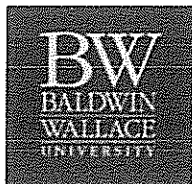




4<sup>th</sup> quarterly report on the Northeast  
Ohio Information Exchange: Digital  
Infrastructure for Drone Services in  
Cuyahoga County project

Period thru December 31, 2023

Stuart C. Mendel  
Project Director



## Report Contents

- TAB 1      4th Quarterly report
- Summary
  - Fourth quarter NEOFIX project performance
  - Running totals of expenses
    - Table I
  - Quarterly project goals in table-format
    - Tables II and III
- TAB 2      Briefings recap at BW; Cuyahoga County; Ohio House Committee. *NEOFIX Interview*
- TAB 3      Briefing roster and recap of ODAS and ODPS.
- TAB 4      NEOFIX Testimony in support of HB 77 and news articles
- TAB 5      Strategic Community Investment Fund Proposal and Supporters

### Website content hyperlinks

Here is a short link for this report if needed: [tinyurl.com/neofix-q4report](https://tinyurl.com/neofix-q4report)

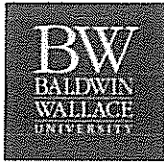
<https://bw-centers-tech-partnerships.org/neofix/>

<https://bw-centers-tech-partnerships.org/members-supporters/>

<https://bw-centers-tech-partnerships.org/resources/>

[www.OH-FIX.com](http://www.OH-FIX.com)

TAB 1



December 31, 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 attachments arranged under TABS 1 – 5 comprise the fourth 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 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**).

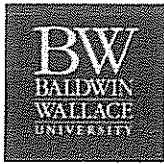
Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Swagata Banik'.

Swagata Banik, Ph.D.  
Dean of Graduate Studies & Research

A handwritten signature in black ink, appearing to read 'Stuart C Mendel'.

Stuart C Mendel, Ph.D.  
Affiliate Professor and  
NEOFIX Project Director



## Summary

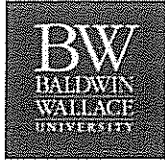
*The fourth quarter* report on the progress of the NEOFIX depicts uninterrupted work initially described in the original proposal to the Cuyahoga County District 2 and County Council in Fall 2022 and the first and second quarter reports submitted this past spring and summer.

Briefly, 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.

- The first quarter work of the NEOFIX attended on identifying and organizing the stakeholder community.
- The work of the second quarter focused on building the NEOFIX instrument. The public facing NEOFIX web interface was made live (<https://bw-centers-tech-partnerships.org/bw-announces-launch-of-neofix-cuyahoga-countys-new-drone-safety-platform>) and presented to stakeholders for use and refinement.
- The third quarter outputs involved buildout of the NEOFIX database drawing on data provided by Cuyahoga County GIS and planning programs, and on flight and other ground sensor data contributed by private sector corporations. The NEOFIX is designing its system to enable growth to other counties in the state of Ohio, residents, and other stakeholders.
- The fourth quarter performance focused on build out of the NEOFIX. Stakeholders were convened in October and November to add detail to the static basemaps that will lead to conceptual aeronautical flight corridors as the work matures and involves the FAA. The project team also performed numerous legislative briefings for Cuyahoga County Administrators and councilmembers, state of Ohio elected officials and department administrators and others.

As reported previously, the work outputs noted complement the state of Ohio's DriveOhio Advanced Air Mobility framework (<https://drive.ohio.gov/programs/aam/aam-framework>). In advancing a regional approach to creating a drone ready infrastructure emanating from Cuyahoga County, the NEOFIX project team has also reached out to the Kent State University Center for Advanced Air Mobility for joint project development.

For readers of this report wishing to do so, the public NEOFIX web site can be accessed by visiting: <https://oh-fix.com/index.html> clicking "About," and then Government sub-tab of the pull down menu.



## Report Narrative

### Fourth quarter NEOFIX project performance

In the period October through December 2023 content has been steadily increased on the NEOFIX website to deepen its data sources for drone use stakeholders in the County and region.

Goal 1 To engage the working subgroups drawn from stakeholders identified during first quarter.

Goal 2 To advance the design and functionality of NEOFIX as public infrastructure.

Goal 3 To set the conditions for a public private partnership (PPP) for Cuyahoga County portable to the NEO region and across the state of Ohio.

Fourth quarter work engaged participants from three working groups (Data, design and configuration, sensors integration and planning; and public policy).

Outputs for the data sharing/base layers group included continued engagement of the County's IT/GIS heads and emergency management staff. Live demonstration of the NEOFIX was essential at the design, configuration and sensor integration meetings. Data collection companies shared their data for the demonstrations.

- Stakeholder committees offered recommended “data governance” parameters as to how to meet FAA data standards, while meeting the requirements of local public safety and emergency response. This information informed the NEOFIX project team for briefing state of Ohio legislators in October, November and December and in the drafting of NEOFIX’s testimony on HB 77 before the House Aviation and Aerospace Committee, November 14 (<https://www.ohiochannel.org/collections/ohio-house-aviation-and-aerospace-committee>). **See TAB 2.**
- Future project development including nearby counties to Cuyahoga County, further set the conditions for growing the NEOFIX coverage area and casting it as a model to be shared throughout the state of Ohio. This furthers NEOFIX as a regional infrastructure partnership worthy of state of Ohio support **TAB 3** – briefing roster of ODAS and ODPS.
- Outputs to inform public policy are increasing. For example, recognition that NEOFIX fulfills the policy niche for the state of Ohio as infrastructure for drone readiness and ultimately for economic development has gained traction during the ingoing legislative briefings. **Under TAB 4** see Testimony and news articles – Cle.com and other.
- The NEOFIX has applied for drone sensor funding from the state of Ohio through the One-Time Strategic Community Investment Fund which will allow allocation for sensor placement and associated outreach for the placement. The proposal is included under **TAB 5** of this report which includes the proposal form required by the state of Ohio and the roster of support letters accompanying the proposal. The roster includes:



Cleveland Airport System, Cleveland Clinic, Cleveland State University, Middleburgh Heights Fire Department, North East Ohio Public Safety Unmanned Response Teams, Lake County Public Safety Unmanned Response Teams, Team NEO, Aerozone Alliance, Manufacturing Works, Crown Castle, DRONERESPONDERS, TruWeather Solutions, OneSky, Best Autonomous Insights, Critical Ops LLC, Scientific Applications & Research Associates Inc. (SARA), Vega Technology Group, Saab, AAMTEX, LuftCar

The NEOFIX will also seek infrastructure project support from multiple State of Ohio (departments of Economic Development and Homeland Security for example).

During the 4th quarter, we have increased outreach to state of Ohio legislators, executives and relevant departments for the purpose of deepening the initiative locally and advancing the initiative statewide. Our overarching goal for 2024 is to receive funding from the grant applications submitted in the fourth and fifth quarter to enable the NEOFIX to obtain ground-based sensors, and support funding to advance the NEOFIX throughout the state of Ohio.

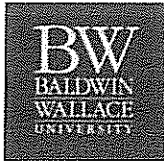
As part of the 4th quarter outreach, the NEOFIX held a well-attended NEO regional legislator briefing at BW School of Business on October 23, 2023; a briefing of Cuyahoga County Administrators on October 24, 2023; and expert testimony on November 14, 2023 for HB 77 to the committee on Aviation and Aerospace Committee (<https://bw-centers-tech-partnerships.org/neofix-project-director-stuart-mendel-testifies-on-drone-usage-bill-infrastructure-development-with-house-aviation/>).

Fourth quarter meetings and briefings took place in the governor’s office and with legislators in October, November and December 2023.

The work of the fourth quarter has involved making the case for direct financial support from the state of Ohio in the creation of public infrastructure. Funds are necessary to acquire ground sensors dedicated to a drone ready public infrastructure. NEOFIX goals performance are reported in the following tables.

**Table I** Budgeted and Expense items First Quarter thru 12/15/2023

Line Item	Annual Budget	Actual	Notes
Program Development Expenses	\$105,000	\$107,895	Salary/fringe
Technical / Software	\$ 75,000	\$75,000	ATA
Stakeholder Outreach	\$ 19,500	\$15,000	EHM, Vaux
Data Governance	\$ 0	\$ 0	contributed
Use Case Development	\$ 25,000	\$18,750	Critical Ops, Food, travel
<b>Total Direct Costs</b>	<b>\$224,500</b>	<b>\$216,645</b>	<b>Net 2024 Rollover \$7,855</b>



**Table II.** An itemized list of project goals to be completed during the third quarter.

Fourth Quarter	
<b>Monthly</b>	Legislative briefings of Cuyahoga County officials - ongoing Legislative Briefings of State of Ohio Officials Draw stakeholders into Public Private Partnership Project proposal for funding of the NEOFIX Public Policy development on user fees
<b>Monthly Thereafter</b>	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. Funded projects development
<b>Quarterly Thereafter</b>	Operations System Maintenance and Ongoing Security Compliance Minimum quarterly release of updated application and new features

**TABLE III.** Next Quarter goals and activities

Fifth Quarter	
<b>Monthly Thereafter (January 1 – March 31, 2024)</b>	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. Funding Proposal development Use Case development and outreach Collaborative projects with regional stakeholders
<b>6<sup>th</sup> Quarterly and Thereafter (April 1 – June 30, 2024)</b>	Sensor integration Regional Multi-state AAM collaborative System Maintenance and Ongoing Security Compliance Minimum quarterly release of updated application and new features



TAB 2



Northeast Ohio Flight Information Exchange (NEOFIX)  
Stakeholder Meeting  
Monday, October 23, 2023 at 1 PM (EST)  
Tuesday, October 24, 2023 at 9 AM (EST)  
Wednesday, October 25, 2023 at 12:30 PM (EST)

**Hosts:** Stuart Mendel, Baldwin Wallace University Project Director  
John Eberhardt, ATA, LLC  
Scott Drew, ATA, LLC  
Chelsea Treboniak, Critical Ops  
Howard Thompson, Manufacturing Works

**Stakeholders:** <https://bw-centers-tech-partnerships.org/members-supporters/>

**Meeting Recording:** Zoom

**NEOFIX Site:** <https://oh-fix.com/index.html>

### Minutes

**Legislative Briefing (October 23, 2023):** Baldwin Wallace University hosted local, state, and federal legislators, government officials, and staff for a legislative briefing on the NEOFIX. The team defined and described NEOFIX, including Northeast Ohio's role in leading AAM. Each level of government has the opportunity to invest in NEOFIX financially and through policies. As legislators consider policies related to AAM, it is important they understand where NEOFIX fits so it may operate. The group was thrilled with this exciting opportunity for the region and eager to help the continued growth.

**Briefing to County Council (October 24, 2023):** The team shared updates on the NEOFIX with County Executive Chris Ronayne, members of Council, and various departments. The County's investment in NEOFIX has created platform operations. Medical delivery and public safety operations are two most immediate projects benefitting from NEOFIX. More businesses, jobs, and opportunities are predicted throughout the region. Continued information will be shared relative to implementation, engagement throughout communities, and financial/economic benefits.

**NEOFIX Stakeholders (October 25, 2023):** Stakeholders gathered for an update on 3D geo-mapping of the Cleveland downtown service area. Features included critical infrastructure, such as ground storage tank facilities and additional high-rise building data. Stakeholders offered assistance with analysis requirements. Pending data additions include the Cleveland Metroparks, regional sewers, and shed data.

Stakeholders observed a drone operating with detailed tracking in the University Circle area. Discussions included FAA compliance, privacy, security, and data stewardship; the group considered a verified drone operating program. *Of note, this flight did not appear to have LAANC approval and was operating in an area requiring additional permissions.*

The group discussed the need for a deeper analysis of sensor placement. Ideal sensors include weather visibility, surveillance (service areas), connectivity, dew point, temperature, flood, lightening, wind at various altitudes, and accident monitors. Discussions of placement requirements are based on future funding allotments.

### **Stakeholder Discussions**

Roundtable conversations focused on the following:

- Provisional NEOFIX accounts and advisories (updated on a case-by-case basis by Scott Drew).
- Need for FAA engagement in the near term. Stakeholders feel the time is right to include FAA FSDO office in operational discussions.
- Sensor use cases, redundancy, integrity, and opportunities to include enhanced weather sensing in parallel to tracking sensors was discussed.

### **Action Plan**

- Virtual workgroups will be contacted with additional tasking needs.
- In person participation from FAA FSDO would be ideal.

### **Next Meeting**

- Virtual workgroups will be scheduled for late November.
- The next meeting is pending for December based on stakeholder commitments and holiday schedules.

NEOFIX – a public private partnership

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

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NEOFIX Outreach Strategy – Year 2

- Pilot program with Public Safety Officials throughout the NEO region, then the state of Ohio and nationally through the network of collaborative agreements
- Advocate with state legislators for endorsement and support for the concepts among the public sector departments which rely on Drones and CAAM (Commercial Advanced Air Mobility)
- Public policy development drawn from municipalities on drone and AAM concepts.
- Will require use of existing and new equipment (ground sensors)
- Engage local and regional offices of the Federal Government such as the FAA and NASA.
- Develop support from national stakeholders such as Crown Castle, DroneUp likely to buy into the infrastructure
- Funding support from the OHIO Department of Economic Development
- As a public private partnership, funding streams will arise through user memberships, project development with third parties

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Use-case Opportunities

- Deliver medicine and diagnostic tests to underserved communities within a year
  - 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, the base infrastructure and enables service provision in 2023/24
- Federal SMART Grant Planning Demonstration project for Cuyahoga (Urban) and Portage (rural) Counties for emergency medical response (NARCAN and Epi pen)
- Use freight drones to deliver large international freight across Lake Erie between Port of Cleveland and Canada – reduce the Toledo/Tip and Rainbow Bridge freight bottlenecks
  - Technology is largely ready
  - Vehicles could easily be made in Cleveland
  - Easy to do given geographies and infrastructure
  - Straightforward safety case given geography

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County Funding Steps

Sustainability




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Development and Initiation	Critical Mass and Transition	Sustained and Growth
<p><b>2021</b></p> <ul style="list-style-type: none"> <li>• Initiation in 2019-20 days</li> <li>• Initial Q Governance 90 days</li> <li>• Outreach for 120 days               <ul style="list-style-type: none"> <li>• Committees and agencies to participate</li> <li>• Local and regional economic development entities</li> <li>• Public Safety Offices</li> <li>• Realign the NE O region</li> <li>• Realign the NE O region</li> <li>• Outreach and working needs to provide legislative funding request</li> </ul> </li> </ul> <p><b>County Contribution: \$250,000</b></p>	<p><b>2022</b></p> <ul style="list-style-type: none"> <li>• Key role in infrastructure services (the road and package)</li> <li>• Grand strategy, including service integration</li> <li>• Stakeholder               <ul style="list-style-type: none"> <li>• Industry</li> <li>• Infrastructure Providers (local government)</li> </ul> </li> </ul> <p><b>County Contribution: \$155,000</b>  <b>Stakeholder Contribution: \$100,000</b></p>	<ul style="list-style-type: none"> <li>• Beyond 2023</li> <li>• Ongoing local and public safety outreach</li> <li>• Ongoing infrastructure and data development</li> <li>• Ongoing systems integration work</li> <li>• Funding mechanisms               <ul style="list-style-type: none"> <li>• Industry Barriers</li> <li>• Integration Work</li> <li>• Workshop / Governance Support</li> </ul> </li> <li>• Federal/State/Local Integration Work (NEO Critical Mass, CAAM)</li> </ul> <p><b>Stakeholder Contribution: \$200,000</b></p>

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

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Don't Leave without hard copy of the...

Northern Ohio Leading Commercial Advanced Air Mobility (CAAM)  
 Critical Infrastructure Development Legislative Briefing

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

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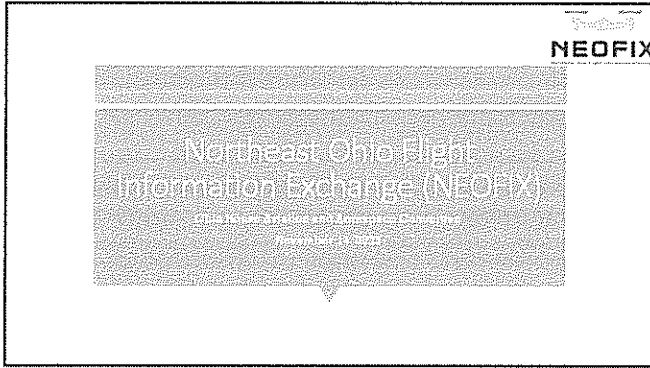
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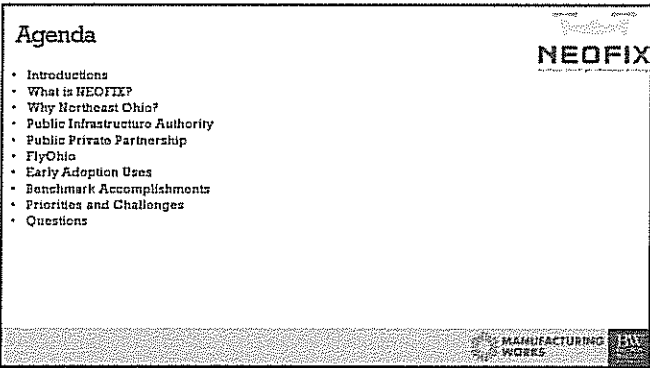
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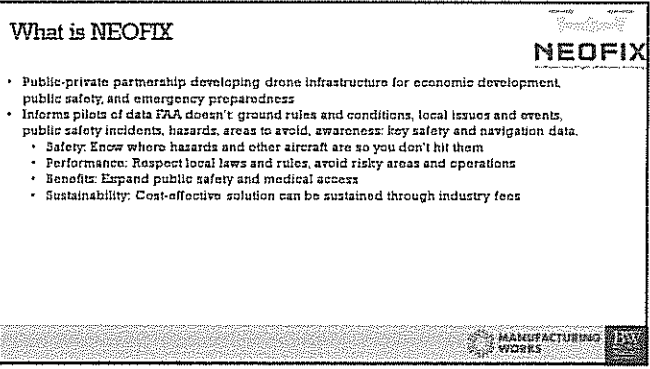
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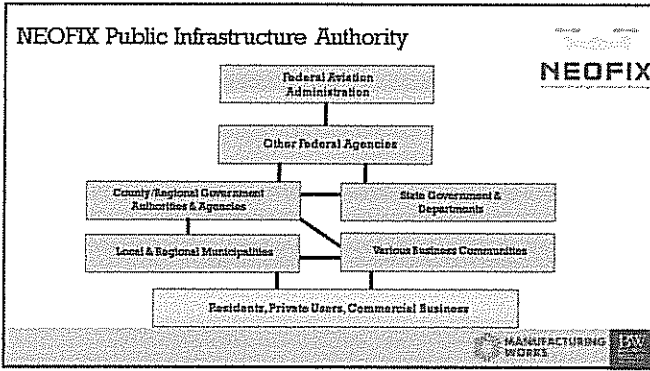
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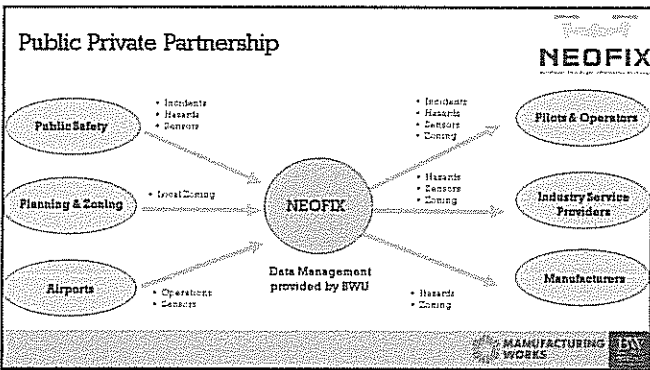
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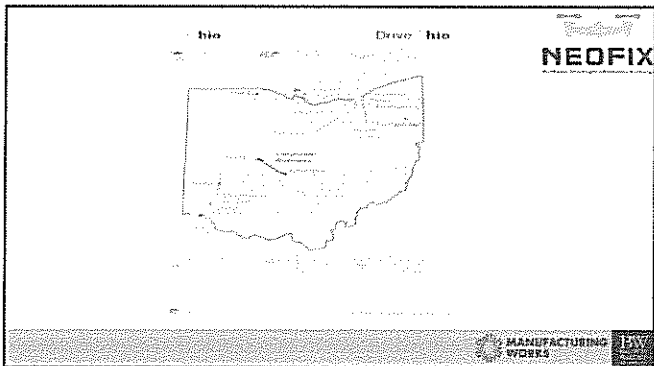
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**Infrastructure for Early Adoption Uses**

**NEOFIX**

- Deliver medicine and diagnostic tests to underserved communities within a year
  - **WHY** — Working poor frequently can't access medical services and drones provide a solution to this for certain types of services
  - **Model Program** — deliver defibrillators, Epi-pens, NARCAN in Cuyahoga and Portage Counties
  - The technical and regulatory framework to deliver medical services by drone exists today with involvement of municipalities, counties and their residents.
  - Health care institutions are leading the case for infrastructure
- Flight drones to deliver large international freight across Lake Erie
- Vehicles could easily be made in Cleveland



MANUFACTURING WORKS

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**Benchmark Accomplishments**

**NEOFIX**

- NEOFIX up, running and continued development
- SMART grant application with Portage County to develop drone deliver of emergency self-administered medical treatments Epi-Pens, NARCAN, AED-Defibrillator
- Outreach to work with airports — Burke, Cleveland Hopkins, Cuyahoga County with expansion to Canton-Akron, Akron Fulton, Kent
- Funding applications for sensors
- Outreach for purposes of economic development
- Business Attraction

MANUFACTURING WORKS

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**Priorities and Challenges**

**NEOFIX**

- Funding Continuity
  - Timing can't be interrupted by gap in funding, which must come from state and federal sources
- Public Policy regarding drone operations
  - Municipal, region, statewide, FAA approval
- Funding fee mechanism
- Additional use-cases
- Industry build-up
- Cooperation amongst stakeholders
- Multi-state collaboration agreements

MANUFACTURING WORKS

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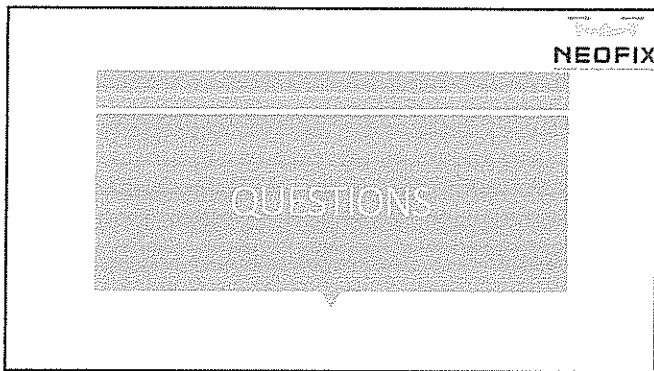
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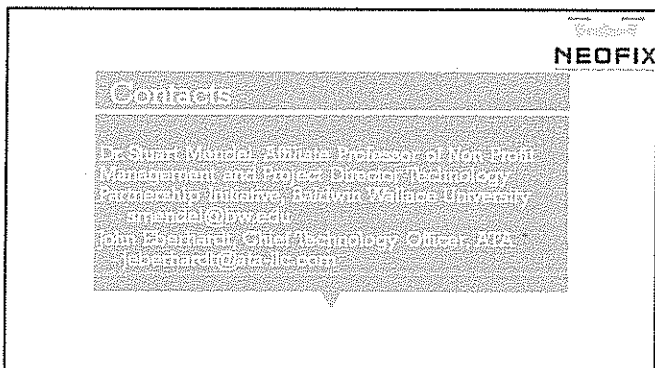
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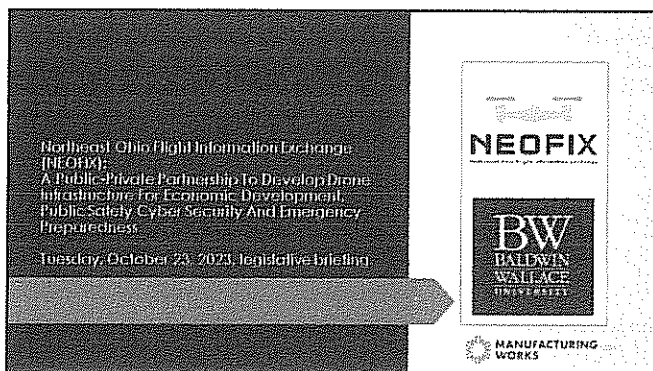
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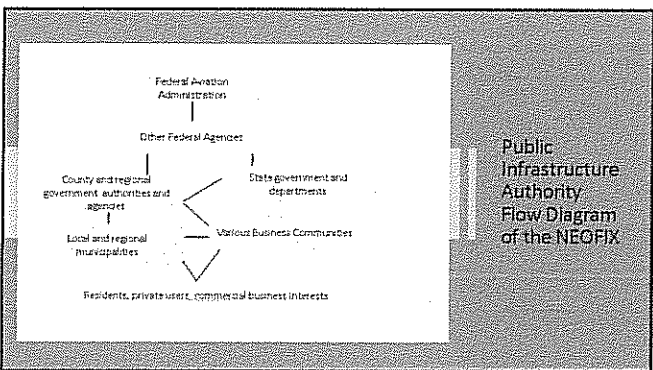
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**What is NEOFIX?**

- NEOFIX is the instrument for state and local government and public safety agencies to post information for each other and drone operators which keep the air space open, secure, and safe.
- NEOFIX informs drone operators of ground rules and conditions, local issues and events, public safety incidents, hazards, and sensitive and critical infrastructure, key safety and navigation data.
- NEOFIX 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.

[NEOFIX Home Page](#)  
[NEOFIX User Manual](#)  
[NEOFIX API](#)  
[NEOFIX Data](#)

Public Data for the Public Good in the Public Interest

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TAB 3

12/14/2023

For tomorrow, let's plan to meet in the lobby of the Riffe Building (77 S. High St) at 11:30 am to connect before our first meeting. Our meetings are as follows:

Noon: Rep. Tom Patton (R-Strongsville)

3PM: Matt Kelly, Office of Gov. Mike DeWine- Matt handles all capital requests for the Gov.

4PM: Sen. Kent Smith (D-Euclid)

4:30PM: Leader Nickie Antonio (D-Lakewood)

12/19/2023

I wanted you to see the attendees and some brief notes from today

ATTENDEES:

- Kathleen Madden Director, Ohio Dept of Administrative Services
- Karen Huey, Assistant Director, Ohio Dept of Public Safety
- Katarina Flory, Chief Information Officer/Assistant Director, Ohio Dept of Administrative Services
- Staff Lt. Justin Cromer, Aviation Section Commander, Ohio State Highway Patrol
- Sergeant Jason Eiden, Drone Coordinator, Ohio State Highway Patrol- Highway Patrol Crash Reconstruction
- Mark Porter, Executive Director, Ohio Homeland Security
- Janille Stearmer, Assistant Director, Ohio Homeland Security (One duty I have is facilitating our Ohio UAV/UAS Workgroup.)
- Ben Weisbrod, Ohio Homeland Security Critical Infrastructure Protection Specialist Northeast Ohio Region
- James Meador, Critical Infrastructure and Cyber Protection Program Administrator, Ohio Dept of Public Safety
- Charles Thomas - Ohio Homeland Security
- Donovan Powers, Executive Director, Ohio Geographically Referenced Information Program (OGRIP)
- Capt. Ron Raines, Ohio State Highway Patrol. Commander assigned to the Statewide Terrorism Analysis and Crime Center (STACC)
- Raivo Murnieks, Ohio Department of Administrative Services - State Chief Data Officer
- Clairissa Vandergriff, Ohio Homeland Security
- Charles W. Ash, Esq., Deputy Director and Chief Information Officer, Ohio Dept of Transportation/ Division of Information Technology
- Angela Canepa, Ohio Dept of Administrative Services
- Scott Drew, Howard Thompson, Stuart Mendel, Andrea Harless

## NOTES

- Karen Huey wants to know about public safety input, how they use it, how to keep drones out of place, critical infrastructure/mitigating threat
- Scott Drew gave background on where FIX came from
- Stuart Mendel mentions this is put together with idea public sector needs on who owns the data and that there is restricted access to data where needed, PDs have said sometimes they don't want general public knowing about this
- Scott Drew- talked about advisories- what they are, how long they last, what they represent, talks about B4UFLY and what it is missing for drone operations
- Scott Drew does demo
- Jim Meador- asked about different reporting services coming into the system
- Karen Huey asked about recreational pilots- does it recognize when you have gone BVLOS
- Scott Drew talks about restriction levels and essential infrastructure
- Jim Meador asked about alerts
- Charles Thomas asked if Aeroscope the main tracking system used?
- Scott said all systems are designed to be based on risk
- Capt. Raines- As far as Cuyahoga Co., How are they currently using this?
  - SM mentioned in test concept, helping to design
  - SD mentioned advisory data
- Howard mentioned demos done for PS
- Jim Meador- said problem with UAS oversight is ignorant public- will this have any type of educational component for public?
- Howard offered more demos
- Huey- I agree there needs to be more explanation and demo for us to consider.
- 1/2 or 1/9 at 1PM works for folks

### **12/18/2023**

The One Time Strategic Community Investment Fund forms have been submitted! I have submitted to all members of the Cuyahoga Co. delegation, Finance Leadership and Reps. Holmes and Willis. Great work all in getting this together and getting so many support letters. We have a meeting with Rep. Upchurch at 10:30 am tomorrow to round out all meetings. The legislature will break for the holidays so we will not have updates on this for a bit, but the first step is done. Final form is attached if needed to share.

Here is the list of to whom we submitted:

Rep. Mike Skindell

Rep. Sean Brennan

Rep. Richard Dell'Aquila

Rep. Bride Rose Sweeney- House Finance Ranking Member

Rep. Tom Patton

Rep. Darnell Brewer

Rep. Phil Robinson

Rep. Terrence Upchurch

Rep. Juanita Brent

Rep. Elliot Forhan

Rep. Dan Troy

Rep. Jay Edwards- House Finance Chair

Rep. Jeff LaRe- House Finance Vice Chair

Rep. Adam Holmes

Rep. Bernie Willis

Speaker Jason Stephens

**We also submitted support letters from:**

Cleveland Airport System

Cleveland Clinic

Cleveland State University

Middleburgh Heights Fire Department

North East Ohio Public Safety Unmanned Response Teams

Lake County Public Safety Unmanned Response Teams

Team NEO

Aerozone Alliance

Manufacturing Works

Crown Castle

DRONERESPONDERS

TruWeather Solutions

OneSky

Best Autonomous Insights

Critical Ops LLC

Scientific Applications & Research Associates Inc. (SARA)

Vega Technology Group

Saab

AAMTEX

LuftCar

**11/14/2023**

You can see the recording from the committee today here. I did not get a chance to view yet, but my colleague said you did great!

<https://www.ohiochannel.org/collections/ohio-house-aviation-and-aerospace-committee>

TAB 4





airspace in the county. The NEOFIX integrates public data to support a common operating picture that public safety can leverage – both to support public safety operations AND to identify potential bad actors for counter-UAS (unmanned aircraft system). NEOFIX is digital infrastructure that will accelerate use of drones for public safety (Drone as a First Responder) while lowering the costs of these operations.

NEOFIX allows State and Local government to publish key information to UAS Operators and Industry, giving everyone engaged in Commercial and Civilian Advanced Air Mobility a clear, common picture – in the same way that charts do for traditional aviation.

UAS operators and industry use NEOFIX to understand the local environment before and during operations

Public safety use NEOFIX to coordinate operations and alert private operators State, and Local government use NEOFIX to manage the interaction of UAS for local communities.

Communities with drone ready infrastructure offer strong incentives for manufacturing and testing, business operations, technology development, and workforce training and education.

The rollout for the NEOFIX is ahead of schedule and the web interface is active. It can be accessed by the general public at free of charge through the Baldwin Wallace University Technology Partnership Transfer website or more directly through the NEOFIX platform itself. More advanced features are available to people who request them, also at no charge. As I mentioned when I presented the concept to this committee this past March 21, 2023, the NEOFIX has received \$450,000 in funding from Cuyahoga County over two calendar years ending in December 2024 as well as \$350,000 in private investment.

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

In a short period of time, the work of drone readiness has included:

- Organizing public and private stakeholders for the purpose of describing and publishing community assets
- Clarifying and publishing local rules and hazards
- Attracting existing AAM business
- Stimulating new manufacturing, data programming and analysis, cyber security and related industry to the region.

NEOFIX stakeholders include participants from the public sector including the FAA and FAA knowledgeable private actors along with each of the categories depicted on the Public Infrastructure Authority Flow Diagram provided. This document reflects the government actors and their relationship

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**Questions referred to:**  
**Stuart C Mendel, Affiliate Professor and Project Director**  
**Baldwin Wallace University**  
**SMendel@bw.edu**





to one another in the civilian and commercial advanced air mobility infrastructure. HB 77 fits neatly into this framework, and it our expertise in community outreach and planning through which we view House Bill 77.

For example, in our work in Cuyahoga County, we have worked with public safety and county planning to identify specific risks and hazards for publication through the system. Because of this work, we recommend Section 4561.50 – Subsection A for “Critical Facilities” add “water, sewage, or energy processing or distribution facility” and “any facility which stores chemicals or fuel in an above ground, outdoor holding tank.”

In developing the NEOFIX our work has been designed to serve as a regional template adaptable to each of Ohio’s 88 counties. Organizing and standing up the NEOFIX as a functioning model aligning with the state’s DriveOhio July 2022 AAM Framework Report, (specifically section 8 AAM Strategic Framework). Section 4561.53 is an excellent idea that aligns to successful, existing programs in other states such as Virginia and California and in the work we are conducting under the NEOFIX program in Northeast Ohio. We have talked to the Director of the Ohio UAS Center and are excited and ready to share our public data with the UAS Center so that it can be included in the statewide registry.

I will reiterate our goals including the design and implementation of the NEOFIX: to protect critical infrastructure, make sure local rules are clear, consistent, and available, and make these available as a clear, clean easy to use state asset. The next stage of our work is engagement processes with the localities and municipalities. This is a way we can make include and publish information on no-go areas, to ensure that localities can create thoughtful rules and share consistent data.

We now have substantial experience with this process in Northeast Ohio and are excited to support the UAS Center and the State of Ohio by bringing our expertise to anywhere in the state where it is needed.

Thank you for your time and the opportunity.

I will now take any questions you may have.

Dr. Stuart Mendel  
Northeast Ohio Flight Information Exchange

Page 3 of 3

**Questions referred to:**  
**Stuart C Mendel, Affiliate Professor and Project Director**  
**Baldwin Wallace University**  
**SMendel@bw.edu**





**Interested Party Testimony- House Aviation and Aerospace Committee**

**HB 77 — Operation Of Unmanned Aerial Vehicles In Ohio**

**November 14, 2023**

Chairman Holmes, Vice Chair Willis, Ranking Member Baker and members of the committee.

Thank you for the opportunity to provide testimony on House Bill 77.

My name is Howard Thompson, Project Management Liaison for Manufacturing Works. Manufacturing Works serves Northern Ohio as a non-profit, regional economic development agency focused on industry outreach, supply chain, technology alignment, strategic planning, and workforce development (specifically apprenticeship, mentorship, leadership, and youth development). Our leadership is guided by a Board of Directors comprised of the businesses we serve and the regional institutions we support.

As Dr. Mendel testified before you, The FAA helped push commercial drone market growth forward by formulating a regulatory framework with its consumer drone registry. As a result, drone manufacturers, software developers, and suppliers are capitalizing on this opportunity to create a fully developed industry around the production and use of drones. These suppliers include sustainable energy providers such as hydrogen fuel cells and manufacturers using advanced processes such as 3D printing.

Ohio is included in the leading cohort of early adopters of drone operations. This first group of early adopter states will engage with the FAA to develop the policies, regulations and procedures for the whole country. As Dr. Mendel indicated, one of our leading regional projects is the Northeast Ohio Flight Information Exchange (NEOFIX). NEOFIX is a working model for key elements of the infrastructure depicted and envisioned in Chapter 8 of the 2022 Ohio Drive Ohio Advanced Air Mobility (AAM) Report. As NEOFIX moves forward, Manufacturing Works is leading an Advanced Air Mobility Northern Ohio Governance Advisory Network that also reflects the vision expressed in Chapter 8 of the 2022 Drive Ohio AAM Report, by focusing on minimal viable infrastructure, safety, deconfliction, and drone flight demonstrations.

House Bill 77, if implemented effectively, can support the safe growth and development of the drone market in Ohio.

The strategic roadmap Manufacturing Works and the Northern Ohio Governance Advisory Network has developed and is following requires a coordinated and concise implementation process. We are currently in Phase two of a six-part roadmap that includes:

- AAM Readiness Development
- Ecosystem Development
- Initial Operations
- Midterm Operations
- Complex Operations
- Advanced Operations

The analysis, demonstrations, and industry participation we have created for our success includes connectivity, power and charging, simulation labs, surveillance, aircraft, use cases, urban traffic management, and workforce. All that is needed to complete this roadmap is the funding of the execution of the four operations segments.

As Dr. Mendel mentioned, NEOFIX has received \$450,000 in funding from Cuyahoga County for the two calendar years ending in December 2024 and Manufacturing Works has supported the remaining funding for the development stages of the roadmap with \$350,000 in private investment.

The strategic roadmap created by Manufacturing Works and the Northern Ohio Governance Advisory Network has been designed to serve as a regional template adaptable anywhere across Ohio. As the first step in the roadmap, NEOFIX exemplifies that this model aligns with the state's DriveOhio July 2022 AAM Framework and can contribute to success for the entire State of Ohio.

An important lesson of our roadmap development has been understanding that we must include both private and public stakeholders in the process. As Dr. Mendel indicated earlier about the benefit of a public private partnership, its success is dependent on clear and concise coordination. We now have substantial experience with this process in Northeast Ohio and are excited to support the State of Ohio by bringing our expertise to anywhere in the state where it is needed.

Thank you for your time and the opportunity. I will now take any questions you may have.

Howard Thompson

Project Management Liaison, Manufacturing Works

# TAB 5

**FY25-26 CAPITAL BUDGET  
PROJECT INFORMATION  
WORKSHEET**

- 1) **Project name, a general description of the overall project, and a specific description of the purposes or specific portion(s) of the overall project for which state capital dollars would be used**

**Project Name:** Northeast Ohio Flight Information Exchange (NEOFIX) — Enhancing Airspace Awareness to Enable Medical Delivery and Increased Public Safety with Drones

**General Description:** Funding would support purchase of sensors that detect aviation and drone traffic enabling medical delivery by drones, public safety use of drones for emergency management and law enforcement, and initial safety data for additional aviation uses through the Northeast Ohio Flight Information Exchange (NEOFIX).

**Description:**

NEOFIX is a transformational regional project. This public private partnership is leading an integrated system allowing for more overall visibility and awareness of the airspace, the groundspace, and drones: creating a safer airspace in the county. The NEOFIX integrates public data to support a common operating picture that public safety can leverage – both to support public safety operations and to identify potential bad actors for counter-UAS (unmanned aircraft system). NEOFIX is digital infrastructure that will accelerate use of drones for public safety while lowering the costs of these operations, allowing State and Local government to publish key information to UAS Operators and Industry, giving everyone engaged in Commercial and Civilian Advanced Air Mobility a clear, common picture – in the same way that charts do for traditional aviation. **Communities with drone ready infrastructure offer strong incentives for manufacturing and testing, business operations, technology development, and workforce training and education. This means having a system like NEOFIX already in place will attract more business to the region that create new high-tech resident services and jobs. This infrastructure would make Cuyahoga County one of the leading destinations in the country for UAS operations and industry, with one of the largest and best characterized airspaces in the nation covering 75-100 square miles of Cuyahoga County, the largest Advanced Air Mobility service area in the nation.**

Funding for this project supports the development of multiple new residential services. Examples of these services include: 1) uses of drones to support police and firefighter dispatch (“drone as a first responder”) that results in reduced dispatches, de-escalation, and lives saved; 2) commercial medical delivery of medications and test kits by the Cleveland Clinic and Metro Health; 3) public emergency medical delivery of items such as NARCAN, AEDs, and Epi pens saving hundreds of lives a year; and 4) commercial retail delivery and logistics services that support industry and job creation. The proposed infrastructure establishes a cost-effective public network with a financial sustainability model developed together with industry that ensures continued access, local financial sustainability, and regional economic development through the best infrastructure in the nation.

The project builds on an existing, operational, successful project to develop initial infrastructure in Northeast Ohio for advanced aviation and funding would complete Phase 1 of this project. The system is currently live and operational in Cuyahoga County and has demonstrated support from

national aviation industry members as well as strong support from local entities such as the Cleveland Clinic, Cuyahoga County Office of Emergency Services, Cuyahoga County Planning, City of Middleburg Heights, and others.

**2) Physical location and address of the project (city/village/township and county)**

Sensors would be located at:

- Burke Lakefront Airport — 1501 N Marginal Rd, Cleveland, OH 44114
- Cleveland Clinic Administrative Campus — 26900 Cedar Rd. Beachwood, Ohio 44122
- Middleburg Heights Fire Department - 15800 Bagley Rd, Cleveland, OH 44130
- Baldwin Wallace University - 275 Eastland Rd, Berea, OH 44017

**3) Legal Entity Name and any alternative Doing Business As (DBA) trade names on file with the Ohio Secretary of State and the organization sponsoring the project.**

Baldwin Wallace University

**4) Identification of the facility or asset owner during construction and after work is completed.**

Baldwin Wallace University

**5) Amount of state funding being requested for the FY 2025-26 capital biennium.**

\$2.5M

**Breakdown of Funds**

<b>Description</b>	<b>Amount</b>
Sensor Acquisition - RTK Navigation Beacons	\$12,500.00
Sensor Acquisition - ADS-B Receivers	\$30,000.00
Sensor Acquisition - RemoteID Receivers	\$475,000.00
Sensor Acquisition - Audio and RF Detection Sensors	\$120,000.00
Sensor Acquisition - Radar	\$450,000.00
Sensor Acquisition - Optical Sensors	\$700,000.00
Sensor Installation and Integration to the NEOFIX Public Network	\$599,395.00
Supplies and Consumables for Installation	\$113,105.00
<b>Total</b>	<b>\$2,500,000.00</b>

**6) Amount and source of non-state funding, including private, not-for-profit, local, and federal funds supporting the project**

<b>Source</b>	<b>Amount</b>
Cuyahoga Co.	\$450,000
ATA LLC.	\$250,000
Manufacturing Works	\$100,000

<b>TOTAL</b>	\$800,000
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**7) The amount and source of state funding the project or asset has received in the past, and whether the project will be requesting additional state funding in future capital biennia**

This project has not received state funding in the past. This funding would close Phase 1 (Cuyahoga County Infrastructure) of the infrastructure portion of the project for Northeast Ohio covering 75-100 miles of the most crucial portions of Cuyahoga County (lakefront for safety monitoring, Cleveland Clinic for medical delivery, and public safety operations throughout the county) enabling services in that area as soon as sensors are placed. NEOFIX will work with the region and private companies to secure the remaining infrastructure needs to service the region as the systems expands into adjacent counties. The total infrastructure and program budget for the region is \$7.2M, of which \$800,000 has already been funded with local and industry contributions; this investment from the state would be ~35% of the total infrastructure budget.

**8) Identification and a description of any use by or involvement of private for-profit businesses or not-for-profit entities**

Private for-profit entities include ATA, LLC which supports the existing NEOFIX infrastructure and has provided an approximately \$250,000 in-kind contribution to date and industry drone operators that would use the public data and contribute user service fees in return. Not for-profit entities include Baldwin Wallace University, which is providing program management and oversight.

**9) Identification and description of any use or involvement by the federal government**

The Federal Aviation Administration (FAA) is currently seeking site partners for the UAS Traffic Management Key Site and Near Term Approval Process. The FAA wishes to work with these sites to define the regulatory requirements and standards. This infrastructure investment, combined with the existing NEOFIX program, would make Cuyahoga County eligible to become an FAA Key Site and would allow Ohio to directly shape FAA regulations for UAS.

**10) Identification of the annual amount of and source(s) of funding for ongoing operational costs**

Minimum annual operating costs for the equipment in our request is \$100,000 a year for data syndication – NEOFIX is currently in discussion with industry partners willing to pay service fees to consume and use this data. In the event of a delay in industry services fees, ATA, LLC would fund this gap.

**11) Any additional relevant information that the requesting organization believes would be of assistance in evaluating the project's value and eligibility to receive state capital funding**

For years, the drone market was in a nascent phase and had yet to break into the mainstream. Then, in 2016, drone industry growth took flight when the Federal Aviation Administration (FAA) granted hundreds of new exemptions for companies to operate drones in the U.S. through FAA Part 107. These exemptions included several new use cases in multiple industries, such as insurance, construction, and agriculture — each of which demonstrates the broad range of commercial drone



applications. The FAA helped push commercial drone market growth forward by formulating a regulatory framework with its consumer drone registry. Now, drone manufacturers and tech suppliers are doing all they can to capitalize on this and turn drones into a full-fledged industry.

Ohio is primed in the leading cohort of early adopters of drone operations. It will be this first group of early adopter states that will engage with the FAA to develop the policies, regulations, and procedures for the whole country. **The NEOFIX is the working model for key elements of the infrastructure depicted and envisioned in Chapter 8 of the 2022 DriveOhio Advanced Air Mobility (AAM) Framework and a key enabling program for elements of Ohio House Bill 77.**

The focus on a templated cost-effective solution allows our approach to be quickly rolled out to other disadvantaged communities. The following benefits in the project location will be directly measured:

- **Safety and Reliability:** Uptime and safety performance of drone delivery and calculation of reduced high-speed response for emergency vehicles
- **Resiliency:** Demonstration of revenue-neutral cost sustainment model ensure system can be maintained and operated locally, even by an underserved community
- **Equity and Access:** Direct measurement of reduction in harm for underserved communities in our region through fast, cost-effective drone Emergency Medical response and demonstration of cost-benefit profiles to sustain service expansion
- **Partnerships:** Our shovel ready project has already demonstrated a convening of both public and private organizations committed to delivering services to the community
- **Integration:** Demonstration of integration with regional public safety, regional educational institutions, and with conventional aviation at commercial airports in Cuyahoga County (Hopkins, Burke Lakefront, and County) and Cuyahoga County Public Safety and Justice Services

## **12) Description of how the project's support will benefit the general public and how often the public will be able to gain access to the facilities or services provided by the community project funds**

NEOFIX will support the general public in many ways. There will be a future where drones are the norm for delivery of packages, medicine, food, and other items. This is the next generation of on demand services and it is here:

- 1) **Overall safer airspace for drone flights** — As more drones take flight, there is increased number of safety hazards. Drones will be used by hobbyists, professionals, public safety and more. It is imperative we have a way to make sure these drones are able to safely fly free from accidents of each other or buildings or other hazards.
- 2) **Increased public safety** — For public safety, drones can be particularly useful in situations pertaining to large-area search and rescue of a missing person or suspect; thermal-imaging capabilities; active-shooter incidents; SWAT standoffs; monitoring for hotspots during fire incidents; monitoring hazmat or hostage situations, investigation of fires or car crashes; crowd monitoring at public events; reconstructed 3D models for security planning, and subdivision addressing for 911. In the future, it is anticipated that public safety may be able to use drones for hostage negotiation, bomb investigations, missing persons, and crime-scene analysis. All these situations allow a drone to take the place of human taking the official out of harm's way.
- 3) **Medical delivery** — There are challenges in rural and urban areas alike with access to medical care including drugs and devices. Medical delivery via drone can reach a person without transportation

or far from a medical center for regular medical care like a delivering a drug or test but also reach a person in an emergency faster than an ambulance. With over 100,000 annual emergency medical dispatches in Cuyahoga County, approximately 5,000 calls per year would apply for emergency medical delivery of NARCAN, AED, and Epi pens. **This would reduce harm to over 2,500 people a year, saving over 200 lives annually and potentially saving over \$1.5M a year in excess medical costs due to the lack of timely treatment.**

### Contact Information

Andrea Harless, G2G Consulting, 330-565-2374, [aharless@G2Gconsulting.com](mailto:aharless@G2Gconsulting.com)

### Other Attachments —

- Cleveland.Com Article (8/24/23) “Public infrastructure for the sky? Baldwin Wallace launches NEOFIX to help drones fly safely
  
- Letters of Support:
  - Cleveland Airport System
  - Cleveland Clinic
  - Cleveland State University
  - Middleburgh Heights Fire Department
  - North East Ohio Public Safety Unmanned Response Teams
  - Lake County Public Safety Unmanned Response Teams
  - Team NEO
  - Aerozone Alliance
  - Manufacturing Works
  - Crown Castle
  - DRONERESPONDERS
  - TruWeather Solutions
  - OneSky
  - Best Autonomous Insights
  - Critical Ops LLC
  - Scientific Applications & Research Associates Inc. (SARA)
  - Vega Technology Group
  - Saab
  - AAMTEX
  - LuftCar



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