports schedules
- Sensor data to provide situational awareness of environmental conditions, including weather
  - Local or municipally owned weather sensors
- Surveillance information describing objects in the air, including crewed and uncrewed vehicles, and other relevant information, to assist USS/UTM providers managing airspace operations
  - Access to any existing, available surveillance sensors

Institution Affiliation	Name	Email
Aerozone Alliance	Hrishue Mahalaha	hrishuem@inoecp.com
Aloft (B4UFly) (drone operators to check airspace before taking flight now available on mobile and desktop devices)	Jon Hegranes	jon@aloft.ai
Asst. Chief (Ret) Willoughby Fire Dept. Lake County Public Safety UAS Chief Pilot. Unmanned Tactical Group Chief Instructor	Scott Mlakar	scott1445@yahoo.com
ATA, LLc	Scott Drew	sdrew@ata-llc.com
ATA, LLc	John S Eberhardt	jeberhardt@ata-llc.com
AURA Network Systems (Advanced Ultra Reliable Aviation)	Matthew Ziska	mziska@auranetworksystems.com
Baldwin Wallace Dean of Research	Swagata Banik	sbanik@bw.edu
Baldwin Wallace Director of Sponsored Research	Jen Pitz	jpitz@bw.edu
Baldwin Wallace Engineering Department Faculty	Paul Penko	ppenko@bw.edu
Baldwin Wallace Project Director	Stuart Mendel	smendel@bw.edu
Baldwin Wallace Vice President of Operations and President of Cleveland International Air Show	Greg Flanik	GFlanik@bw.edu
Best Autonomous Insights inside Michael Best Consulting	Kyle Snyder	kylesnydernc@gmail.com
CEO at Govtrain Solutions & Optimal Grant Solutions (OGS)	LEONARD BRANHAN	mindsquare6@gmail.com
City of Cleveland	Alan Chonko	achonko@clevelandohio.gov
City of Cleveland Police	Stephan Williams	swilliams@clevelandohio.gov
City of Middleburgh Heights Fire Chief	Braint Gilgas	bgalgas@middleburgheights.com
City of Solon Fire Chief and Regional HAZMAT	Mark Vedder	mvedder@solonohio.org
City of Strongsville Emergency Dispatch	Jeff Branic	jeff.branic@strongsville.org
City of Strongsville Emergency Dispatch	John Bedford	john.bedford@strongsville.org
City of Westlake Police	Edwin (Ted) Morley	tmorley@westlakepolice.us
Cleveland Clinic	Geoff Gates	GATESG@ccf.org
Cleveland Hopkins International Airport	Adam Harvey	aharvey@clevelandairport.com
Cleveland Port Authority	Gutheil, Dave	David.Gutheil@portofcleveland.co
Cleveland State Center for Emergency Preparedness	Bernard B. Becker	ccfdchiefbecker@yahoo.com
Clevleland Hopkins International Airport	Javier Badillo	jbadillo@clevelandairport.com
Collins Aerospace (technologically advanced and intelligent solutions for the global aerospace and defense industry.)	Nick Liberko	nicholas.liberko@collins.com
Commerical Drone Group and NORCODA	Dan Chan	dan@kaizenvillagefoundation.org; d
Consultant with ATA	Tom McMahon	tmcmahon2@gmail.com
Critical Ops	Chelsea Treboniak	chelsea@criticalops.com
Crown Castle	George Kirov	george.kirov@dynamicstrategiesco
Crown Castle (nation's largest provider of shared communications infrastructure—cell towers, small cells, fiber—connecting people a	Nancy Chrisman	Nancy.Chrisman@crowncastle.com
Cuyahoga County - Economic Development	Anthony Stella	astella@cuyahogacounty.us
Cuyahoga County - Emergency Preparedness	Mark Christie	mchristie@cuyahogacounty.us
Cuyahoga County IT Department	☐Tom Fisher	tpfisher@cuyahogacounty.us
Cuyahoga County Planning	Dan Meany	dmeaney@cuyahogacounty.us
DroneUp (a last-mile delivery system that will not only provide swift and simple local deliveries, but will also be ready to provide criti	Matt Beatty	matt.beatty@droneup.com
FAA - retired	Scott Ross	captainscott32@gmail.com
First Comm Cyber Secruity	Rich Dawson	rdawson@firstcomm.com
First Energy Corporation	Melissa Frank	frankm@firstenergycorp.com

Organization	Contact	Email
G2G Government Relations Consultant	Andrea Harless	aharless@g2gconsulting.com
Iridium (global satellite communications company, providing access to voice and data services anywhere on Earth).	Joe Darden | Iridium	Joseph.Darden@iridium.com
Iris Automation (Creating a Safer Airspace with Collision Avoidance · Aviation safety powered by computer vision · COMMERCIAL DR(	Dan O'Shea	daniel.oshea@irisonboard.com
Manufacturing Works	Howard Thompson	howard.thompson@ehmadvisors.co
Manufacturing Works	Ken Patsey	kpatsey@mfgworkscle.org
Manufacturing Works	Molly Leitner	molly@mfgworkscle.org
Metrohealth	Brandon Cahill	bcahill@metrohealth.org
Metrohealth	Owca, Marek Owca	mowca@metrohealth.org
Metrohealth	Hubbard, Gabrielle	ghubbard@metrohealth.org
Metroparks	Laura Schuch	lms4@clevelandmetroparks.com
North Coast Drone Alliance (NORDODA)	Chad Hankins	chdhankins@yahoo.com
North East Ohio Sewer District	Freidman, Donna	FriedmanD@neorsd.org
Office of Governor - Northern Ohio Regional DirectorNorthern Ohio Regional DirectorOffice of Ohio Governor Mike DeWine	Michelle Gillcrist	
Office of Governor - Senior Advisor for Aerospace and Defense to Ohio Governor, Mike DeWine	Joe Zeis	
Ohio House District 15 - with daughter who is BW MBA Alumni	Richard Dell'Aquila	
OneSky (provider of high-quality commercial aircraft aftermarket parts and services).	Chris Cucera	ckucera@oneskysystems.com
OneSky (enterprise-ready, software platforms use proven, industry-leading analytics to ensure safe, compliant and efficient UAS and	Mike Tornetta (OneSky)	mtornetta@oneskysystems.com
Pierce Aerospace (evelops Remote ID and Combat ID technology for drones).	Aaron Pierce	aaron@pierceaerospace.net
Raytheon (parent corp of Collins Aerospace)	Joseph d'Hedouville	Joseph.dHedouville@collins.com
Regionerate	Linda Fowler	lindamariefowler@gmail.com
SARA (Pulsed power & directed energy solutions. Overview ; Advanced Perception Threat Awareness.	Jameson Garrett	jgarrett@sara.com
State of Ohio House Chair of Aerospace and Aeronautics	Adam Holmes	Adam.Holmes@ohiohouse.gov
TruWeather (micro weather analytics and technology company with over 35 years' experience deep in aviation, logistics and weathe	Don Berchoff	Don.Berchoff@truweathersolution
V 1 Drone Media	Jason Damman	jason@v1dronemedia.com
Zipline (the world's largest autonomous delivery system, specializing in on-demand drone delivery and instant logistics).	Liam Moran	liam.moran@flyzipline.com

NEOFIX
Northeast Ohio Flight Information Exchange

Northeast Ohio Flight Information Exchange (NEOFIX)

Stakeholder Meeting

Wednesday, February 8, 2023 at 1 PM (EST)

Hosts:	Stuart Mendel, PhD, Baldwin Wallace University
	John Eberhardt, ATA, LLC
	Scott Drew, ATA, LLC
	Howard Thompson, EHM Advisors and Manufacturing Works
	Chelsea Treboniak, Critical Ops
Stakeholders:	Mark Christie, Cuyahoga County Office of Emergency Management
	Anthony Stella, Cuyahoga County Office of Economic Development
	Mark Vedder, City of Solon
	Jason Damman, V1DroneMedia
	Dan Chan, Commercial Drone Group, Inc.
	Ted Morley, Westlake Police Department
	Hrishue Mahalaha, Executive Director of Aerozone Alliance and Innovation Economy Partners
	Bernie Becker, Cleveland State University
	Adam Harvey, Cleveland Airport System
	Javier Badillo, City of Cleveland, Department of Port Control
	Greg Flanik, Baldwin Wallace University
	Chad Hankins, Patriot Aerial Services
	Scott Harrington, Greater Cleveland Partnership

Minutes:

Attendees provided brief introductions. Slides outlined the agenda and provided direction for the meeting.

NEOFIX Goals. An overview of NEOFIX allowed attendees to understand the endeavor and provide insights on aligned values such as added airspace safety, operator awareness, and coordinated public operations. Many attendees agreed a generic summary of NEOFIX is "a conglomerate of data for public use."

Detailed information regarding NEOFIX was shared and is summarized on the website: https://bw-centers-tech-partnerships.org/neofix/

Attendees exchanged ideas and questions regarding the public and private interaction with data. System security was a focal point. Explanations on security ensure unrestricted data is redacted and programmatic access to the system is via Application Programming Interface (API).

Case examples from Pennsylvania and Virginia guided examples for Cuyahoga County. Attendees engaged in discussions about policies, rules, and integrated data embedded in NEOFIX. Conversations included the following:

- Plans at critical infrastructure locations, hazardous sites, cargo areas, existing ground routes, etc.
- Defibrillator drop points, diagnosis capabilities, and supporting instruction through Uncrewed Aerial Vehicles (UAV)
- Traffic forecasts during multi-vehicle accidents, weather incidents, etc.
- Integrations with existing equipment, sensors, and cameras (e.g., Motorola, Ohio Department of Transportation (ODOT) Buckeye Traffic, etc.)
- Payload rules and restrictions
- At-risk infrastructure, including bridges, power, etc.
- Ground data, including remote ID
- Sensor data, including hyper-accurate weather information
- Considerations for dealing with Beyond Visual Line of Site (BVLOS) and the Federal Aviation Administration
- Upgraded batteries for drones
- Considerations for safe commercial drone delivery, including flight routes and Traffic Collision Avoidance Systems (TCAS)

Attendees agreed that focusing on public safety overwatch and commercial drone delivery would best facilitate the following discussions.

Next Meeting. The next meeting is Wednesday, March 8, 2023 at Baldwin Wallace University Knowlton Center Boardroom. Attendees were encouraged to register and invite one additional stakeholder to register via the following site: https://bw-centers-tech-partnerships.org/events/

MARCH 8, 2023 – NEOFIX Stakeholders/Data Governance meeting

Present in person: Geoff Gates (Cleveland Clinic); Briand Halgas (City of Middleburg Heights); Dan Meany (Cuyahoga County Planning); Mark Christie (Cuyahoga County Emergency Management); Dan Chan (Commercial Drone Group); Adam Harvey (Cleveland Airport)'; Javier Badillo (Cleveland Airport); Stephan Williams (Cleveland Police); Laura Schuch (Cleveland Metroparks); Hrishue Malahala (Aerozone); Melissa Frank (First Energy Corp); Ken Patsey (Manufacturing Works); Paul Penko (Baldwin Wallace dept of Engineering); Swagata Banik (Baldwin Wallace Graduate Programs and Research Dean); Jen Pitz (BW Sponsored Research); Kyle Snyder (Michael Best Consulting); John Eberhardt (ATA, LLc); Scott Drew (ATA, LLc); Howard Thompson (EHM Advisors/Manufacturing Works); Stuart Mendel (Baldwin Wallace project director) .

Present on Zoom: J Garrett; Don; Mike Tornetta (OneSky); Tom McMahon (ATA,LLc); Jon Hegranes (Aloft); Aaron | (Pierce Aerospace); Dan O'Shea (Iris Automation); Nancy Chrisman; Linda Fowler; Joe Darden; George Kirov; Matt Beatty; Liam Moran; Matthew Ziska; Joe Darden (Iridium); Nick Liberko (Collins).

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Meeting agenda:

- Objectives and Background Refresher (5 minutes)

- Cleveland Clinic Discussion of Medical Delivery use Case (Geoff Gates) (20 minutes)

- Introduction to FIX-MVI (10 minutes)

- Guided Tabletop (30 minutes – 10 minutes per use case)

- System Administrative (15 minutes)

- Discussion and Next Steps (10 minutes)

Companies represented: Baldwin Wallace University; Cleveland Clinic; First Energy Corp; Metroparks; Cuyahoga County; Manufacturing Works; Cleveland Airport; Cleveland Police; City of Middleburg Heights Fire Department; Commercial Drone Group; North Coast Drone Alliance; Collins; Crown Castle; DroneUp; Google Wing; SARA; Iridium; IRIS Automation; Echodyne; Aloft; Pierce Aerospace.

This was the second of four working meetings to identify and engage stakeholders in the County funded NEOFIX infrastructure project. The remaining meetings are scheduled for April 12 and May 10, 2023.

Geoff Gates (Cleveland Clinic) presented three UAV (unmanned aerial vehicle which is an aircraft piloted by remote control or onboard computers) use case scenarios. Their UAV provider is ZIPLINE which requires designated take-off and landing procedures for beyond line of sight operations. Longer flight operations will require charging while on the longer distance runs before the completion of the run. All the procedures will require approval from the FAA for flight corridors and in-flight risk mitigation.

Differing sensitives to flight risks are important to consider. For example, conceptually the risk mitigation would have five levels of risks ranging from zero to catastrophic to either a UAV (drone), an

unaware third party, or physical infrastructure. Two modes of operations where mentioned. First, dynamic flight operations necessary to account for both home delivery in respect to distribution point to individual address, allowing to account for unanticipated barriers or other conditions; AND Second, for point to point operations from one institution to another on a routine schedule as might be the case with scheduled or routinized public transportation.

Some of the sensor infrastructure exists in the form of weather sensors but a point of inquiry will need to be made on their functionality for recognizing drones or drone detection in flight. Another sensor issue is their placement and versatility for Drone detection, and whether they are placed in dedicated corridors of operation determined by safe flight zones and risk mitigation; or according to geography and overlap radii to accommodate dynamic operations; or a combination of both.

Toward these ends, FAA will use data provided by NEOFIX and the UAV service providers to approve operations. A starting place will be for the NEOFIX to define critical infrastructure that accounts for hazards, undesired risks.

The initiation concept for the Clinic is to establish flight operations within 10 square miles of each of their three existing hospitals. Base maps for these locations that enable dynamic flight paths as opposed to dedicated flight corridors would be a useful outcome of the NEOFIX.

- The first use case is the Clinic's planning for delivery of prescription pharmaceuticals. Their concept involves point to point delivery using for example their pharmacy distribution facility originating in Beachwood with delivery as distant as Akron – about 25 miles in each direction. The trips do include recharging stops.

- The second Cleveland Clinic use case not quite developed as the first involves lab testing provided on main campus while drawing samples from remote locations.

- The third use case involved food prepared for outpatient delivery as part of a treatment plan for patients under care in their homes. Flights would originate in main campus and be delivered to patient home locations.
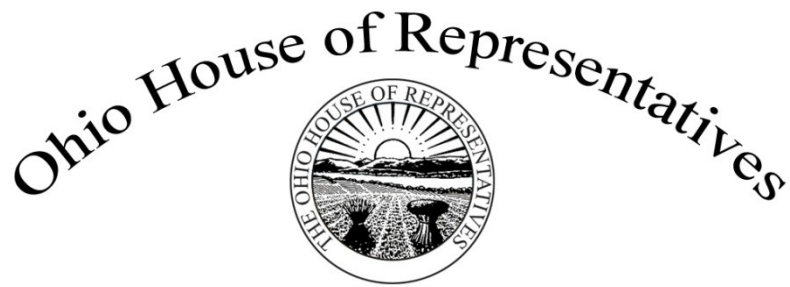
Contributors to this discussion include importance to map tall structures such as communication towers, power and other critical infrastructure that might be of concern to the 500,000 houses and 500 schools in the County. Several participants responded to this concern. For example:

- Crown Castle answered affirmatively that they can provide location data on towers and client infrastructure of note providing that details do not create problems for their clients.
- Cleveland Metroparks policies currently designate specific drone operation location for recreation use purposes in Millstream, Hinckley, and other reservations with special use permission. There are some restricted areas.
- First Energy Corp would not for security reasons provide a detailed infrastructure map but would provide baseline data that would inform base-map development to mitigate ground risk; traffic density risk and weather risk hazards.

- Cuyahoga County has information of cell towers, radio communication towers and chemical facilities. There are also wind turbines near Burke Lakefront Airport, to name a few.

The matter of tracking and including open air special events such as professional and amateur including public school sporting events in the NEOFIX as advisories also raises questions on the importance and necessity of vertical takeoff and landing designated areas or safe areas for emergency landing related to such events. Then the question of generalized policies that fit within FAA requirements for UAV detection, deconfliction and general operations is another aspect of work for the NEOFIX.

One concept suggested since the access to NEOFIX is open to the public through the WWW, data will be published in real-time but be enabled so that NEOFIX uses would allow for toggle on and off advisories depending upon the map sites and the purposes for the flights. The versions might allow differing data for hobbyist, public safety; commercial.

Drawn from SCMENDEL meeting notes
03/08/2023

ANNOUNCEMENT OF COMMITTEE MEETING

COMMITTEE:	Aviation and Aerospace
CHAIR:	Adam Holmes
DATE:	Tuesday, March 21, 2023
TIME:	**10:30 AM**
ROOM:	Room 121

AGENDA

President Rogers, Bowling Green State University, BGSU School of Aviation
President Todd Diacon, Kent State University, KSU College of Aeronautics and Engineering
Cassidy Brozovich, Caitlin O'Brien, Spencer Christian, The Ohio State University
Dr. Stuart Mendel, Affiliate Professor and NEOFIX Project Director, Baldwin Wallace, Northeast Ohio Flight Information Exchange (NEOFIX)

Cc: House Clerk   Committee Members
     Committee Clerk   Speaker's Office
     Assistant Majority Floor Leader's Office   Caucus Staff
     Bill Sponsor   Legislative Information Systems
     LSC   Press Room
     Minority Leader's Office

Aviation and Aerospace Committee

Members (11 in total)

Adam Holmes	District 97	R	Chair
Bernard Willis	District 74	R	Vice Chair
Rachel B. Baker	District 27	D	Ranking Member
Richard D. Brown	District 5	D	
Richard Dell'Aquila	District 15	D	
Sarah Fowler Arthur	District 99	R	
Brian E. Lampton	District 70	R	
Adam Mathews	District 56	R	
Phil Plummer	District 39	R	
Dick Stein	District 54	R	
Casey Weinstein	District 34	D	

Northeast Ohio Flight Information Exchange (NEOFIX):
A Public-Private Partnership To Develop Drone Infrastructure For Economic Development, Public Safety And New Resident Services

Stuart C Mendel, Affiliate Professor, NEOFIX Project Director
Tuesday March 21, 2023
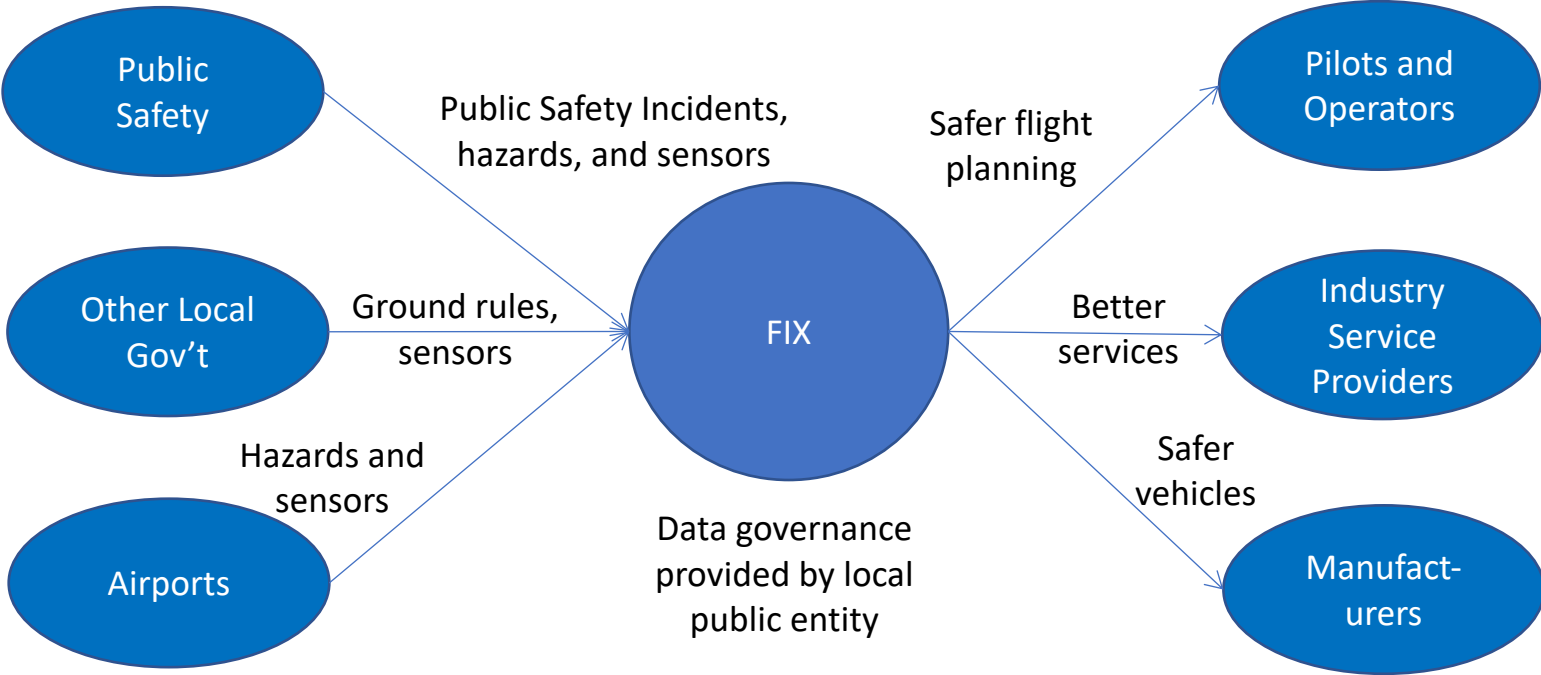
1

What is the NEOFIX

PUBLIC SAFETY BENEFITS FOR CUYAHOGA COUNTY?

- **Integrated system** allows for more overall visibility and awareness of drones, creating a safer airspace in the county
- **Integrate public data** supports a common operating picture that public safety can leverage – both to support public safety operations AND to identify potential bad actors for counter-UAS
- **Base digital infrastructure** accelerates use of drones for public safety (Drone as a First Responder) while lowering the costs of these operations

Public Data, for the Public Good, in the Public Interest

What Is the NEOFIX

- FIX allows State and Local government to publish key information to UAS Operators and Industry, giving everyone a clear, common picture – in the same way that charts do for traditional aviation

- UAS Operators and Industry use FIX to understand the local environment before and during operations; public safety use FIX to coordinate operations and alert private operators; State, Tribal and Local government use FIX to manage the interaction of UAS and local communities

- FIX fills the gap between FAA information services for controlled airspace and the need for information to support the mostly local nature of UAS operations
  - Can also support other kinds of data sharing and syndication, such as sensors, or other transit or smart cities data
  - Supports ground based sensor syndication into USS/UTM/PSU providers

- FIX provides a secure, access controlled central point of access for industry and a governance model for how State, Tribal, and Local governments publish information so industry doesn't have to deal with a patchwork of conflicting regulations – improving safety and economic growth

Basic FIX Concept

Why do it?

1. The NEOFIX project is a critical public infrastructure benefiting the residents and commercial users in Cuyahoga County and Northeast Ohio.
2. The NEOFIX is a public private partnership, where public sector first in resources will be amplified well beyond a dollar-for-dollar return with private industry and residents of the state of Ohio.
3. Funds will be used for stakeholder and public outreach, setting up the ground and airspace to support drone operations, to set up sensors for awareness, and integrate drones and drone operations into a common platform.
4. The funding sustainability model is devised to stimulate private sector actors who will join as they view the public sector funding as the validating commitment to the industry by local authorities.
5. The NEOFIX puts the County and its airspace within the leading the communities in the nation, spreading as a model for the state of Ohio.
6. NEOFIX will provide public safety in Cuyahoga County with a Common Operating Picture of drone operations, supporting safe operations and counter-UAS

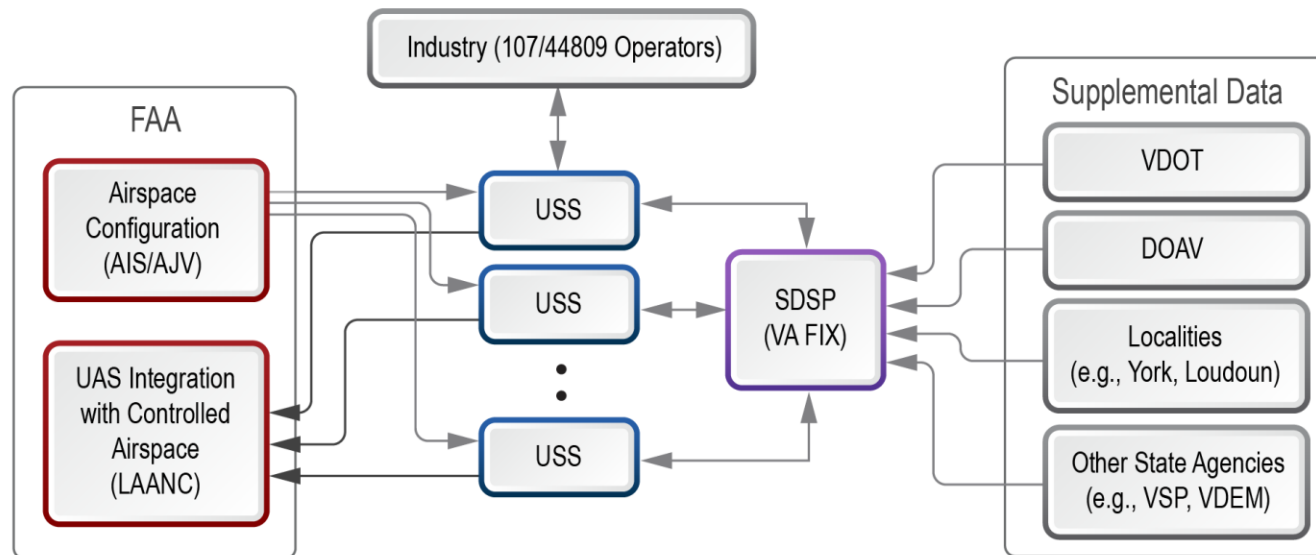**Public Data, for the Public Good, in the Public Interest**

HIGH POINTS

6. This early work will focus on an audience and user community of 6,500 public safety, emergency preparedness officials and professionals. We will also work to engage the health care and community services stakeholders.
7. This basic public digital infrastructure enables commercial services that serve resident safety (such as medical and health) but also directly enables public safety (police, fire, emergency management) operations, such as Drone as a First Responder
8. Shared public-private infrastructure will lower cost of public safety drone as a first responder operations
9. The latter work will create the conditions for dense business activity engaged in the research and development, manufacture, assembly, repair and maintenance, use in cargo and trade, but also education and training of pilots, public policy development locally but also in the FAA's policies for localities.
10. https://bw-centers-tech-partnerships.org/

Public Data, for the Public Good, in the Public Interest

I.   What will the money be used for?   (1)

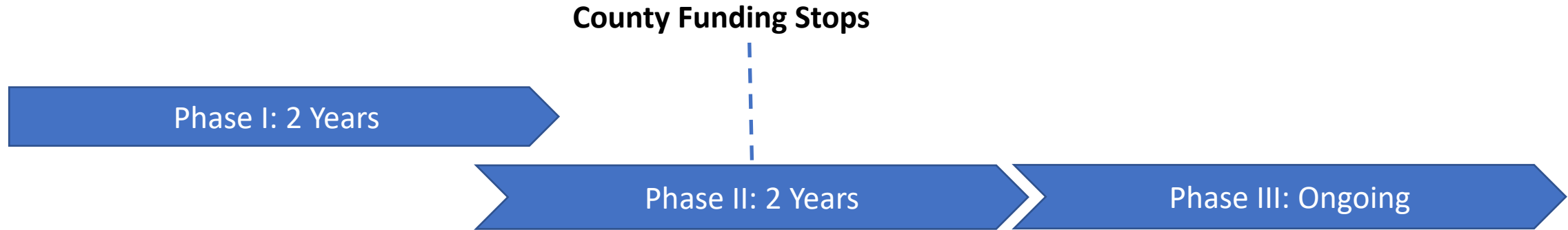- Drones are a $3Bn drone industry <u>forecasted to grow to over $10Bn in the next five years.</u>
- Experiencing dramatic increases in drone traffic – millions of flights per year nationally and likely thousands in Cuyahoga County already
- A safer airspace saves lives and supports public safety; more clarity grows drone operations resulting in more services and more jobs
- New services include medical and package delivery services, remote cargo and freight, and high-end blue-collar jobs (pilots, operations, maintenance, manufacturing) paying $30,000 - $135,000 annually
- New services and jobs require and operating environment that can attract serious national players - **the #1 factor holding back growth is lack of clarity in ground rules and infrastructure.**
- Cuyahoga County can attract the national commercial players to create new services and jobs

Where Does NEOFIX Fit in the FAA Vision?

- FAA already has infrastructure and programs in place to build UTM/UAM infrastructure
- FAA has already created concepts of UAS Service Suppliers (USSes) and Supplemental Data Service Providers (SDSPs) integrating into UTM
- State and Local Governments are the logical authoritative source for governance and provision of Authoritative SDSP (ASDSP) information (since UAS operations are highly local)
- FIX provides a central clearing house for aeronautical information from local government – data is a public asset

II. Implementation Schedule (slide 1) Sustainability

County Funding Stops

Phase I: 2 Years

Phase II: 2 Years

Phase III: Ongoing

Development and Initiation
Year 1
- Establish NEOFIX: 90 days
- Establish Governance: 90 days
- Outreach to stakeholders: 120 days
- Onboarding national stakeholders: 90-120 days
- Loading data and zoning assets to provide navigation to drones: ongoing
- **County Contribution: $225,000**

Critical Mass and Transition
Year 2
- Deploy initial resident services (medical and package)
- Extend data services, including sensor integration
- Sponsorships
- **County Contribution: $225,000**
- **Stakeholder Contribution: $150,000**

Year 3
- Extend resident services, data, and Stakeholder Partners
- **County Contribution: $0**
- **Stakeholder Contribution: $250,000**

Sustainment and Growth
Beyond Year 3
- Ongoing local and public safety outreach
- Ongoing infrastructure and data development
- Ongoing systems integration work
- Funding mechanisms
  - Industry User Fees
  - Integration Work
  - Workshops / Governance Support
  - Federally Funded Integration work
- **Stakeholder Contribution: $300-$500,000**

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9

NEOFIX Strategic Goals

1. Identify high priority uses of drones

2. Rapidly (6-12 months) turn up next round of ground based infrastructure to support these use cases

3. Demonstrate "in depth" that including localities, public safety, industry service providers, and manufacturers to show real-world benefit (safety, public benefits, and economic development benefit)

4. Demonstrate affordable infrastructure (e.g., infrastructure that can be maintained and operated by a typical locality with industry support)

5. Maintain data and infrastructure as a PUBLIC asset

6. Use the turn up as a mechanism to engage community and stakeholders and support local consensus on UAS integration

Stakeholders and Partners

Local Partners	National Partners
Baldwin Wallace University, Aerozone, North Cost Drone Alliance (NORCODA), Tamarack Aerial Services. <u>Reaching out to</u> Cleveland Hopkins International Airport; Cuyahoga County Port Authority, Metroparks, County office of Sustainability, Mayors and Managers Association, Cleveland State's Center for Emergency Preparedness.	DRONERESPONDERS, ATA, Aloft, OneSky, Crown Castle, Intellisense, DroneUp, Raytheon, Collins, Echodyne, Fortem, TruWeather, Wing
Provide local outreach, governance and data to support industry investment and stand up of new resident services and jobs	Invest in local infrastructure (sensors, communications, and facilities), education (pilot, maintenance, and operations personnel), and development of new services (medical and package delivery)
Creates a strong backbone for growth	Investment capital is seeking communities that are ready

WHY CUYAHOGA COUNTY?

- **Existing aerospace industry** can support and benefit from growth of drone industry
- **Diverse metropolitan area** creates an ideal collaboration environment for services
- **Leader in health sciences** supports developing new medical drone services
- **Major airport**
- **Shared border**
- One of the **busiest airspaces** in the nation
- **NASA GLENN Research Center**

BENEFITS FOR CUYAHOGA COUNTY

- **Immediate onboarding** of 3-5 providers and other industry players
- **Infrastructure investment** (weather and environmental, sensors, telecomms) that is financially sustainable
- **Infrastructure tracks directly to industry** needs, grows services and jobs
- Rapid development of **new medical and resident delivery services** (ARPA benefits)
- **High end blue collar pilot and operations personnel jobs** to deliver services
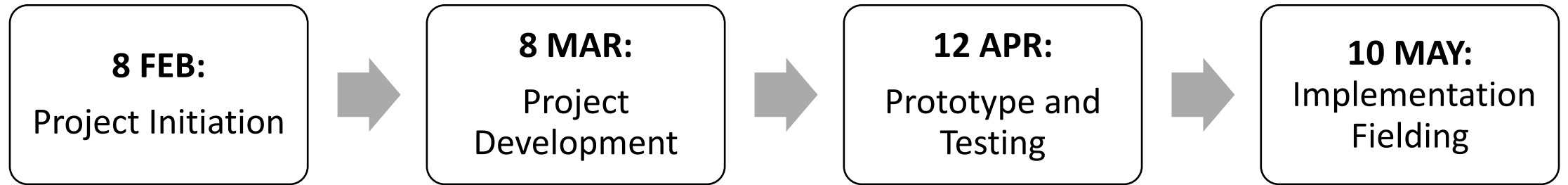
WHY NOW?

Industry is looking for real, functional infrastructure now and looking for communities that are serious – not high-dollar research projects. A national coalition is happening.

Public Data, for the Public Good, in the Public Interest

Impact   (slide 3)

Future Services and Opportunities

- 1 Year: Deliver medicine and diagnostic tests to underserved communities
  - Working poor frequently can't access medical services
  - Drones provide a solution to this for certain types of services
  - The technical and regulatory framework to deliver medical services by drone exists **today**
  - With Cleveland Clinic, Metro, and University Hospitals, all you need is the base infrastructure and you will be providing services in 2023
  - Leverage existing underused real estate
- 2 Years: Use freight drones to deliver large international freight across Lake Erie between Port of Cleveland and Canada – reduce the Friendship and Rainbow Bridge freight bottlenecks
  - Technology is largely ready (Alaska working toward operations this year)
  - Supports manufacturing
  - Easy to do given geographies and infrastructure
  - Leverage the port
  - Straightforward safety case given geography

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Next Steps

| 8 FEB: Project Initiation | → | 8 MAR: Project Development | → | 12 APR: Prototype and Testing | → | 10 MAY: Implementation Fielding |

1. Opt-In
   1. Core Governance Group – provide input, define system parameters and procedures, provide data, use system
   2. Stakeholder / User Group – provide input, provide data, use system
   3. Stakeholder – provide input, use system

2. Register to attend and invite one person to the next event

3. Share information

Stuart C. Mendel
Project Director

E-mail: smendel@bw.edu
Cellular: 216-407-2673
Linked In: https://www.linkedin.com/in/stuart-c-mendel/

www: https://bw-centers-tech-partnerships.org/