

K21-1249

COOPERATIVE ENDEAVOR AGREEMENT

BETWEEN

THE CITY OF NEW ORLEANS

AND

TEXAS A&M AGRILIFE EXTENSION SERVICE

A Community-based Rodent Surveillance Collaborative for Greater Public Health

THIS COOPERATIVE ENDEAVOR AGREEMENT (the “**Agreement**”) is entered into by and between the City of New Orleans, represented by LaToya Cantrell, Mayor (the “**City**”), and Texas A&M AgriLife Extension Service, (the “**Texas AgriLife Extension**”). The City and the Contractor may sometimes be collectively referred to as the “**Parties**.” The Agreement is effective as of the date of execution by the City (the “**Effective Date**”).

RECITALS

WHEREAS, the City is a political subdivision of the State of Louisiana;

WHEREAS, the Texas AgriLife Extension, which principal address is located at 400 Harvey Mitchell Parkway South, Suite 300, College Station, Texas 77843.

WHEREAS, pursuant to Article 7, Section 14(C) of the Louisiana Constitution of 1974, and related statutes, and Section 9-314 of the Home Rule Charter of the City of New Orleans, the City may enter into cooperative endeavors with the State of Louisiana, its political subdivisions and corporations, the United States and its agencies, and any public or private corporation, association, or individual with regard to cooperative financing and other economic development activities, the procurement and development of immovable property, joint planning and implementation of public works, the joint use of facilities, joint research and program implementation activities, joint funding initiatives, and other similar activities in support of public education, community development, housing rehabilitation, economic growth, and other public purposes;

WHEREAS, the City and the Texas AgriLife Extension desire to accomplish a valuable public purpose of generating a database of existing rodent and environmental data that will be used to make informed rodent management operational decisions by conducting the following:

Conduct a comprehensive environmental scan in collaboration with internal (e.g., state, tribal, local, and territorial (STLT) health agencies) and external (e.g., business, industry, public) partners and stakeholders to compile a collection of relevant needed rodent data (e.g., rodent-borne diseases, 311 rodent service calls or complaints, inspections) to make local data publicly available and to improve STLT health agencies and other stakeholders’ data-driven decision making and to be more adept when addressing potential zoonotic transmissions and enhance potential for a more unified response to rodent infestations in urban areas.

Evaluate findings for continuous program quality improvement as needed. Dr. Janet Hurley, ACE, a Senior Extension Program Specialist with the Texas A&M Department of Entomology, will also assist in the development of the dissemination channels and audiences, as well as in evaluation findings and in the development project presentation and a peer-peer reviewed paper summarizing the results of the data finding and gaps that will enhance the ability of managing commensal rodents.

WHEREAS, the City will serve as Principal Investigator for the Centers for Disease Control and Prevention grant called A Community-based Rodent Surveillance Collaborative for Greater Public Health.

NOW THEREFORE, the City and the Texas AgriLife Extension, each having the authority to do so, agree as follows:

ARTICLE I – TEXAS AGRILIFE EXTENSION’S OBLIGATIONS

A. Texas AgriLife Extension services.

1. Dr. Janet Hurley, Principal Investigator for Texas AgriLife Extension will collaborate with the City of New Orleans Mosquito, Termite and Rodent Control Board (Claudia Riegel, Ph.D.) in collecting, analysis and coming to an agreement in collaboration with stakeholders as to which rodent measures are most critical to include in the database and to develop a more integrated rodent database that could collectively have greater impact.

2. Dr. Janet Hurley will also assist in the development of the dissemination channels and audiences, as well as in evaluation findings and in the development of any project presentation materials.

3. Dr. Janet Hurley will host regular meetings with PI for Center for Disease Control and Prevention and collaborators.

B. Invoices. Texas AgriLife Extension will provide quarterly invoices per budget justification which is attached as Exhibit D and allocation as submitted to the Centers for Disease Control and Prevention Grant Award 1NUE1EH001421.

ARTICLE II - THE CITY’S OBLIGATIONS

A. Administration. The City will:

1. Administer this Agreement through the City of New Orleans Mosquito, Termite and Rodent Control Board;

2. Provide the Texas AgriLife Extension with Grant Award and supporting documentation submitted to the Centers for Disease Control and Prevention relevant to Grant Award 1NUE1EH001421-01-00 and other documents deemed necessary for the Texas AgriLife Extension’s performance of any work required under this Agreement;

3. Provide access to Department personnel to discuss the required services during normal working hours, as requested by Texas AgriLife Extension; and

ARTICLE III – FUNDING

A. Maximum Amount. The maximum amount funded by the City under this Agreement is \$28,684.00.

ARTICLE IV - DURATION AND TERMINATION

A. Term. The term of this agreement shall be for 1 year from the Effective Date.

B. Extension. The City can opt to extend the term of this Agreement provided that the City Council approves it as a multi-term cooperative endeavor agreement and that additional funding, if required, is allocated by the City Council.

C. Termination for Convenience. Either Party may terminate this Agreement at any time during the term of the Agreement by giving the other Party written notice of the termination at least 30 calendar days before the intended date of termination.

D. Termination for Cause. Either Party may terminate this Agreement upon written notice to the other Party, if the other Party breaches any of the terms and conditions of this Agreement and fails to cure such breach within 30 days after receiving written notice thereof. In the event of an incurable breach, the non-breaching Party may terminate this Agreement effective immediately upon written notice to the breaching Party. "Cause" includes without limitation any failure to perform any obligation or abide by any condition of this Agreement or the failure of any representation in this Agreement, including without limitation any failure to comply with the requirements of the City's Disadvantaged Business Enterprise program and any failure to comply with any provision of City Code § 2-1120 or requests of the Office of Inspector General

E. Termination for Non-Appropriation. This Agreement will terminate immediately in the event of non-appropriation of funds sufficient to maintain this Agreement without the requirement of notice and the City will not be liable for any amounts beyond the funds appropriated and encumbered for this Agreement. Notwithstanding the foregoing, upon early termination, the City agrees to pay for non-cancellable obligations up to the date of termination.

ARTICLE V - INDEMNITY

- A. To the fullest extent permitted by law, Texas AgriLife Extension shall indemnify, defend and hold harmless the City, officers and employees and affiliates against any claim, proceeding, demand, liability, or expenses (including legal expenses and reasonable attorney's fees) which relates to injury to persons or property or against any other claim, proceeding, demand, expenses and liability of any kind arising out of or in connection with this Agreement, except to the extent that such loss, claim, damage or other liability arises in whole or in part from the negligence of the City.
- B. To the fullest extent permitted by law, The City shall indemnify, defend and hold harmless Texas AgriLife Extension, The Texas A&M University System, its regents, officers and employees and affiliates against any claim, proceeding, demand, liability, or expenses (including legal expenses and reasonable attorney's fees) which relates to injury to persons or property or against any other claim, proceeding, demand, expenses and liability of any kind arising out of or in connection with this Agreement, except to the extent that such loss, claim, damage or other liability arises in whole or in part from the negligence of Texas AgriLife Extension.
- C. **Limitation.** Texas AgriLife Extension's indemnity does not extend to any loss arising from the gross negligence or willful misconduct of any of the Indemnified Parties, provided that neither Texas AgriLife Extension nor any of its agents or employees contributed to such gross negligence or willful misconduct.

ARTICLE VI - INSURANCE

- A. The Parties recognize that Texas AgriLife Extension, as a member of the Texas A&M University System, is self-insured for Workers' Compensation insurance provided by Chapter 502 of the Texas Labor Code. Benefits are provided in accordance with the provisions of that law.

The liability of The Texas A&M University System for personal injury and property damage is controlled by the Texas Tort Claims Act, V.T.C.A. Civil Practice and Remedies Code, Chapter 101, Section 101.021. The limits of liability are \$250,000 for each person, \$500,000 for each single occurrence for bodily injury or death and \$100,000 for each single occurrence for injury to or destruction of property. Following this limited exposure, The Texas A&M University System as a state agency, is protected by the doctrine of sovereign immunity, and as such, is self-insured up to the aforementioned limits.

ARTICLE VII - NON-DISCRIMINATION

A. **Equal Employment Opportunity.** In all hiring or employment made possible by, or resulting from this Agreement, the Texas AgriLife Extension (1) will not be discriminate against any employee or applicant for employment because of race, color, religion, gender, age, physical or mental disability, national origin, sexual orientation, creed, culture, or ancestry, and (2) where applicable, will take affirmative action to ensure that the Texas AgriLife Extension's employees are treated during employment without regard to their race, color, religion, gender, age, physical or mental disability, national origin, sexual orientation, creed, culture, or ancestry. This requirement shall apply to, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. All solicitations or advertisements for employees shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, gender, age, physical or mental disability, national origin, sexual orientation, creed, culture, or ancestry.

B. **Non-Discrimination.** In the performance of this Agreement, Texas AgriLife Extension will not discriminate on the basis, whether in fact or perception, of a person's race, color, creed, religion, national origin, ancestry, age, sex (gender), sexual orientation, gender identity, domestic partner status, marital status, physical or mental disability, or AIDS- or HIV-status against (1) any employee of the City working with the Texas AgriLife Extension in any of Texas AgriLife Extension's operations within Orleans Parish or (2) any person seeking accommodations, advantages, facilities, privileges, services, or membership in all business, social, or other establishments or organizations operated by the Contractor. The Texas AgriLife Extension agrees to comply with and abide by all applicable federal, state and local laws relating to non-discrimination, including, without limitation, Title VI of the Civil Rights Act of 1964, Section V of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990.

C. **Incorporation into Subcontracts.** The Texas A&M AgriLife Extension will incorporate the terms and conditions of this Article into all subcontracts, by reference or otherwise, and will require all subcontractors to comply with those provisions.

D. **Termination for Breach.** The City may terminate this Agreement for cause if the Texas AgriLife Extension fails to comply with any obligation in this Article, which failure is a material breach of this Agreement.

ARTICLE VIII - INDEPENDENT CONTRACTOR

A. Independent Contractor Status. Texas AgriLife Extension is an independent contractor and shall not be deemed an employee, servant, agent, partner, or joint venture of the City and will not hold itself or any of its employees, subcontractors or agents to be an employee, partner, or agent of the City.

B. Exclusion of Worker's Compensation Coverage. The City will not be liable to the Texas AgriLife Extension, as an independent contractor as defined in La. R.S. 23:1021(6), for any benefits or coverage as provided by the Workmen's Compensation Law of the State of Louisiana. Under the provisions of La. R.S. 23:1034, any person employed by the Texas AgriLife Extension will not be considered an employee of the City for the purpose of Worker's Compensation coverage.

C. Exclusion of Unemployment Compensation Coverage. The Texas AgriLife Extension, as an independent contractor, is being hired by the City under this Agreement for hire and defined in La. R.S. 23:1472(E) and neither Texas AgriLife Extension nor anyone employed by it will be considered an employee of the City for the purpose of unemployment compensation coverage, which coverage same being hereby expressly waived and excluded by the parties, because: (a) the Texas AgriLife Extension has been and will be free from any control or direction by the City over the performance of the services covered by this contract; (b) the services to be performed by the Texas AgriLife Extension are outside the normal course and scope of the City's usual business; and (c) the Texas AgriLife Extension has been independently engaged in performing the services required under this Agreement prior to the date of this Agreement.

D. Waiver of Benefits. The Texas AgriLife Extension, as an independent contractor, will not receive from the City any sick and annual leave benefits, medical insurance, life insurance, paid vacations, paid holidays, sick leave, pension, or Social Security for any services rendered to the City under this Agreement.

ARTICLE IX- FORCE MAJEURE

A. Event. An event of Force Majeure will include any event or occurrence not reasonably foreseeable by the City at the execution of this Agreement, which will include, but not be limited to, abnormally severe and unusual weather conditions or other acts of God (including tropical weather events, tornados, hurricanes, and flooding); declarations of emergency; shortages of labor or materials (not caused by City); riots; terrorism; acts of public enemy; war; sabotage; cyber-attacks, threats, or incidents; epidemics or pandemics; court or governmental order; or any other cause whatsoever beyond the reasonable control of City, provided such event was not caused by the negligence or misconduct of City, by the failure of City to comply with applicable laws, or by the breach of this Agreement.

B. Notice. To seek the benefit of this Article, the City must provide notice in writing to the Contractor stating: (1) an event triggering this Article has occurred; (2) the anticipated effect of the Force Majeure event on performance; and (3) the expected duration of the delay, if the Agreement is being suspended

C. Effect.

1. Upon the occurrence of a Force Majeure event, for which the City has provided required notice, the City may, at its sole discretion:

- a. Suspend this Agreement for a duration to be set by the City, not to exceed 90 days. During such time of suspension, the Parties will not be liable or responsible for performance of their respective obligations under this Agreement, and there will be excluded from the computation of such period of time any delays directly due to the occurrence of the Force Majeure event. During any such period of suspension, the Contractor must take all commercially reasonable actions to mitigate against the effects of the Force Majeure event and to ensure the prompt resumption of performance when so instructed by the City; or
 - b. Terminate this Agreement, either immediately or after one or more periods of suspension, effective on notice to Contractor and without any further compensation due.
2. Notwithstanding Section C(1) above, the obligations relating to making payments when due (for services or materials already provided) and those obligations specified to survive in the Agreement will be unaffected by any suspension or termination.

ARTICLE X - NOTICE

A. *In General.* Except for any routine communication, any notice, demand, communication, or request required or permitted under this Agreement will be given in writing and delivered in person or by certified mail, return receipt requested as follows:

1. To the City:

Claudia Riegel, Ph.D.
City of New Orleans Mosquito, Termite and Rodent Control Board
2100 Leon C. Simon Drive
New Orleans, Louisiana

&

City Attorney
City of New Orleans
1300 Perdido Street, Suite 5E03
New Orleans, LA 70112

2. To the Contractor:

Tanya Alabsawi, J.D., CRA Senior Contract
Negotiator II Sponsored Research Services
Division of Research
Texas A&M University awards@tamu.edu

&

Janet Hurley, ACE Extension Senior
Extension Program Specialist

Texas AgriLife Research Extension Center
17360 Coit Road
Dallas, Tx 75252
jahurley@ag.tamu.edu

B. Effectiveness. Notices are effective when received, except any notice that is not received due to the intended recipient's refusal or avoidance of delivery is deemed received as of the date of the first attempted delivery.

C. Notification of Change. Each party is responsible for notifying the other in writing that references this Agreement of any changes in its address(es) set forth above.

ARTICLE XI - ADDITIONAL PROVISIONS

A. Amendment. No amendment of or modification to this Agreement shall be valid unless and until executed in writing by the duly authorized representatives of both parties to this Agreement.

B. Assignment. This Agreement and any part of the Texas AgriLife Extension's interest in it are not assignable or transferable without the City's prior written consent.

C. Construction of Agreement. Neither party will be deemed to have drafted this Agreement. This Agreement has been reviewed by the Parties and shall be construed and interpreted according to the ordinary meaning of the words used so as to fairly accomplish the purposes and intentions of the Parties. No term of this Agreement shall be construed or resolved in favor of or against the City or the Texas AgriLife Extension on the basis of which party drafted the uncertain or ambiguous language. The headings and captions of this Agreement are provided for convenience only and are not intended to have effect in the construction or interpretation of this Agreement. Where appropriate, the singular includes the plural and neutral words and words of any gender shall include the neutral and other gender.

D. Cost Recovery. In accordance with Section 2-8.1 of the Municipal Code entitled "Cost recovery in contracts, cooperative endeavor agreements, and grants," to the maximum extent permitted by law, the Contractor shall reimburse the City or disgorge anything of value or economic benefit received from the City if the Contractor fails to meet its contractual obligations.

E. Entire Agreement. This Agreement, including all incorporated documents, constitutes the final and complete agreement and understanding between the parties. All prior and contemporaneous agreements and understandings, whether oral or written, are superseded by this Agreement and are without effect to vary or alter any terms or conditions of this Agreement.

F. Exhibits. The following exhibits will be and are incorporated into this Agreement: Exhibit A - CDC Notice of Award, Exhibit B - Project Narrative, Exhibit C - Project Summary, Exhibit D - Budget and Budget Narrative, Exhibit E. Project - Logic Model.

G. Limitations of the City's Obligations. Neither Party has any obligations not explicitly set forth in this Agreement or any incorporated documents or expressly imposed by law.

H. No Third Party Beneficiaries. This Agreement is entered into for the exclusive benefit of the parties and the parties expressly disclaim any intent to benefit anyone not a party to this

Agreement.

I. Non-Exclusivity. This Agreement is non-exclusive and the Texas AgriLife Extension may provide services to other clients, and the City may engage the services of others for the provision of some or all of the work to be performed under this Agreement.

J. Non-Waiver. The failure of either party to insist upon strict compliance with any provision of this Agreement, to enforce any right or to seek any remedy upon discovery of any default or breach of the other party at such time as the initial discovery of the existence of such noncompliance, right, default or breach shall not affect or constitute a waiver of either party's right to insist upon such compliance, exercise such right or seek such remedy with respect to that default or breach or any prior contemporaneous or subsequent default or breach.

K. Order of Documents. In the event of any conflict between the provisions of this Agreement any incorporated documents, the terms and conditions of the documents will apply in this order: the Agreement; CDC Notice of Award, Project Narrative, Project summary, and Budget narrative and justification.

L. Ownership of Records. All data collected and all products of work prepared, created or modified by the Texas AgriLife Extension in the performance of this Agreement, including without limitation any and all notes, tables, graphs, reports, files, computer programs, source code, documents, records, disks, original drawings or other such material, regardless of form and whether finished or unfinished, but excluding the Texas AgriLife Extension's personnel and administrative records and any tools, systems, and information used by the Texas AgriLife Extension to perform the services under this Agreement, including computer software (object code and source code), know-how, methodologies, equipment, and processes and any related intellectual property (collectively, "Work Product") will be the exclusive property of City and the City will have all right, title and interest in any Work Product, including without limitation the right to secure and maintain any copyright, trademark, or patent of Work Product in the City's name. The City may use and distribute any Work Product for any purpose. Notwithstanding any other provisions herein, Texas AgriLife Extension Service shall retain a non-exclusive, royalty-free license to use all "Work Product" materials derived from its performance under this Agreement and shall retain copyright on any training materials derived from its performance under this Agreement.

M. Prohibition of Financial Interest in Agreement. No elected official or employee of the City shall have a financial interest, direct or indirect, in this Agreement. For purposes of this provision, a financial interest held by the spouse, child, or parent of any elected official or employee of the City shall be deemed to be a financial interest of such elected official or employee of the City. Any willful violation of this provision, with the expressed or implied knowledge of the Texas AgriLife Extension, shall render this Agreement voidable by the City and shall entitle the City to recover, in addition to any other rights and remedies available to the City, all monies paid by the City to Texas AgriLife Extension pursuant to this Agreement without regard to the Texas AgriLife Extension's otherwise satisfactory performance of the Agreement.

N. Prohibition on Political Activity. None of the funds, materials, property, or services provided directly or indirectly under the terms of this Agreement shall be used in the performance of this Agreement for any partisan political activity, or to further the election or defeat of any candidate for public office.

O. Remedies Cumulative. No remedy set forth in the Agreement or otherwise conferred

upon or reserved to any party shall be considered exclusive of any other remedy available to a party. Rather, each remedy shall be deemed distinct, separate and cumulative and each may be exercised from time to time as often as the occasion may arise or as may be deemed expedient.

P. Severability. Should a court of competent jurisdiction find any provision of this Agreement to be unenforceable as written, the unenforceable provision should be reformed, if possible, so that it is enforceable to the maximum extent permitted by law or, if reformation is not possible, the unenforceable provision shall be fully severable and the remaining provisions of the Agreement remain in full force and effect and shall be construed and enforced as if the unenforceable provision was never a part the Agreement.

Q. Subcontractor Reporting. The Texas AgriLife Extension will provide a list of all natural or artificial persons who are retained by the Texas AgriLife Extension at the time of the Agreement's execution and who are expected to perform work as subcontractors in connection with the Texas AgriLife Extension's work for the City. For any subcontractor proposed to be retained by the Texas AgriLife Extension to perform work on the Agreement with the City, the Texas AgriLife Extension must provide notice to the City within 30 days of retaining that subcontractor. If the Texas AgriLife Extension fails to submit the required lists and notices, the City may, after thirty 30 days' written notice to the Contractor, take any action it deems necessary, including, without limitation, causing the suspension of any payments, until the required lists and notices are submitted.

R. Survival of Certain Provisions. All representations and all obligations concerning record retention, inspections, audits, ownership, indemnification, payment, remedies, jurisdiction, and choice of law, shall survive the expiration, suspension, or termination of this Agreement and continue in full force and effect.

S. Terms Binding. The terms and conditions of this Agreement are binding on any heirs, successors, transferees, and assigns.

ARTICLE XIV – COUNTERPARTS

This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original copy of this Agreement, but all of which, when taken together, shall constitute one and the same agreement.

ARTICLE XV - ELECTRONIC SIGNATURE AND DELIVERY

The Parties agree that a manually signed copy of this Agreement and any other document(s) attached to this Agreement delivered by email shall be deemed to have the same legal effect as delivery of an original signed copy of this Agreement. No legally binding obligation shall be created with respect to a party until such party has delivered or caused to be delivered a manually signed copy of this Agreement.

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[SIGNATURES CONTAINED ON NEXT PAGE]

IN WITNESS WHEREOF, the City and Texas A&M AgriLife Extension, through their duly authorized representatives, execute this Agreement.

CITY OF NEW ORLEANS

BY: 

LaToya Cantrell, MAYOR

Executed on this 2 of February, 2022

FORM AND LEGALITY APPROVED:

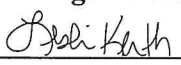
Law Department

By: 

Printed Name: Tracy Tyler

Texas A&M AgriLife Extension Service

for

BY: 

Digitally signed by Lesli Kerth
Date: 2022.01.27 15:35:00 -06'00'

Julie Bishop, Associate Executive Director, TAMU SRS (sw)

Executed on this 27th of January, 2021

EXHIBITS A-E CONTAINED ON NEXT PAGES

- A. CDC Notice of Award
- B. Project Narrative
- C. Project summary
- D. Budget and Budget Narrative
- E. Project Logic Model



DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

Notice of Award

Award# 5 NUE1EH001421-02-00

FAIN# NUE1EH001421

Federal Award Date: 06/24/2021

EXHIBIT A - CDC Notice of Award

Recipient Information

1. Recipient Name

City of New Orleans, Mosquito, Termite & Rodent
Control Brd
2100 Leon C Simon Dr
New Orleans, LA 70122-3548

2. Congressional District of Recipient

02

3. Payment System Identifier (ID)

1726000969B2

4. Employer Identification Number (EIN)

726000969

5. Data Universal Numbering System (DUNS)

118981596

6. Recipient's Unique Entity Identifier

7. Project Director or Principal Investigator

Claudia Riegel Ph.D.
criegel@nola.gov
504-658-2408

8. Authorized Official

Ms. Donna Alexander
Authorize Official
dalexander@nola.gov
504-658-2440

Federal Agency Information

CDC Office of Financial Resources

9. Awarding Agency Contact Information

Wanda Tucker
kna9@cdc.gov
770-488-5056

10. Program Official Contact Information

Connie Thomas
Public Health Advisor
clb1@cdc.gov
770-488-3631

Federal Award Information

11. Award Number

5 NUE1EH001421-02-00

12. Unique Federal Award Identification Number (FAIN)

NUE1EH001421

13. Statutory Authority

Section 317(k)(2) of the Public Health Service Act, [42 U.S.C. Section 247b(k)(2)], as amended

14. Federal Award Project Title

A Community-based Rodent Surveillance Collaborative for Greater Public Health

15. Assistance Listing Number

93.070

16. Assistance Listing Program Title

Environmental Public Health and Emergency Response

17. Award Action Type

Non-Competing Continuation

18. Is the Award R&D?

No

Summary Federal Award Financial Information

19. Budget Period Start Date 09/01/2021 - End Date 08/31/2022

20. Total Amount of Federal Funds Obligated by this Action

\$40,000.00

20a. Direct Cost Amount

\$40,000.00

20b. Indirect Cost Amount

\$0.00

21. Authorized Carryover

\$0.00

22. Offset

\$0.00

23. Total Amount of Federal Funds Obligated this budget period

\$0.00

24. Total Approved Cost Sharing or Matching, where applicable

\$75,000.00

25. Total Federal and Non-Federal Approved this Budget Period

\$115,000.00

26. Project Period Start Date 09/01/2020 - End Date 08/31/2025

27. Total Amount of the Federal Award including Approved Cost Sharing or Matching this Project Period

Not Available

28. Authorized Treatment of Program Income

ADDITIONAL COSTS

29. Grants Management Officer - Signature

Lakita Reid

30. Remarks



DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

Notice of Award

Award# 5 NUE1EH001421-02-00

FAIN# NUE1EH001421

Federal Award Date: 06/24/2021

Recipient Information

Recipient Name

City of New Orleans, Mosquito, Termite & Rodent
Control Brd
2100 Leon C Simon Dr
New Orleans, LA 70122-3548

Congressional District of Recipient

02

Payment Account Number and Type

1726000969B2

Employer Identification Number (EIN) Data

726000969

Universal Numbering System (DUNS)

118981596

Recipient's Unique Entity Identifier

Not Available

31. Assistance Type

Cooperative Agreement

32. Type of Award

Other

33. Approved Budget

(Excludes Direct Assistance)

I. Financial Assistance from the Federal Awarding Agency Only

II. Total project costs including grant funds and all other financial participation

a. Salaries and Wages	\$12,696.00
b. Fringe Benefits	\$3,296.00
c. Total Personnel Costs	\$15,992.00
d. Equipment	\$0.00
e. Supplies	\$6,645.00
f. Travel	\$11,950.00
g. Construction	\$0.00
h. Other	\$5,413.00
i. Contractual	\$0.00
j. TOTAL DIRECT COSTS	\$40,000.00
k. INDIRECT COSTS	\$0.00
l. TOTAL APPROVED BUDGET	\$40,000.00
m. Federal Share	\$40,000.00
n. Non-Federal Share	\$75,000.00

34. Accounting Classification Codes

FY-ACCOUNT NO.	DOCUMENT NO.	ADMINISTRATIVE CODE	OBJECT CLASS	AMT ACTION FINANCIAL ASSISTANCE	APPROPRIATION
0-939ZUGW	20NUE1EH001421	EH	41.51	\$0.00	75-20-0947
1-939ZUGW	20NUE1EH001421	EH	41.51	\$40,000.00	75-21-0947



DEPARTMENT OF HEALTH AND HUMAN SERVICES Notice of Award

Centers for Disease Control and Prevention

Award# 5 NUE1EH001421-02-00

FAIN# NUE1EH001421

Federal Award Date: 06/24/2021

Direct Assistance

BUDGET CATEGORIES	PREVIOUS AMOUNT (A)	AMOUNT THIS ACTION (B)	TOTAL (A + B)
Personnel	\$0.00	\$0.00	\$0.00
Fringe Benefits	\$0.00	\$0.00	\$0.00
Travel	\$0.00	\$0.00	\$0.00
Equipment	\$0.00	\$0.00	\$0.00
Supplies	\$0.00	\$0.00	\$0.00
Contractual	\$0.00	\$0.00	\$0.00
Construction	\$0.00	\$0.00	\$0.00
Other	\$0.00	\$0.00	\$0.00
Total	\$0.00	\$0.00	\$0.00

AWARD ATTACHMENTS

City of New Orleans, Mosquito, Termite & Rodent Control Brd

5 NUE1EH001421-02-00

1. Terms and Conditions

AWARD INFORMATION

Incorporation: In addition to the federal laws, regulations, policies, and CDC General Terms and Conditions for Non-research awards at <https://www.cdc.gov/grants/federalregulationspolicies/index.html>, the Centers for Disease Control and Prevention (CDC) hereby incorporates Notice of Funding Opportunity (NOFO) number EH20-2005, entitled "Strengthening environmental health capacity (EHC) for detecting, preventing, and controlling environmental health hazards through data-driven and evidence-based approaches", and application dated April 15, 2021, as may be amended, which are hereby made a part of this Non-research award, hereinafter referred to as the Notice of Award (NoA).

Approved Funding: Funding in the amount of \$40,000 is approved for the Year 02 budget period, which is September 1, 2021 through August 31, 2022. All future year funding will be based on satisfactory programmatic progress and the availability of funds.

The federal award amount is subject to adjustment based on total allowable costs incurred and/or the value of any third-party in-kind contribution when applicable.

Note: Refer to the Payment Information section for Payment Management System (PMS) subaccount information.

Component/Project Funding: The NOFO provides for the funding of multiple components under this award. The approved component funding levels for this notice of award are:

NOFO Component	Amount
Component A	\$40,000
Component B	\$0.00

Financial Assistance Mechanism: Cooperative Agreement

Substantial Involvement by CDC: This is a cooperative agreement and CDC will have substantial programmatic involvement after the award is made. Substantial involvement is in addition to all post-award monitoring, technical assistance, and performance reviews undertaken in the normal course of stewardship of federal funds.

CDC program staff will assist, coordinate, or participate in carrying out effort under the award, and recipients agree to the responsibilities therein, as detailed in the NOFO.

- Collaborate to ensure coordination and implementation of strategies to provide capacity building assistance (CBA) to governmental and nongovernmental components of the public health system.
- Provide guidance and coordination to improve the quality and effectiveness of work plans, evaluation strategies, products and services, and collaborative activities with other organizations.
- Support ongoing opportunities to foster networking, communication, coordination, and

collaboration, and serve as a conduit for information exchange, including fostering collaboration between funded organizations that would not normally interact or collaborate on public health efforts.

- Collaborate to compile and publish accomplishments, best practices, performance criteria, and lessons learned during the period of performance.
- Collaborate, as appropriate, to assess progress toward meeting strategic and operational goals and objectives and to establish measurement and accountability systems for documenting outcomes, such as increased performance improvements and best or promising practices.

Budget Revision Requirement: By October 1, 2021 the recipient must submit a revised budget with a narrative justification

- 1) indicating if cost is to support contractual agreements with partner institutions or provide a budget with a breakdown of cost for the City of New Orleans Mosquito, Termite and Rodent Control
- 2) A memorandum included in the application states that indirect cost will not be charge. Remove cost from budget

Failure to submit the required information in a timely manner may adversely affect the future funding of this project. If the information cannot be provided by the due date, you are required to contact the GMS/GMO identified in the CDC Staff Contacts section of this notice before the due date.

Expanded Authority: The recipient is permitted the following expanded authority in the administration of the award.

- ☒ Carryover of unobligated balances from one budget period to a subsequent budget period. Unobligated funds may be used for purposes within the scope of the project as originally approved. Recipients will report use, or intended use, of unobligated funds in Section 12 "Remarks" of the annual Federal Financial Report. If the GMO determines that some or all of the unobligated funds are not necessary to complete the project, the GMO may restrict the recipient's authority to automatically carry over unobligated balances in the future, use the balance to reduce or offset CDC funding for a subsequent budget period, or use a combination of these actions.

Program Income: Any program income generated under this grant or cooperative agreement will be used in accordance with the Addition alternative.

Addition alternative: Under this alternative, program income is added to the funds committed to the project/program and is used to further eligible project/program objectives.

Note: The disposition of program income must have written prior approval from the GMO.

FUNDING RESTRICTIONS AND LIMITATIONS

Indirect Costs:

Indirect costs are not approved for this award, because indirect costs were not requested, or an approved Indirect Cost Rate Agreement has not been established. To have indirect costs approved for this grant, submit an approved indirect cost rate agreement to the grants management specialist no later than August 31, 2021.

REPORTING REQUIREMENTS

Performance Progress and Monitoring: Performance information collection initiated under this grant/cooperative agreement has been approved by the Office of Management and Budget under **OMB Number 0920-1132, "Performance Progress and Monitoring Report", Expiration Date 10/31/2022**. The components of the PPMR are available for download at: <https://www.cdc.gov/grants/alreadyhavegrant/Reporting.html> .

Required Disclosures for Federal Awardee Performance and Integrity Information System (FAPIS): Consistent with 45 CFR 75.113, applicants and recipients must disclose in a timely manner, in writing to the CDC, with a copy to the HHS Office of Inspector General (OIG), all information related to violations of federal criminal law involving fraud, bribery, or gratuity violations potentially affecting the federal award. Subrecipients must disclose, in a timely manner in writing to the prime recipient (pass through entity) and the HHS OIG, all information related to violations of federal criminal law involving fraud, bribery, or gratuity violations potentially affecting the federal award. Disclosures must be sent in writing to the CDC and to

CDC, Office of Grants Services
Wanda G. Tucker, Grants Management Officer/Specialist
Centers for Disease Control and Prevention
Branch III – District Building
2939 Flowers Road S
Atlanta, GA 30341
Fax: 770-488-2640 (Include "Mandatory Grant Disclosures" in subject line)
Email: WTucker@cdc.gov (Include "Mandatory Grant Disclosures" in subject line)

AND

U.S. Department of Health and Human Services
Office of the Inspector General
ATTN: Mandatory Grant Disclosures, Intake Coordinator
330 Independence Avenue, SW
Cohen Building, Room 5527
Washington, DC 20201

Fax: (202)-205-0604 (Include "Mandatory Grant Disclosures" in subject line) or
Email: MandatoryGranteeDisclosures@oig.hhs.gov

Recipients must include this mandatory disclosure requirement in all subawards and contracts under this award.

Failure to make required disclosures can result in any of the remedies described in 45 CFR 75.371. Remedies for noncompliance, including suspension or debarment (See 2 CFR parts 180 and 376, and 31 U.S.C. 3321).

CDC is required to report any termination of a federal award prior to the end of the period of performance due to material failure to comply with the terms and conditions of this award in the OMB-designated integrity and performance system accessible through SAM (currently FAPIS). (45 CFR 75.372(b)) CDC must also notify the recipient if the federal award is terminated for

failure to comply with the federal statutes, regulations, or terms and conditions of the federal award. (45 CFR 75.373(b))

PAYMENT INFORMATION

The HHS Office of the Inspector General (OIG) maintains a toll-free number (1-800-HHS-TIPS [1-800-447-8477]) for receiving information concerning fraud, waste, or abuse under grants and cooperative agreements. Information also may be submitted by e-mail to hhstips@oig.hhs.gov or by mail to Office of the Inspector General, Department of Health and Human Services, Attn: HOTLINE, 330 Independence Ave., SW, Washington DC 20201. Such reports are treated as sensitive material and submitters may decline to give their names if they choose to remain anonymous.

Payment Management System Subaccount: Funds awarded in support of approved activities have been obligated in a subaccount in the PMS, herein identified as the "P Account". Funds must be used in support of approved activities in the NOFO and the approved application.

The grant document number identified on the bottom of Page 1 of the Notice of Award must be known in order to draw down funds.

CDC Staff Contacts

Grants Management Specialist: The GMS is the federal staff member responsible for the day-to-day management of grants and cooperative agreements. The GMS is the primary contact of recipients for business and administrative matters pertinent to grant awards.

GMS Contact:

Wanda Tucker, Grants Management Specialist
Centers for Disease Control
CDC/OGS/OFR
2939 Flowers Road South, MS TV-2
Atlanta, GA 30341
Telephone: 770-488-5056
Fax: 770-488-2640
Email: kna9@cdc.gov

Program/Project Officer: The PO is the federal official responsible for monitoring the programmatic, scientific, and/or technical aspects of grants and cooperative agreements, as well as contributing to the effort of the award under cooperative agreements.

Programmatic Contact:

Connie Thomas, Project Officer
Centers for Disease Control and Prevention
(CDC/DDNID/NCEH/DEHSP)
Chamblee Campus, Bldg106 Rm 05036, MS S106-5
Atlanta, GA 30341
Telephone: 770-488-3631
Email: clb1@cdc.gov

Grants Management Officer: The GMO is the federal official responsible for the business and other non-programmatic aspects of grant awards. The GMO is the only official authorized to obligate federal funds and is responsible for signing the NoA, including revisions to the NoA that change the terms and conditions. The GMO serves as the counterpart to the business officer of the recipient organization.

GMO Contact:

Lakita Reid, Grants Management Officer
Centers for Disease Control and Prevention
CDC/OGS/OFR
District Bldg 2939 Flowers Road South, MS TV-2
Atlanta, GA 30341
Telephone: 770-488-2742
Email: wtl9@cdc.gov

EXHIBIT B - Project Narrative

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PROJECT NARRATIVE

Project Abstract Summary

This proposal details the establishment of a Community-Based Rodent Surveillance Collaborative (CBRSC) in response to CDC-RFA-EH20-2005. The CBRSC includes accomplished and enthusiastic partner support from national associations (National Association of County and City Health Officials (NACCHO), National Environmental Health Association (NEHA), National Pest Management Association (NPMA)); public health agencies (Louisiana Department of Health, Department of Public Health New Orleans); cities (Plano, New Orleans); extension (Texas A&M Agrilife); urban rodentology (New York City); Office of Homeland Security and Emergency Preparedness (New Orleans); and academic (Universities of California, Miami and Texas). The broad and long term goal of the Collaborative is to foster interagency and cross-sector rodent data sharing and cross-sector dialogue between rodent data producers, custodians and users initially, in Dallas, Houston and New Orleans and then across partner cities in the United States so that a platform for consolidated data is created, and preparedness and responses to public health threats caused by rodents and the pathogens they transmit are improved and accelerated. To achieve this goal, the project is focused on four major outcomes:

- 1) Conduct a comprehensive environmental scan in collaboration with internal (e.g., state, tribal, local, and territorial (STLT) health agencies) and external (e.g., business, industry, public) partners and stakeholders to compile a collection of relevant needed rodent data (e.g., rodent-borne diseases, 311 rodent service calls or complaints, inspections) to make local data publicly available and to improve STLT health agencies and other stakeholders' data-driven decision making and to be more adept when addressing potential zoonotic transmissions and enhance potential for a more unified response to rodent infestations in urban areas (**Year 1**).
- 2) Use findings from the comprehensive environmental scan to conduct an evaluation of rodent management strategies in distinct New Orleans neighborhoods in order to create a rodent surveillance and mitigation plan for other cities to adapt for effective rodent control. We anticipate to identify gaps in rodent data based on the environmental scan (**Year 1-3**).
- 3) Build sustainable partnerships (including with businesses and communities) to ensure a common understanding and buy-in for interagency and cross-sector data sharing among data stakeholders (e.g., people, processes, systems and interfaces) to facilitate and cement the necessary resources needed for rodent management in urban areas and to prevent potential adverse damage and health effects) (**Year 2-5**).
- 4) Develop, test and launch a prototype open access web-based mapping platform linked with a mobile survey application to make local data accessible in real-time and to provide direction for the prevention and mitigation of rodents (**Year 2-5**).

Attainment of these outcomes will truly change rodent management procedures in urban areas and dramatically expand the ability of STLT health agencies in affected cities to detect and respond to new rodent threats as well as greatly improve population health outcomes.

SECTION A: Background and Problem Statement

Rodents, mainly urban Norway, black rats, house mouse (*Rattus norvegicus*, *Rattus rattus*, and *mus musculus*) are a major problem in cities globally due to their associated health and economic impacts (Feng and Himsworth, 2014; Stenseth *et al.*, 2003). Rodents have been known to carry about 55 pathogens including viruses (established and novel), bacteria, protozoans and pathogenic helminths (Meerburg, Singleton and Kijlstra, 2009; Easterbrook *et al.*, 2007; Rabiee *et al.*, 2018). Pathogens carried by rodents include zoonotic bacteria (e.g., *Leptospira interrogans*), viruses (*Seoul hantavirus*) (Cross *et al.*, 2014), and parasites (*Angiostrongylus cantonensis*) (Rael *et al.*, 2018; Himsworth *et al.*, 2013b). Because rodents live and feed in closer proximity to human populations than most other mammals, their potential for zoonotic pathogens to be transmitted via human populations poses a significant public health concern (Firth *et al.*, 2014; Himsworth *et al.*, 2013b; Frye *et al.*, 2015; Brown and Laco, 2015). Further, urban rodents consume and contaminate food items, damage property, infrastructure, and result in significant expenditures on pest control and rodent damage mitigation (Byers *et al.*, 2019).

In areas vulnerable to disaster (e.g., coastal US cities), the increased risk of leptospirosis and hantavirus pulmonary syndrome has been attributed to climate change and growing population density (Haake and Levett, 2015; Diaz, 2015). Other risk factors for rodent infestations include neighborhood factors (e.g., aging infrastructure, homelessness, and socioeconomic conditions) (Walsh, 2014; Comer *et al.*, 2001), environmental factors (e.g., access, harborage) (Lewis *et al.*, 2017), and property (e.g., commercial, residential and vacant lots) (Peterson *et al.*, 2020). The habits of rodents (e.g., movement) places them in direct contact with environmental features that harbor microbial pathogens (e.g., sewers), and may deter homeowners or businesses from reporting infestations for fear of shame or being penalized (Parsons *et al.*, 2017). Unfortunately, traditional methods for rodent control in the US have been ineffective, focused on pesticide use over the long-term (Himsworth *et al.*, 2013a).

Now with the COVID-19 nationwide lockdown particularly the closure of food serving establishments has deprived rodents of a readily available food source, and increased rodent activity across the US (CDC, 2020). In turn, this has exposed the inadequate response capacity and the limited number of local public health departments or rodent control programs and the pest control industry who have scrambled to mitigate rodent infestations. This questioned how we should manage urban life in future pandemics (Acuto, 2020), and *highlights the need for urban rodent surveillance and mitigation protocols across agencies*. In addition, no management protocol exists as part of local homeland security on rodents regarding such disasters or emergencies, nor is there a mechanism to optimize the control of rodents during the COVID-19 crisis posing health risks to public health. To prepare for such inevitable disasters **the New Orleans Mosquito, Termite and Rodent Control Board is proposing the establishment of a “Community-Based Rodent Surveillance Collaborative”** to develop innovative disaster rodent surveillance-management packages and decision-making tools that other cities can adapt, and to foster interagency and cross-sector rodent data sharing. For experimental tractability and in year 1, we focus on Dallas, Houston and New Orleans, and then incorporate the most pest-infected cities in Years 2 through 5 (<https://www.statista.com/statistics/315990/cities-with-most-pest-infestations-united-states/>).

Why is a Community-Based Rodent Surveillance Collaborative needed?

Interagency, cross-sector collaboration for sharing of rodent administrative data is an innovative, promising approach. Cross-system data integration has been identified as the “next frontier for generating quality evidence to inform public policy and system reform” (Culhane *et al.*, 2010). Data integration systems developed by state and local government agencies, and universities throughout the nation, show promise in identifying resources (what works), for whom, and how; and touchpoints during control (when), key contexts outcomes can be optimized (where), and at what cost (how much). Pest management professionals, state, tribal, local, and territorial (STLT) health agencies in collaboration with community stakeholders can in real time, at a city or neighborhood-level, use a comprehensive set of factors to determine where rodent management strategies and geographical targeting of limited resources is needed.

Despite the existence of rodent academies and informal networks between STLT health agencies with data stakeholders (e.g., people, processes, systems and interfaces), there are no formal mechanisms for interagency and cross-sector data sharing of rodent populations, environmental or neighborhood-level factors in New Orleans, Dallas, Houston or even nationwide. Without established procedures or tools, STLT health agencies cannot use data-driven decision-making to inform "action plans" with an inherent IPM strategy or to form a coordinated response.

Program managers need quality, timely data to prevent rodent infestations, cumulative exposure to rodents, and a broad array of social, economic and health consequences (Meerburg, Singleton and Kijlstra, 2009; Costa *et al.*, 2014). STLT rodent control practitioners, outreach workers, inspectors, and others need information now, to make decisions and to allocate limited resources to rodent management early when the potential for impact is greatest.

Finally, when pertinent datasets and/or data related to rodents are available, public sector decision-makers may be unfamiliar with the scope of existing data and how to obtain access. One state health agency staff when asked if his department had information on how leptospirosis cases were reported to the state echoed this view, “...I have no clue. It is my understanding that we receive reports of lab testing positives. If so, we harvest this information for analysis or inclusion in a predictive modeling plan. The only other source I know of is the hospital discharge data.” Environmental health practitioners, inspectors, outreach workers, and others would benefit from interagency and cross-sector data sharing and cross-sectoral dialogue to identify additional promotive rodent factors and resources in cities for a proactive plan-and-prevent approach, rather than a reactive wait-and-fix strategy.

What are the Barriers to Cross-sector Collaboration to Improve Rodent Management?

There are three main reasons why this cannot be done currently, due to existing barriers across sectors and systems:

1. Data collected about rodents and their environments (e.g., by code enforcement, pest management and sanitarians) are “siloe” within public agencies who work in community-based rodent integrated pest management programs. Public service agencies operate independently, and collect and store data on rodents in silos, rather than coordinating data collection and service delivery systems. In fact, it has been suggested that many of our nation’s most critical failures to addressing pressing societal issues cannot be attributed to any single system whether it be health, housing, economic, human services, or education. Kettle (2009) underscores this point: “It is no longer possible to assign responsibility for any fundamental problem to a single government agency— and no single agency can control or manage any problem that matters.” Figure 1 presents a hypothetical county with potential rodent data that can be leveraged for cross-sector rodent data sharing.

2. Community-based rodent integrated pest management (IPM) programs cannot easily access or integrate interagency and cross-sector data about rodent populations, environmental factors, presence of ectoparasites on rodents and human disease cases. No current infrastructure exists or set of standard procedures are available in Dallas, Houston and New Orleans or nationwide for rodent control practitioners and STLT health agencies to share, integrate, and analyze data or to use such data for decision-making in a comprehensive, systematic way to manage urban rodents. This coupled with a lack of routine rodent surveillance makes mitigating such hazards challenging for programs. In addition, despite a robust training program for the pest management industry and public agencies conducted by the New Orleans Mosquito, Termite and Rodent Control Board (NOMTRCB) (see www.nola.gov), and other universities across the United States, transformable and behavioral change is not having a great impact among those that need it the most and have the ability to move the needle on rodent control in urban areas.
3. As practitioners, we must make opportunities for cross-sectoral dialogue to advance the science of rodent control in urban areas. However, for this to happen someone has to take the lead to coordinate such an effort and establish guidelines for cross-sector dialogue. As practitioners, we are often isolated within our agencies and focus only on isolated factors, and we rarely have the opportunity to share approaches to using big data on rodents, environmental factors and human cases, that spark innovation or inform comprehensive, evidence-based rodent management strategies. Isolation limits the potential for broader impact of our work to make an impact on rodents at the community level. We only use limited resources including datasets, and the expertise of our training to make a true impact (Brown and Laco, 2015). Current challenges to local health department informatics efforts include a lack of decision-making control concerning critical components of informatics, capacity and a lack of electronic records (Hasbrouck 2016). Therefore, there is a need to foster cross-sector data partnerships with various community groups and STLT health agency programs to be successful and sustainable.

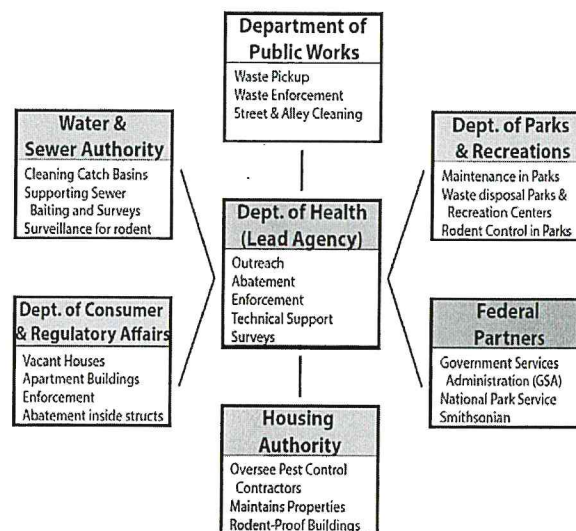


Figure 1. Example of county departments with potential rodent data for a hypothetical county that can be leveraged for cross-sector rodent data sharing.

SECTION B: Proposed Approach, Outcomes, Strategies and Activities

Purpose

To perform a comprehensive environmental scan of all relevant rodent data, build sustainable partnerships with key stakeholders to improve community rodent surveillance to reduce rodent populations to support the goals of CDC.

Outcomes

This proposal leverages environmental health services and administrative data such as those that are routinely generated, collected and used by local agencies, the demonstrated expertise and collaborations across a broad range of city government departments and academic disciplines (e.g., pest management, environmental health, rodentology, geography, evaluation and public health) to achieve our project's activities (see letters of support). Our project activities including those slated for Year 1 and that our project activities will be being conducted over four phases;

- 1) Conduct a comprehensive environmental scan in collaboration with internal (e.g., STLT health agencies) and external (e.g., business/industry/public) partners and stakeholders to compile a collection of relevant rodent data (e.g., rodent-borne diseases, 311 rodent service calls or complaints, inspections) to make local data publicly available and to improve STLT health agencies and other stakeholders' data-driven decision making and to be more adept when addressing potential zoonotic transmissions and enhance potential for a more unified response to rodent infestations in urban areas (**Year 1**).
- 2) Use findings from the comprehensive environmental scan to conduct an evaluation of rodent management strategies in distinct New Orleans neighborhoods in order to create a rodent surveillance and mitigation plan for other cities to adapt for effective rodent control. We anticipate identifying gaps in rodent data based on the environmental scan (**Year 1-3**).
- 3) Build sustainable partnerships and a rodent mitigation plan (including with businesses and communities) to ensure a common understanding and buy-in for interagency and cross-sector data sharing among data stakeholders (e.g., people, processes, systems and interfaces) to facilitate and cement the necessary resources needed for rodent management in urban areas and to prevent potential adverse damage and health effects) (**Year 2-5**).
- 4) Develop, test and launch a prototype open access web-based mapping platform linked with a mobile survey application to make local data accessible in real-time and to provide direction for the prevention and mitigation of rodents (**Year 2-5**).

We recognize that having equitable access to rodent resources at a decentralized level is not easy; it requires breaking down service system, sectorial silos and existing fragmentation and encouraging cross-sector collaboration and teams (e.g., data users and producers), identifying relevant existing data, data formats/data sharing protocols, and integration of data about rodent populations, rodent dynamics and environmental factors across multiple levels, and pest management sectors to fully capture and manage rodents in urban habitats in the different urban environments. Therefore, our Year 1 activities will focus on outcome 1 (conduct of a comprehensive environmental scan). The measures used to assess each activity is presented in Evaluation and Performance Measurement Plan (Table 2).

Strategies and Activities

We will build upon the current outreach and training infrastructure currently implemented by the New Orleans Mosquito, Termite and Rodent Control Board, New York City and the Texas IPM program. These resources will be leveraged as we conduct our project activities during year 1 through year 5 to more comprehensively determine a better way of managing rodents in large urban settings so that future outbreaks can be managed effectively in New Orleans, and other urban areas. All activities will be conducted with extensive input from the Environmental Health Capacity (EHC) coordination team, businesses and community engagement leaders and STLT health agencies.

Strategy 1: Determine what rodent data information can be used to develop data-driven decision-making tools to assist code enforcement, city and county leaders, and pest management professionals

Activity 1: Build a Collaborative Team of Interagency and Cross-Sector Partners

During year 1, develop a coalition or workgroup that could collectively have greater impact on rodent data collection, rodent management and behaviors that prevent us from fresh possibilities for and behavioral change that can lead to social transformative change.

- Draw on our project team experience to plan the environmental scan, establish leadership and capacity for project activities. We use an active approach (telephone interviews and a virtual roundtable process) to invite key stakeholders relevant to rodent management in urban areas to serve as part of a Collaborative task force/workgroup whose mandate will be to provide input/guidance regarding project activities, commit to holding virtual meetings twice monthly, and as needed, and to take action (Graham, Evitts and Thomas-MacLean, 2008). Key stakeholders will include the EHC coordination team, the National Association of County and City Health Officials (NACCHO), the National Pest Management Association (NPMA), National Environmental Health Association (NEHA), CDC, Cooperative Extension, STLT health agencies, homeland security, researchers, businesses and community leaders and other partners as relevant.
- Convene the collaborative task force or workgroup to develop pool resources and debate, dialogue, and discuss approaches to accessing and to integrating data across interagency boundaries, determine what interagency and cross-sector rodent data and resources is readily available and what is not. The goal will be to achieve the following:
 - Establish a well thought out and meaningful participatory focal area and purpose of the environmental scan, which includes fewer and clearly defined indicators, common definitions of indicators, a set of standardized data collection forms, measures and a simplified system.
 - A procedural plan for obtaining data (including timeline), data use context (e.g., interagency and cross-sector data sharing agreements or Memorandum of Understanding (MOUs)), and for performing data linkage.
 - Through the Collaborative, ensure that the project findings produced are relevant and timely, and can be used by stakeholders to inform their program services.

- Identify multiple outlets for dissemination, for both academic and non-academic audiences relevant to our work. For academic researchers' findings can be shared via national research conferences (e.g., Vertebrate and Pest and NCUE Conferences) and peer reviewed journals, across multiple disciplines. For practitioners, dissemination products may include the development of a website, newsletters, policy briefs, and local presentations for practitioner, policy maker, and industry trade journal. For example, Drs. Moise and Riegel serve on the NACCHO working groups.

The initial set of assessment questions include those questions that could not be answered without interagency and cross-sector data sharing and cross-sector dialogue, such as:

- a. *Are there rodent data gaps, good quality and enough publicly available rodent data to allow us to integrate and promote effective use of rodent data and information in urban areas? Where are these data/data producers/users/custodians across service sectors?*
- b. *How do these gaps relate to rodent management strategies, coordinated response or effort, infrastructure and health outcomes? Or to an urban rodent surveillance and mitigation plan and web-based mapping tool that other cities can use to adapt for effective rodent management? (develop in Year 2-5)*
- c. *What are the unique and interactive contributions of interagency and cross-sector indicators to rodent population outcomes?*

Activity 2: Make Rodent Data Open and Publicly Accessible

- During Year 3-5, develop a prototype interactive open access web-based mapping platform that will be linked with a mobile survey application to initiate performance measures in rodent mitigation decision making processes. This interactive open mapping platform will support interagency and cross-sector data sharing and real time rodent data uploads by practitioners. Data will include those from inspections, code enforcement, citizen monitoring and so on, particularly to advance timely response to rodent problems in urban areas.
 - The platform will be accessible by those interested in rodent data, through the web-based application. We will capitalize on work and expertise from our University project members, such as Mr. Diem and Dr. Moise, who with her team has developed mobile survey applications and software applications that can be used to collect field data in real time and integrate and display data for research and stakeholder use.
 - Dr. Moise, as part of a U-LINK funded project in collaboration with the Data Science and Computing at the University of Miami are developing a web-based application to display children's early childhood experiences and school readiness on a map.

There are several national models of interactive open access web-based mapping tools that are linked with MHealth applications (See Figure 2 for a potential infrastructure of the integrated rodent data system -- RodentNet). During Year 1, our team will consult with the Collaborative task force/workgroup and experts through expert interviews and focus groups regarding the need for such a system and what it should constitute. The Department on Geography and the Institute for Data Science and Computing at the University of Miami has the basic infrastructure in place to support the future development of an interagency and cross-sector data system that could continue to be housed at the University of Miami or at a County or city agency or national

association such as NACCHO, CDC or NEHA. NACCHO and NEHA are in support of this project (see letters of support), and we will consult them to assess if this is a possibility.

Our long-term goal is to expand the coverage of rodent data stakeholders, interagency and cross-sector collaborations, and data sharing for relevant rodent indicators and data that contribute to their proliferation in urban areas. Capitalizing on the complementary expertise and data from this project as well as our partnership with NACCHO and NEHA, we would like to include additional service sector data, such as those from assessments of rodent activity in participating communities. We also plan to include data from partner cities to be included in this project after Year 1 such as Seattle, Washington DC, and New York City.

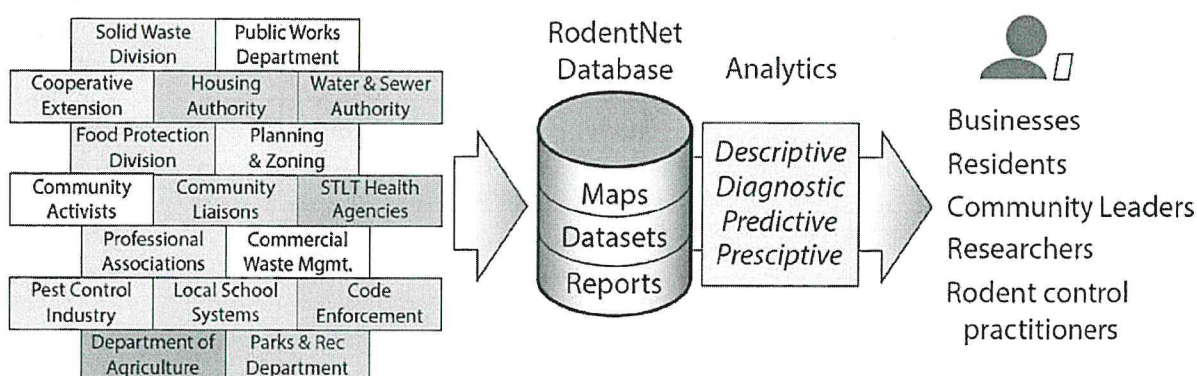


Figure 2. Potential Infrastructure of the Integrated Rodent Data System (RodentNet)

Activity 3: Conduct a Comprehensive Environmental Scan

During Year 1, use findings from Activity 1 to conduct an environmental scan, initially in New Orleans, Dallas and Houston to consolidate rodent data and resources that are currently readily available from interagency and cross-sector partners, businesses, universities and communities.

- Use both primary and secondary data sources (active and passive approaches) to conduct a comprehensive environmental scan. Structured interview questionnaires will be developed to assess the status of rodent data stakeholders (e.g., people, processes, systems and interfaces) within STL health agencies. To achieve these objectives, the following activities will be conducted under Activity 2 during Year 1:
 - Use quantitative content analysis or secondary sources to conduct a publicly available rodent data inventory of rodent management programs/agencies including a thorough review of agency reports and plans. We will also use internet and snowball searches for public information from pest management and rodent programs in partner agencies. Content analysis will be conducted as a complimentary measure to control for the information provided by the interagency and cross sector experts.
 - Conduct expert interviews (8-10 focus groups and 20-35 key informant interviews) with interagency and cross sector partners, businesses and pest management professionals (to include data custodians, users and producers, and other stakeholders) to truly understand the status of readily available rodent data and gaps:

To identify rodent data gaps, questions to experts will center on whether their existing rodent data is the right data to influence rodent management. For example, experts will be asked “do you have “x” type of rodent data? “Do you need “x” type of rodent data”? Do you have the right quality of rodent data to enable scientifically defensible decisions? Is the existing data too old to compare to current rodent data? Data to be probed will include data on properties that are in poor quality conditions, trapping data, potential harborage sources, code enforcement violations, rodent populations, environmental factors, presence of ectoparasites on rodents and human disease cases.

In addition, we will ask participants; do you have enough rodent data to allow you to respond quickly if there were a rodent infestation today? Do you have enough rodent data to guide actions across multiple efforts such as inspections to decrease rodent population and to safely guide resident’s cumulative exposure to rodents and diseases they carry? If not, what must you do? Can you quickly organize a coordinated effort in response to a rodent outbreak? Can you develop work tasks related to a rodent outbreak if there was one? Is the available rodent data in your agency defensible? Further, we will probe whether the types of rodent data gaps that exist are either informational (e.g., a certain data type is not available to guide inspections, temporal (available data is old and was collected under different conditions such winter vs. summer) or spatial (certain areas are not represented in the current rodent data).

Other questions will probe willingness to share data and barriers to do so (e.g., types of data access permissions that may affect willingness to participate in the Collaborative), views of what should constitute the web-based data portal and the urban rodent surveillance and mitigation plan, capacity and data training needs. We will also probe for data issues and needs that are not readily evident from the content analysis, such as political constraints and the emergence of innovation and leadership.

We recognize that these hypothetical agencies will vary according to program attributes that may affect interagency or cross-sector data sharing behavior (e.g., number of organizational programs involved, categorical funding sources, reporting requirements, data criteria for each program, centralized dataset or not, reporting requirements, levels of rodent data systems in any, governance involved in rodent data and response).

- Conduct a data review, identify and document data gaps from the findings of quantitative content analysis, expert interviews and focus groups with Collaborative task force/workgroup input. This body of information will be useful in generating initial maps of data gaps and potential regional sustainable partnerships for interagency and cross-sector data sharing.

Expert recruitment: We will leverage our ongoing partnerships with NEHA, NACCHO, NPMA and the CDC’s Center for STLT support to recruit key stakeholders to be part of the Collaborative task force/workgroup, focus groups and expert interviews.

Data collection: The analytical framework will be based on grounded theory, an inductive research process that leads to the systematic development of a theoretical model to the challenges inherent in achieving cross-sector rodent data sharing. The building blocks for the emerging theory will be generated through a process of simultaneous data collection and analysis. Data collection and analysis will continue until a saturation point is reached and the developed theory is no longer challenged by new, potentially conflicting data collected.

Quantitative descriptive analyses will be conducted using IBM SPSS software and qualitative content analyses will be conducted using NVivo 9.0 to identify: (1) issues related to rodent data systems and data training needs; and (2) essential elements of a mitigation plan and an effective interactive open access web-based data system for integrated interagency and cross-sector rodent data sharing. Provisional themes will be reviewed and revised by the Collaborative task force or workgroup for each analysis to increase reliability (Bowling 2002).

Strategy 2: Identify and address rodent areas that can cause a variety of environmental hazards in large urban areas to prevent, and control EH hazards

Activity 4: Collect New Data and Develop a Rodent Mitigation Plan

During Year 1-3, use findings from Activity 2 to collect new data (based on the identified data gaps) that may influence rodent management in urban areas and to develop a mitigation plan for other cities to adapt for effective rodent control. It will be conducted in New Orleans. The project team will agree as to which missing rodent data/indicators and sources are most critical to collect. Such data may include environmental data that may influence rodent management in commercial and diverse residential areas.

- Develop an evaluation plan through an iterative process to help guide collection of new relevant rodent data identified in Activity 2 (e.g., perform rodent surveillance using electronic monitoring, trapping or census consumption in commercial and diverse residential areas to capture data on rodent population activity). An evaluation plan will be developed for each type of data (e.g., business-related data vs. environmental data). The evaluation plan will include the data collection goals, objectives, sampling plan/design, equipment needed, rodent indicators to be collected, analysis plan, timeline, roles, data storage and management plan and quality assurance project plan.
- Assess feasibility of rodent management strategies for each identified relevant rodent data type in distinct areas (e.g., in areas with a high density of food shops vs. those without).
- Document the process of conducting a feasibility activity for rodent management strategies in urban areas and determine next steps needed to strengthen the capability of rodent control practitioners to improve understanding regarding the significance of data standardization to ensure rodent problems are managed.
- Develop a rodent surveillance and mitigation plan for other cities to adapt, if they so choose. Our Collaborative workgroup will guide the development of the plan that can be used during rodent infestations and everyday operations. The plan will include different phases of potential actions that may be taken.

Strategy 3: Assess the effectiveness and impact of current EH services and interventions as it pertains to rodent management and educational awareness not just to EH advocates, but also residents in high impact areas.

Activity 5: Build Internal and External Partnerships

During Year 1-5, build local support with both interagency and cross-sector and external partnerships who will include businesses and citizens to increase appreciation for rodent programs in urban areas and to gather new useful information.

- Convene a workshop with key local stakeholders to include STLT health agencies and external (e.g., business/industry/public) partners and stakeholders to review developed rodent

surveillance, mitigation plan developed above, and redesign and standardize data collection forms and to ensure that all relevant and needed indicators are included. The redesigned forms will be pilot-tested with select STLT health agencies and external and partners.

- Assess feasibility of implementing the rodent surveillance mitigation plan that include different phases of an outbreak, disaster or emergency.
- Leverage our outreach and educational channels including rodent academies to enhance the expertise of the workforce and citizens.

COLLABORATIONS

With other CDC Programs and CDC-funded Organizations

This project will utilize NOMTRCB's established collaborations with local, state and national associations and agencies that dates back to Hurricane Katrina. Based on this long history of interagency and cross-sector collaboration and rodent control, NOMTRCB has a depth of knowledge of local cultures and power dynamics that will foster interagency and cross-sector rodent data sharing in partnership with and on behalf communities and STLT health agencies so that a full understanding of the rodent environmental hazards can be obtained and a fundamental shift in attitude towards the importance of commensal rodents and control can be made. In addition, each of the senior key personnel on this project will bring a wealth of experience and collaborations that will allow for successful execution of this project (See attached resumes).

Either in teams or independently, we have collaborated with NEHA, NAACHO, CDC and STLT health agencies over the years (e.g., teaching training courses, writing on-line mosquito and rodent modules for the Biology and Control of Vectors and Public Health Pests and IPM, research projects, publications and providing local training to EH and municipal employees). Some of these training have focused on bioterrorism, mosquito surveillance and control, rodent control, food safety. Project team members have also provided vector control support after disasters and actively participate in NAACHO and NEHA working groups, associations with infrastructure to reach thousands of EH members nationally and have the existing platforms for working groups, data gathering and information dissemination that will be required. Other CDC programs and CDC-funded collaborators will include:

- NEHA (with more than 7,000 members)
- NACCHO (with more than 3,000 members)
- Louisiana Department of Health
- CDC and environmental health capacity (EHC) coordination team

With Organizations not funded by CDC

The diverse background of the team will allow for all facets of private industry and TLT health agencies and other agencies rodent programs to be engaged in aspects of this proposed project activities. Senior key personnel regularly contribute to NPMA's seminars and webinars (e.g., nationally and internationally) and serve as committee members on different work groups.

Collaboration with organizations not funded by CDC will include:

- State and municipal agencies (e.g., sanitation, legal, communication and agriculture departments, code enforcement and school boards)

- Pest management companies and Universities
- Homeland security (e.g., NOLA Ready)
- Neighborhood engagement leaderships
- National Pest Management Association (NPMA), a potential member of the ECH team (with 77,300 pest control operators in the US).

NOMTRCB will continue to leverage its unique position within city government to expand the reach of its partnerships with agencies involved in rodent or environmental hazard management within city government, state and nationally. Leveraging these collaborations will allow for crucial data to be obtained from different sectors including from private industry.

TARGET POPULATIONS AND HEALTH DISPARITIES

New Orleans

Orleans Parish, Louisiana and the City of New Orleans are coterminous. In 2019, New Orleans had a population of 390,144 with a median age of 37.3. During the same year, the US Census Bureau estimated that 34.0 percent of the city's population was Caucasian, 59.7 percent was Black or African-American, 2.9 percent was Asian, 1.8 percent was multiracial, 0.2 percent was American Indian and Alaska Native; 30.6 percent of the city's population was of Hispanic or Latino. Only 5.6 percent of New Orleans residents are foreign born, compared to 13.5 percent of the U.S. population, and less than 10 percent (8.4%) of New Orleans households speak a language other than English at home, compared to 21.5 percent of U.S. households.

New Orleans' geographic location and demographics brings both strength and challenges to prevention planning. The city is susceptible to certain climate hazards especially coastal flooding and storms due to low elevation, poor natural drainage, and proximity to multiple bodies of water. New Orleans is also home to more than half of the state's African-Americans (32.7%) and its Hispanic population in the metropolitan area has jumped 69% from 2000 to 2012, which is much higher than the national 50% growth. The latest Census and postal data suggest also show slow population growth and that between 2017 and 2018, the population of New Orleans decreased from 393,292 to 391,006, a -0.581% decrease. Most of this decline occurred in 12 of the city's 72 neighborhoods.

This, coupled with high rates of poverty, land abandonment (Lewis et al., 2017) and high income inequities (Berube, 2018) suggest that the city and its 390,144 residents (US Census QuickFacts2019) continues to face multiple problems. Some of these problems have been growing more intense since Hurricane Katrina, despite Federal, State, local, and private efforts to ameliorate them (Congressional Research Service, 2008). In addition, proportionately more plague-infected rodents in the city have been linked to food depots than dwellings (Link, 1955). Therefore, when harnessed and leveraged to its full potential, the wealth of information we have as a result of this project has the potential to greatly improve population health outcomes beyond the city of New Orleans.

Dallas

In 2019, the city of Dallas had a population of 1,343,573 with a median age of 33.3. During the same year, the US Census Bureau estimated that 62.5% of the city's population was Caucasian, 24.3% was Black or African-American, 3.4% was Asian, 2.5% was multiracial, 0.3 % was American Indian and Alaska Native; 41.7% of the city's population was of Hispanic or Latino.

24.6% of Dallas residents are foreign born, compared to 13.5% of the U.S. population, and 43.8% of Dallas households speak a language other than English at home, compared to 21.5% of U.S. households.

Houston

In 2019, the city of Houston had a population of 2,320,268 with a median age of 33.1. During the same year, the US Census Bureau estimated that 57.6 percent of the city's population was Caucasian, 22.5% was Black or African-American, 6.9% was Asian, 2.1% was multiracial, 0.3% was American Indian and Alaska Native; 44.8% of the city's population was of Hispanic or Latino. 29.5% of New Orleans residents are foreign born, compared to 13.5% of the U.S. population, and almost half of (48.8%) of New Orleans households speak a language other than English at home, compared to 21.5% of U.S. households.

SECTION C: Evaluation and Performance Measurement Plan

Our evaluation for collecting rodent surveillance data will include (1) a process evaluation to assess the context and infrastructure of readily available rodent data and resources, improvements in these data and impact on STLT health agencies' rodent programs, and (2) an outcome evaluation of a sample of distinct select neighborhoods (e.g., areas with a high density of food establishments vs. those without). We anticipate using both quantitative data from STLT health agencies, other agencies, field experiments, surveys, and qualitative data from key informant interviews and focus groups. Our broad project monitoring questions are as follows:

- 1) Has the needed, relevant and good quality rodent data (e.g., biological, spatial, and temporal), and data linkages among disparate sources of data been captured and created?
- 2) What and how many *needed* rodent data types and resources have been identified, prioritized, collected?
- 3) Has a strategic plan for how rodent data stakeholders (e.g., processes, systems and interfaces) can work together across sectors to effectively and efficiently make high quality data and information available been developed and communicated?

Process evaluation questions to monitor project activities project activities are as follows:

Process Evaluation

Strategy 1: Strengthen EH data use and informatics capacity

- 1) How many strategic partnerships have been formed and at what levels?
- 2) Are STLT health agencies' rodent programs leveraging and harnessing rodent data within their own agencies or across sectors? Which of these data are mostly used in decision making?
- 3) What can this project do to improve the quality of rodent data, access and cross sector data sharing?
- 4) Has the needed and relevant rodent data been made readily available for STLT health agencies and/or partner agencies' access and use?

Strategy 2: Identify, prevent, and control EH hazards

- 1) How is the lack of relevant rodent data affecting rodent programs needs directly or indirectly or from making impact?

Strategy 3: Assess EH intervention effectiveness and impact

- 1) Are STLT health agencies and/or partner agencies leveraging existing rodent data forums and capabilities?
- 2) Are rodent programs reaching the right citizens and do they have the right resources to assist suburban clients and residents to understand rodent behavior and nudge residents to report rodent activity.

Outcome evaluation questions to examine the long-term successes and accomplishments of our project activities are as follows:

Outcome Evaluation

Strategy 1: Strengthen EH data use and informatics capacity

- 1) Has the target population (STLT health agencies and/or partner agencies, business and communities)'s data needs been identified?
- 2) Has the owners, custodians including users of the readily available reliable needed rodent data been identified? Is the data custodian also the owner of this data?
- 3) Has the Collaborative strengthened the collection of readily available reliable needed rodent data?
- 4) Has the Collaborative improved capacity of the target population to process data including increased access to reliable readily needed rodent data?
- 5) Has the Collaborative increased the capacity of the target population to use reliable readily available needed rodent data?

Strategy 2: Identify, prevent, and control EH hazards

- 1) Has the collaborative addressed information gaps with strong methods and tools?
- 2) Has the collaborative developed innovative tools of how the target population can address future rodent infestations in urban areas?

Strategy 3: Assess EH intervention effectiveness and impact

- 1) What percentage of the target population has participated/pilot tested the developed Surveillance and Mitigation Plan?
- 2) Did 100% of the listed target population receive the finalized developed Surveillance and Rodent Mitigation Plan, materials and link to Data sharing mapping portal?

Data Collection

Table 1 which presents, the specific evaluation questions, performance measures, available data sources and methods or forms that will be used to collect the data, when the data should be collected, and who is responsible for collecting it. It is important to note that in order to answer the target and output-related questions, actual individuals need to be counted and just the number of events. This will be assigning unique identification to all project participants and carefully tracking which individuals share their data or participate over the project cycle. We also plan to work with our Collaborative team if funded to refine a set of draft standards for the expected CQI of rodent data and activities. A key lesson learned regarding effective CQI is the standardized data collection tools or forms.

Key Partner Engagement

Our evaluation for methods for the building our Collaborative will be measured in the number of attendees beyond the eight members of the collaborative submitting this proposal. Key partners who are part of the Collaborative will participant throughout the project from inception to data collection, analysis, interpretation and dissemination. Once notified of the award, the main team will schedule an initial meeting of the team and invite members (see letters of support), and other partners. From this first meeting, a schedule will be developed to outline the timeline from the work plan to further track progress on this project. During the planning meetings, the information needed for all three strategies and activities, individuals will be assigned responsible roles for cohesiveness in reporting by the City of New Orleans to CDC. In addition, once best practices for interagency and cross-sector data sharing including standards have been developed, our project team along with the Collaborative we will work with NACCHO, NEHA and NPMA to review, finalize, and clearly communicate the CQI plan with STLT health agencies and other agencies. We will also recommend to NACCHO, NEHA or NPMA the importance of developing a full plan to monitor these standards, including identifying appropriate indicators and methods of data collection, which may require reviewing and adapting as appropriate tools to be generated during this project for project sustainability post funding.

Data Sources, Collection Methods, and Tools or Formats

The primary data sources to assess performance measures are data from local government (STLT health agencies and other agencies), and include rodent counts, treatment, service request calls, harborage reports, reportable infectious diseases and animal bite case reports and inspections (food service, rodents, and housing). The New Orleans Mosquito, Termite and Rodent Control Board would also like to consider collecting both quantitative data (e.g., an evaluation of precise scientifically rodent management strategies on rodent activities under certain conditions and surveys with rodent data producers, users and custodians) including some qualitative data from experts that contribute to a continuous quality improvement (CQI) process.

To collect the **quality-related rodent data information**, a Quality Monitoring Checklist will be used by the project team. This checklist will be reviewed and revised, based on the finalization of new project standards, and will be used at all levels of the project. A major goal of these guidelines is to allow us to capture and report the minimum required evaluation and performance information. We recognize that STLT health agencies and other agencies may have additional data needs, beyond those agreed upon by the Collaborative team and hence for additional information needs, they can adapt and use the developed tools and data collection forms.

Table 1: Framework for Monitoring the Long-Term Achievements of Expected Outcomes

	Measure	Data Source, Collection Method or Form	Frequency Data are Collected
Strategy 1: Strengthen EH data use and informatics capacity			
1) Has the target population (STLT health agencies and/or partner agencies, business and communities)'s data needs been identified?	• Extent to which the target population participates in expert interviews and focus groups during the environmental scan. • Extent to which data needs and gaps includes training needs, reporting requirements and barriers have been defined, documented and prioritized.	• Interviews and focus group discussions	• During the environmental scan
2) Has the owners, custodians and users of the readily available <u>reliable needed</u> rodent data been identified? Is the data custodian also the owner of this data?	• # of signed data sharing agreements/memorandum of understandings for legally sharing of <u>readily available reliable needed</u> rodent data	• Monthly meetings/follow-up calls and emails	• During monthly meetings/follow-up calls and emails
3) Has the Collaborative strengthened the collection of readily available <u>reliable needed</u> rodent data?	• # of identified readily available <u>reliable needed</u> rodent datasets • # of captured and linked readily available <u>reliable needed</u> rodent datasets	• Monthly city service requests • Monthly city code enforcement inspection reports • Weekly CDC reportable infectious diseases cases • Monthly outpatient animal bite reports • Monthly city code enforcement inspection reports • Monthly food service inspection reports (e.g. schools, restaurants) • Business permits for garbage locations (e.g., grocery stores) • Monthly city rodent treatment and inspection reports • Monthly rodent counts by census block NPMA reports • Septic tanks geographic layers (may vary by city and state) • HUD housing inspection per block	• Monthly • Quarterly • May vary • Annually • Annually (if there was a changed)

		(conditions)/Section 8 housing reports	
4) Has the Collaborative improved capacity of the target population to process data including increased access to reliable readily needed rodent data?	• Extent to which the target population data custodians/owners are providing/uploading needed datasets to the developed data sharing platform. • Development of a web-based mapping platform that is linked to a mobile app.	• Participating data custodians/owners data uploads. • Web-based mapping platform that is linked to mobile application.	• Quarterly • Year 3-5
5) Has the Collaborative increased the capacity of the target population to use reliable readily available needed rodent data?	• # of target population who report using identified prioritized data/developed data sharing portal (e.g., to make decisions about inspections).	• Short survey	• At time of review
Strategy 2: Identify, prevent, and control EH hazards			
1) Has the collaborative addressed information gaps with strong methods and tools?	• Extent to which rodent management strategies have been scientifically designed and evaluated for rodent monitoring and management.	• Experimental design, with randomly assigned treatment and control areas	• Year 2-5
2) Has the collaborative developed innovative tools of how the target population can address future rodent infestations in urban areas?	• Development of a Surveillance and Rodent Mitigation Plan	• Surveillance and Rodent Mitigation Plan	• Year 2-5
Strategy 3: Assess EH intervention effectiveness and impact.			
1) What percentage of the target population has participated/pilot tested the developed Surveillance and Mitigation Plan?	• % of the estimated target population reviewing/pilot-testing the Surveillance and Rodent Mitigation Plan	• Process mapping during workshop • Monthly meetings/phone calls	• Year 2-5
2) Did 100% of the listed target population receive the finalized developed Surveillance and Rodent Mitigation Plan, materials and link to Data sharing mapping portal?	• % of listed target population receiving materials, developed Surveillance and Rodent Mitigation Plan and link to Data sharing mapping portal.		

SECTION D: NOMTRCB Organizational Capacity

The New Orleans Mosquito, Termite and Rodent Control Board (NOMTRCB) was established as a City of New Orleans city agency with an 8-member advisory board in May 1964. The need for organized mosquito abatement operations in the City of New Orleans was driven by a habitat uniquely suited to produce overwhelming mosquito populations (*Aedes sollicitans*), disease epidemics, and public outcry. Although the City of New Orleans has had an established mosquito control program since 1964, NOMTRCB assumed the operations of the City's rodent control program in 1998. The Administration at the time had considered the duties of that program to be more compatible with our programs rather than the Health Department, where they had been since their inception. Currently, NOMTRCB, is one of the few vector control programs (rodent, mosquito, urban pest) not embedded in a health department. Within the City of New Orleans, NOMTRCB is considered an environmental health agency and a part of Homeland Security. We work closely with the New Orleans Health Department, the Sanitation Department, Code Enforcement, and other city agencies. The purpose of the rodent control program is to reduce the commensal rodent population in the City, thus improving the environment, public health, and quality of life. NOMTRCB practices Integrated Pest Management (IPM) and places an emphasis on reducing the conducive conditions that cause rodent infestations.

Our 2020 budget is 4.1 million dollars of which approximately one million dollars (USD) are from extramural funding (www.nola.gov/mayor/budget) such as from grants, product testing, commercial accounts (e.g., termite and urban pest services to other government agencies), and educational services. We currently have 41 employees on staff (see Organizational Chart) and hire interns during the summer season. Of these employees, 4 have a PhD, 7 have Master degrees in several disciplines (e.g., entomology, ecology, nematology and public health), and 11 have Bachelor's degrees. Two full-time employees are currently enrolled in graduate school (University of Florida's distance master's program and Louisiana State University's PhD program). Eleven members of our staff dedicate more than 75% of their time to rodent control (See Organizational Chart), many are nationally recognized SME in the area of rodent and mosquito control, and urban pest management, some are licensed with the Louisiana Department of Agriculture and some have additional certifications (e.g., HAZWOPPER).

Operating under the auspices of the New Orleans Office of Homeland Security and Emergency Preparedness makes us unique from other public health departments in the country and allows us to play an even more vital role in our community. This is evidenced by our long and ongoing collaborative partnerships with universities, national associations (NACCHO, HEHA and NPMA), state and public health programs, agencies and organizations (see letters of support). Our programs have also diversified since our inception to offer termite control, outreach, extension services and pest control services (IPM) at all City facilities. In addition, just this year (2020), we designed, implemented, and conducted a disinfection program to minimize the risk of COVID-19 to essential workers and the public at city properties.

SECTION E: Work Plan

Below is a table that highlight our work plan activities and process measures.

Strategies and Activities (Year 1 activities only)	Process Measure	Responsible Parties	Completion Date
Strategy 1 Use EH data regarding rodent infestations and outbreaks to determine what information can be used to develop data-driven decision-making tools to assist code enforcement, city and county leaders, and pest management professionals	Develop a comprehensive survey of public health data that can indicate not just rodent activity, but if there are other factors that are needed to rank for a potential EH exposure (typhus).	All Members with Riegel and Moise ensuring all member participation	Year 1 – possibly 5
<u>Activity 1:</u> Build a collaborative team of cross-sector partners	Hold monthly, workgroup meetings. These meetings are to determine what material is readily available and what is not.	C. Riegel, J. Hurley, B. Corrigan, NAACHO, CDC	Months 1 – 12
<u>Activity 2</u> Make Rodent Data Open and Publicly Accessible	Task force members will review products during every phase of project to help with final outcomes	All Members	Year 3- 5 if project is funded
Strategy 2 Identify and address rodent areas that can cause a variety of environmental hazards in large urban areas to prevent, and control EH hazards	Strengthen capability of rodent control practitioners to identify and use data for rodent management	C. Riegel, I. Moise, J. Hurley, B. Corrigan	Months 1 -12
<u>Activity 3</u> Conduct a comprehensive environmental scan	Use findings from Activity 1 to conduct an environmental scan, initially in New Orleans, Dallas-Fort Worth and Houston to consolidate rodent data and resources that are currently readily available from interagency and cross-sector partners, businesses, universities and communities.	I.Moise	Months 6 – 12
<u>Activity 4:</u> Collect new data and develop a rodent mitigation plan	Increase cross-sector collaboration with partners to address rodent problems in urban areas. Determine gaps in information and what is readily available	Moise, Hurley, Riegel,	Months 6 – 12 (could take longer will depend on what is found)
Strategy 3 Assess the effectiveness and impact of current EH services and interventions as it pertains to rodent management and educational awareness not just to EH advocates, but also residents in high impact areas.	Learn from project participants what future tools are needed to help with future planning	Moise, Hurley, Riegel,	Month 3 – 12 (re-evaluate upon further funding.
<u>Activity 5:</u> Build internal and external partnerships (Year 1-5)	Build local support with both interagency and cross-sector and external partnerships who will include businesses and citizens to increase appreciation for rodent programs in urban areas and to gather new useful information	C. Riegel, J. Hurley, B. Corrigan, NAACHO, CDC	Ongoing throughout project as we hope to make this topic like mosquito abatement

SUPPORTING DOCUMENTATION

SECTION F: Budget Narrative

This is a budget justification for CDC-RFA-EH20-2005 project entitled “**A Community-based Rodent Surveillance Collaborative for Greater Public Health.**” The proposed project is budgeted from September 1, 2020 to August 31, 2021. The requested budget for to meet the objectives of Year 1 of the proposal is \$40,000. The budget for Years 2-5 will be presented when Year 1 is funded.

Budget Category	NOMRTCB	Corrigan (Consultant)	Texas A&M University (TAMU)	University of Miami	Cumulative Total
Salaries & Wages	\$8,077.00	\$0	\$0	\$5,826.00	\$13,903.00
Fringe	\$1,856.80	N/A	N/A	\$1,922.58	\$3,779.38
Equipment	\$0	\$0	\$0	\$0	
Supplies	\$2,250.00	\$635.99.00	\$391.00	\$700.00	\$3,976.99
Travel	\$2,742.00	\$4,659.00	\$3,564.00	\$2,000.00	\$12,965.00
Other	\$1,500.00				\$ 1,500.00
Total Direct Costs	\$16,425.80	\$5,294.99	\$3,955.00	\$10,448.58	\$36,124.37
Indirect Costs (30%) TAMU	N/A	N/A	\$ 1,159.00	N/A	\$1,159.00
Indirect Costs (26%) University of Miami	N/A	N/A	N/A	\$ 2,716.63	\$2,716.63
Total	\$16,425.80	\$5,294.99	\$5,114.00	13,165.21	\$40,000

**** Note Fringe Benefits are added to Salaries and Wages – see each PI budget for explanation.**

Key Personnel:

No support for key personnel is requested

PI: Claudia Riegel, PhD, is the Director of the City of New Orleans, Mosquito, Termite and Rodent Control Board. Specializing in the management of vector and urban pest management at the City of New Orleans, she provides technical support for the City of New Orleans, pest control industry and environmental health agencies. She conducts independent research, collaborates with industry for product testing, and collaborates with government organizations and universities on a variety of projects involving rodents, mosquitoes, termites, and other urban pests. She designed four academies (Termite, Pest, Mosquito, and Rodent & Wildlife) that provide the pest control industry and environmental health professional’s information regarding termite, rodent, mosquito, and other pest management issues. She also is experienced in vector management during and after emergencies and natural disasters. She leads preparedness planning and mitigation after hurricanes and now COVID-19 for mosquito and rodent. She serves on a variety of public health and urban pest committees and working groups.

For this project Riegel will work in all aspects of this proposal including work with Co-PIs to compile relevant rodent and environmental data, organize and host collaboration meetings to solicit additional participants and to determine what data will be collected which is part of Activity 1. For Activity 2, Riegel will work with Environmental Health Departments, universities, the pest

management industry to collect data for the state of Louisiana (including New Orleans) and other regions of the United States as needed. She will work with local health authority contacts in the region and in Texas. This data will be in written and verbal formats. For Activity 3, Riegel will work with the collaborative to disseminate the information through email, in-person, and social media outlets to further implement IPM and rodent monitoring in cooperation with CDC, NAACHO and NEHA. Using the established New Orleans Mosquito, Termite and Rodent Control seminar series, workshops and Rodent and Wildlife Academy to conduct outreach with public health officials and pest management industry to elevate the knowledge base and improve working relations of the professionals in Louisiana and the region. Neighborhood Engagement meetings and other City of New Orleans infrastructure will be leveraged to educate the public. Surveys of the pest management professionals, public sector and the public will be analyzed so custom recommendations and targeted educational messages can be made. The City of New Orleans Mosquito, Termite and Rodent Control Board will use the information gained across agencies to establish priority areas in New Orleans for rodent control implementation.

Co-PI: Imelda K. Moise, PhD, MPH, is a health geographer and a tenure-track Assistant Professor in the Department of Geography and Regional Studies. She is also an expert in monitoring and evaluation and holds secondary appointments in the Departments of Public Health Sciences and International at the University of Miami. Her research encompasses three interlinked themes: 1) assessing health behavior and health status among disadvantaged populations and communities, 2) examining, identifying, quantifying, and seeking ways to reduce the health risks resulting from disasters and community environment, and 3) examining human risk of exposure to mosquito-borne diseases and mosquito management. Her methodological expertise lies in employing mixed methods study designs including geospatial analysis to produce not only research knowledge to advance understanding of health inequity but also to seek and contribute to solutions.

She will collaborate with the project team, in the collecting, analysis and interpretation of the environmental scan data in Activity 1. She will also contribute to Activities 2 and 3 and will be available to the public health department of environmental health (EH) as they use evaluation findings for continuous program quality improvement as needed. Dr. Moise will also assist in the development of the dissemination channels and audiences, as well as in evaluation findings and in the development project presentation and a peer-peer reviewed paper summarizing the results of the data finding and gaps that will enhance the ability of managing commensal rodents.

Co-PI: Janet Hurley, ACE, MPA, is an Extension Program Specialist, specializing in integrated pest management at Texas A&M AgriLife Extension. She has overseen the TX School IPM program since 2001. In 2015, along with Dr. Michael Merchant they created an urban pest management training center at the Texas A&M Research and Extension district center in Dallas. This refurbished dorm allows them to host hands-on training for pest management professionals and code enforcement officials to learn more about pest problems in and around homes.

For this project Hurley will work with the other PIs to organize and host collaboration meetings to solicit additional participants and to determine what data will be collected which is part of Activity 1. For Activity 2, Hurley will collect data as requested by a collaborative group for the state of TX. She will work with local health authority contacts in the large urban areas (Dallas, Houston, Austin,

San Antonio) to gather data. This data will be in written and verbal formats. For Activity 3, Hurley will work with the collaborative to disseminate the information through email, in-person, and social media outlets to further implement IPM and rodent monitoring as CDC, NAACHO and HEHA have designed. Using the established TX rodent academy further that outreach with public health officials to elevate the working relations of everyone in TX. Incorporate the current TX program of educating city and county personnel with the public health license, work with the mosquito – vector groups to add rodent education as part of an ongoing curriculum. Use current networks of PMPs to link to city/county programs public health programs with citizen education.

Consultant: Robert Corrigan, PhD, specializes in rodent pest management programs on a national and international scale and also serves as a part-time research scientist with The City of New York’s Department of Health. Dr. Corrigan has published over 160 technical publications in urban pest management and has authored or co-authored four textbooks and chapters in pest control including: *The Scientific Guide to Pest Management Operations* (2010); *Food Plant Sanitation* (2003); *The Handbook of Pest Management* (2011); and *Rodent Pest Management* (2001). In 2005, he was awarded EPA’s IPM Award for his novel approaches to urban IPM and food safety. In 2008, he was inducted into the Pest Management Hall of Fame. Dr. Corrigan consults for several of the largest corporations in the USA and several of the USA’s largest city governments designing public health pest management programs, as well as working in Europe, Asia, Australia, South America and Canada.

He will collaborate with the project team in the collection, analysis and interpretation of the rodent and environmental data. He will work with the public health and environmental health (EH) departments and the pest control industry to determine available data and data gaps. Dr. Corrigan will leverage current urban rodent educational channels to disseminate the findings and as well as contribute to peer-reviewed papers summarizing the results of the data finding and gaps that will enhance the ability of managing urban commensal rodents.

Other Personnel

Other Personnel Total \$17,682.38

Students

Graduate student: Graduate student (3 months). Funds are requested to support a graduate student worker for 3 calendar months to work with Dr. Moise and the collaborative team to assist with obtaining rodent hazard open data collection for a monthly salary of \$1,542. Responsibilities include obtaining open data sets including 311, socio-economic data, demographics, housing condition, land use and other publicly available rodent hazard data from select cities and states (\$4,626).

Undergraduate students: Two undergraduate students conduct focus group transcription coding under Dr. Moise’s supervision from the focus groups to generate emerging themes (\$1,200).

Fringe benefits at the University of Miami are calculated at the approved institutional rate of 33.3% for staff (\$1,922.58).

Interns

One Pest Control Inspector internship at the City of New Orleans Mosquito, Termite and Rodent Control Board, salary support for 3 calendar months each for a monthly salary of \$2,290. Responsibilities include collecting available rodent data from agencies, compile data, data entry and participate in survey preparation and on-line and town-hall meetings (\$6,870). At the City of New Orleans fringe benefits are calculated at 20% for the Pest Control Inspector 2 intern (\$1,374).

Permanent Positions

One clerical, salary support for 10 days based on a monthly salary of \$2,414. Responsibilities will include grant set-up, bid procurement, purchasing and ordering supplies (\$1,207). At the City of New Orleans fringe benefits are calculated at 40% for the clerical position (\$482.80).

Non-Personnel (Travel, Materials & Supplies, Computer, Indirect Costs)

Travel

Total Travel \$12,965

Dr. C. Riegel (\$2,742): It is anticipated that C. Riegel will attend two professional meetings, one at the CDC in Atlanta in connection with the project (\$1,142) and one scientific meeting to work on data collection, training or developing materials for use as part of this project with collaborators (\$800). Travel funds are requested to participate in data collection and assess the data and knowledge gaps of local health departments (\$800). Costs for these trips will include conference registration, airfare, car rental or taxi fares, and lodging and subsistence per diems.

Dr. I. Moise (\$2,000): It is anticipated that Dr. Moise will attend two professional meetings, one at the CDC in Atlanta in connection with the project (\$1,200) and one scientific meeting to work on data collection, training or developing materials for use as part of this project with collaborators in New Orleans (\$800). Costs for these trips will include conference registration, airfare, car rental or taxi fares, and lodging and subsistence per diems.

J. Hurley (\$3,564): Conference: J. Hurley will attend one professional meeting, one at the CDC in Atlanta in connection with the project or a scientific meeting to work on data collection, training to develop materials for use as part of this project with collaborators (\$1,012). In-state, overnight travel to work with Texas project partners to collect data as to relates to environmental rodent activity health concerns (\$2,052) and mileage for travel to cities in Texas to make observations of rodent behavior and meet with environmental health and health departments to acquire rodent data and assess data gaps is requested (\$500).

Dr. R. Corrigan (\$4,659): It is anticipated that Dr. Corrigan will attend two professional meetings (\$2,400), one at the CDC in Atlanta in connection with the project and one scientific meeting to work on data collection, training or developing materials for use as part of this project with collaborators. Travel funds are requested to participate in data collection and assess the data and knowledge gaps of health departments (\$1,600). Costs for these trips will include conference registration, airfare, car rental or taxi fares, and lodging and subsistence per diems. Mileage for travel to cities to make observations of rodent behavior and meet with environmental health and health departments to acquire rodent data and assess data gaps will be necessary (\$659).

Other Direct Costs:

Total Direct Costs \$3,976.99

Materials and Supplies: Funds are requested for focus groups and surveys. This includes postage office, office supplies, copying, and other costs related to in-person assessments, training, and project meeting execution (\$2,135.99).

Game camera or security type cameras to monitor rodents 24 hours a day to collect activity of rodents and humans without our team being physically present (\$391).

Survey software fees, data platform hosting, hosting website for acquiring, hosting and compiling rodent hazard information (\$750).

Funds are requested for transcription services for focus group discussion in the language of preference for the participants (\$700). All focus group discussions will be audio recorded and will be transcribed verbatim using a professional service (Datagain), with detailed summaries written by each moderator. All transcripts will be in Microsoft Word.

Computer (ADPE) Costs:

Total Computer Costs \$1,500

One computer is needed or interns to use for data collection, formatting and compilation (\$1,500).

Indirect Costs**F&A/INDIRECT COSTS:**

Total F&A/Indirect Costs \$3,875.63

The federally negotiated facilities and administration rate at the University of Miami is 26% of modified total direct costs (MTDC) for off-campus work. MTDC includes all salaries and wages, fringe benefits, materials, supplies, services, travel and sub-grants and subcontracts up to the first \$25,000 of each sub-grant or subcontract (regardless of the period covered by the sub-grant or subcontract) (\$2,716.63).

Indirect costs are calculated at Texas A&M AgriLife Research's standard federally negotiated rate of 30% of Modified Total Direct Cost (\$1,159).

SECTION G: CDC Assurances and Certifications

SECTION H: Report on Programmatic, Budgetary and Commitment Overlap

SECTION I: Table of Contents for Entire Submission

OPTIONAL ATTACHMENTS

ATTACHMENT J: Resumes

ATTACHMENT K: Letters of Support

ATTACHMENT L: NOMTRCB Organization Chart

ATTACHMENT M: Facilities, Equipment and Other Resources

ATTACHMENT N: HHS Assurance Compliance

ATTACHMENT O: W9 Forms 2020

ATTACHMENT P: PPMR-G- Risk Questionnaire and supporting documents

ATTACHMENT Q: PPMR-G- Risk Questionnaire - CAO Policy Memo grants

ATTACHMENT R: PPMR-G- Risk Questionnaire - City Memoranda

ATTACHMENT S: PPMR-G- Risk Questionnaire - Civil Service Rules

ATTACHMENT T: PPMR-G- Risk Questionnaire - Policy State and Federal Grants

ATTACHMENT U: PPMR-G- Risk Questionnaire - Purchasing Procedures

ATTACHMENT V: PPMR-G- Risk Questionnaire - Payroll Policies

ATTACHMENT W: Logic Model

ATTACHMENT X: University of Miami CDC Assurances and Certification

References

- Acuto, M. (2020) 'COVID-19: Lessons for an Urban(izing) World', *One Earth*.
- Brown, L. M. and Laco, J. (2015) 'Rodent Control and Public Health: A Description of Local Rodent Control Programs', *Journal of environmental health*, 78(4), pp. 28-29.
- Byers, K. A., Lee, M. J., Patrick, D. M. and Himsworth, C. G. (2019) 'Rats About Town: A Systematic Review of Rat Movement in Urban Ecosystems', *Frontiers in Ecology and Evolution*, 7, pp. 13.
- CDC (2020) *Rodent Control*. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/community/rodents.html> (Accessed: June 3 2020).
- Comer, J. A., Diaz, T., Vlahov, D., Monterroso, E. and Childs, J. E. (2001) 'Evidence of rodent-associated Bartonella and Rickettsia infections among intravenous drug users from Central and East Harlem, New York City', *Am J Trop Med Hyg*, 65(6), pp. 855-60.
- Costa, F., Porter, F. H., Rodrigues, G., Farias, H., de Faria, M. T., Wunder, E. A., Osikowicz, L. M., Kosoy, M. Y., Reis, M. G., Ko, A. I. and Childs, J. E. (2014) 'Infections by Leptospira interrogans, Seoul virus, and Bartonella spp. among Norway rats (*Rattus norvegicus*) from the urban slum environment in Brazil', *Vector Borne Zoonotic Dis*, 14(1), pp. 33-40.
- Cross, R. W., Waffa, B., Freeman, A., Riegel, C., Moses, L. M., Bennett, A., Safronetz, D., Fischer, E. R., Feldmann, H., Voss, T. G. and Bausch, D. G. (2014) 'Old World hantaviruses in rodents in New Orleans, Louisiana', *Am J Trop Med Hyg*, 90(5), pp. 897-901.
- Culhane, D., Fantuzzo, J., Rouse, H., Tam, V. and Lukens, J. (2010) *Connecting the Dots: The Promise of Integrated Data Systems for Policy Analysis and Systems Reform*. Philadelphia: University of Pennsylvania.
- Diaz, J. H. (2015) Rodent-borne infectious disease outbreaks after flooding disasters: Epidemiology, management, and prevention', *Am J Disaster Med*, 10(3), pp. 259-67.
- Easterbrook, J. D., Kaplan, J. B., Vanasco, N. B., Reeves, W. K., Purcell, R. H., Kosoy, M. Y., Glass, G. E., Watson, J. and Klein, S. L. (2007) 'A survey of zoonotic pathogens carried by Norway rats in Baltimore, Maryland, USA', *Epidemiology and infection*, 135(7), pp. 1192-1199.
- Feng, A. Y. T. and Himsworth, C. G. (2014) 'The secret life of the city rat: a review of the ecology of urban Norway and black rats (*Rattus norvegicus* and *Rattus rattus*)', *Urban Ecosystems*, 17(1), pp. 149-162.
- Firth, C., Bhat, M., Firth, M. A., Williams, S. H., Frye, M. J., Simmonds, P., Conte, J. M., Ng, J., Garcia, J., Bhuvu, N. P., Lee, B., Che, X., Quan, P. L. and Lipkin, W. I. (2014) 'Detection of zoonotic pathogens and characterization of novel viruses carried by commensal *Rattus norvegicus* in New York City', *mBio*, 5(5), pp. e01933-14.
- Frye, M. J., Firth, C., Bhat, M., Firth, M. A., Che, X., Lee, D., Williams, S. H. and Lipkin, W. I. (2015) 'Preliminary Survey of Ectoparasites and Associated Pathogens from Norway Rats in New York City', *J Med Entomol*, 52(2), pp. 253-9.
- Graham, P., Evitts, T. and Thomas-MacLean, R. (2008) 'Environmental scans: how useful are they for primary care research?', *Can Fam Physician*, 54(7), pp. 1022-3.
- Haake, D. A. and Levett, P. N. (2015) 'Leptospirosis in humans', *Current topics in microbiology and immunology*, 387, pp. 65-97.
- Hasbrouck L. Strengthening Local Health Department Informatics Capacity through Advocacy, Education, and Workforce Development. *J Public Health Manag Pract*. 2016; 22 Suppl 6, Public Health Informatics (Suppl 6):S3-S5. doi:10.1097/PHH.0000000000000475

- Himsworth, C. G., Feng, A. Y. T., Parsons, K., Kerr, T. and Patrick, D. M. (2013a) 'Using experiential knowledge to understand urban rat ecology: A survey of Canadian pest control professionals', *Urban Ecosystems*, 16(2), pp. 341-350.
- Himsworth, C. G., Parsons, K. L., Jardine, C. and Patrick, D. M. (2013b) 'Rats, cities, people, and pathogens: a systematic review and narrative synthesis of literature regarding the ecology of rat-associated zoonoses in urban centers', *Vector Borne Zoonotic Dis*, 13(6), pp. 349-59.
- Lewis, J. A., Zipperer, W. C., Ernstson, H., Bernik, B., Hazen, R., Elmqvist, T. and Blum, M. J. (2017) 'Socioecological disparities in New Orleans following Hurricane Katrina', *Ecosphere*, 8(9), pp. e01922.
- Meerburg, B. G., Singleton, G. R. and Kijlstra, A. (2009) 'Rodent-borne diseases and their risks for public health', *Critical Reviews in Microbiology*, 35(3), pp. 221-270.
- Parsons, M. H., Banks, P. B., Deutsch, M. A., Corrigan, R. F. and Munshi-South, J. (2017) 'Trends in urban rat ecology: a framework to define the prevailing knowledge gaps and incentives for academia, pest management professionals (PMPs) and public health agencies to participate', *Journal of Urban Ecology*, 3(1).
- Peterson, A. C., Ghersi, B. M., Campanella, R., Riegel, C., Lewis, J. A. and Blum, M. J. (2020) 'Rodent assemblage structure reflects socioecological mosaics of counter-urbanization across post-Hurricane Katrina New Orleans', *Landscape and Urban Planning*, 195, pp. 103710.
- Phipatanakul, W. (2002) 'Rodent allergens', *Curr Allergy Asthma Rep*, 2(5), pp. 412-6.
- Rabiee, M. H., Mahmoudi, A., Siahsarvie, R., Kryštufek, B. and Mostafavi, E. (2018) 'Rodent-borne diseases and their public health importance in Iran', *PLoS Negl Trop Dis*, 12(4), pp. e0006256.
- Rael, R. C., Peterson, A. C., Ghersi-Chavez, B., Riegel, C., Lesen, A. E. and Blum, M. J. (2018) 'Rat Lungworm Infection in Rodents across Post-Katrina New Orleans, Louisiana, USA', *Emerging infectious diseases*, 24(12), pp. 2176-2183.
- Stenseth, N. C., Leirs, H., Skonhøft, A., Davis, S. A., Pech, R. P., Andreassen, H. P., Singleton, G. R., Lima, M., Machang'u, R. S., Makundi, R. H., Zhang, Z., Brown, P. R., Shi, D. and Wan, X. (2003) 'Mice, rats, and people: the bio-economics of agricultural rodent pests', *Frontiers in Ecology and the Environment*, 1(7), pp. 367-375.
- Walsh, M. G. (2014) 'Rat sightings in New York City are associated with neighborhood sociodemographics, housing characteristics, and proximity to open public space', *PeerJ*, 2, pp. e533-e533.

EXHIBIT C- Project Summary

CITY OF NEW ORLEANS MOSQUITO, TERMITES AND RODENT CONTROL BOARD

Grant: 1NUE1EH001421-01-00

DUNS 118981596

EIN 72600969

Project title: a Community-Based Rodent Surveillance Collaborative

Project Abstract Summary

This proposal details the establishment of a Community-Based Rodent Surveillance Collaborative (CBRSC) in response to CDC-RFA-EH20-2005. The CBRSC includes accomplished and enthusiastic partner support from national associations (National Association of County and City Health Officials (NACCHO), National Environmental Health Association (NEHA), National Pest Management Association (NPMA)); public health agencies (Louisiana Department of Health, Department of Public Health New Orleans); cities (Plano, New Orleans); extension (Texas A&M Agrilife); urban rodentology (New York City); Office of Homeland Security and Emergency Preparedness (New Orleans); and academic (Universities of California, Miami and Texas). The broad and long-term goal of the Collaborative is to foster interagency and cross-sector rodent data sharing and cross-sector dialogue between rodent data producers, custodians and users initially, in Dallas, Houston and New Orleans and then across partner cities in the United States so that a platform for consolidated data is created, and preparedness and responses to public health threats caused by rodents and the pathogens they transmit are improved and accelerated. To achieve this goal, the project is focused on four major outcomes:

- 1) Conduct a comprehensive environmental scan in collaboration with internal (e.g., state, tribal, local, and territorial (STLT) health agencies) and external (e.g., business, industry, public) partners and stakeholders to compile a collection of relevant needed rodent data (e.g., rodent-borne diseases, 311 rodent service calls or complaints, inspections) to make local data publicly available and to improve STLT health agencies and other stakeholders' data-driven decision making and to be more adept when addressing potential zoonotic transmissions and enhance potential for a more unified response to rodent infestations in urban areas (**Year 1**).

- 2) Use findings from the comprehensive environmental scan to conduct an evaluation of rodent management strategies in distinct New Orleans neighborhoods in order to create a rodent surveillance and mitigation plan for other cities to adapt for effective rodent control. We anticipate to identify gaps in rodent data based on the environmental scan (**Year 1-3**).
- 3) Build sustainable partnerships (including with businesses and communities) to ensure a common understanding and buy-in for interagency and cross-sector data sharing among data stakeholders (e.g., people, processes, systems and interfaces) to facilitate and cement the necessary resources needed for rodent management in urban areas and to prevent potential adverse damage and health effects) (**Year 2-5**).
- 4) Develop, test and launch a prototype open access web-based mapping platform linked with a mobile survey application to make local data accessible in real-time and to provide direction for the prevention and mitigation of rodents (**Year 2-5**).

Attainment of these outcomes will truly change rodent management procedures in urban areas and dramatically expand the ability of STLT health agencies in affected cities to detect and respond to new rodent threats as well as greatly improve population health outcomes.

EXHIBIT D _ Budget and Budget Narrative

TAMU Budget Narrative – Revised December 2021

Co-PI: Janet Hurley

Institution: Texas A&M AgriLife Extension Service

Total Request: \$28,684

Salaries, Wages and Fringe Benefits: N/A

Nonexpendable Equipment: N/A

Travel: \$6,626

\$2,067 Hurley will attend and present at 10th International IPM Symposium on rodent management in urban areas. Workgroup meeting while in Denver to recruit early career professional with education dissemination. February 28 through March 5, 2022

\$1,416 Travel for Hurley and Swiger to El Paso to conduct multi day rodent workshop for environmental health workers.

\$1,156 Travel for Hurley and Swiger to Austin area to conduct multi day rodent workshop for environmental health workers.

\$1,147 Travel for Hurley and Swiger to El Paso to conduct multi day rodent workshop for environmental health workers.

\$840 - Mileage to travel to face to face to assess the effectiveness and impact of current environmental health services and interventions as it pertains to rodent management and educational awareness in Dallas, Houston, San Antonio, or Austin. Approximately 1,500 miles will be traveled in TX, at the rate of \$0.56 per mile; this amount is to cover the use of State Vehicle for the program. (Strategy 1, 2 and 3 to support TX portion of project – networking will take time and inspections)

Publication Costs/Documentation/Dissemination \$4,538

Part of this project is to develop tools that environmental health professionals can use to help educate their communities about rodents, rodent borne disease and how to prevent infestations. AgriLife Extension will over see the development and production of handout materials. These funds will be used to copying and sending.

Computer (ADPE) Costs: N/A

All Other Direct Costs: \$10,900

\$6,000 Consultants/Professional Services

Development costs for rodent management online course to be hosted on AgriLife Learn this will cover what is typically offered in person but can be taken on demand from anyone across the nation. This

development will allow for creating short videos to be used in the course and for short social media clips.

\$1,500 Envelopes and Notebooks

Large envelopes for mailing infographic handouts, notebooks for educational.

\$3,000 Partner Materials

To aid with developing relationships with partners in Harris, Dallas, El Paso, and Travis County (4 major urban areas in TX), these funds will be used to offer incentives to sustain their involvement in rodent surveillance this could be monitoring equipment, supplies to help with educational outreach. (Strategy 1, 2 and 3 to support TX portion of project – networking will take time and inspections).

\$400 International IPM Symposium Registration

Registration fees for the IPM Symposium.

F&A/Indirect Costs: \$6,620

Indirect costs are calculated at Texas A&M AgriLife Extension's standard federally negotiated rate of 30% of Modified Total Direct Cost.

SRS Budget Worksheet

SRS Proposal #: 2006611

Project Dates: 09/01/2021 - 08/31/2022

Sponsor: CDC

Cumulative Budget Request

Category		Year 1		TOTAL
A. Sr Personnel				
Name	Project Role			
Janet Hurley	Principal Investigator	Person Months	-	
		Salary	\$ -	\$ -
		Fringe	\$ -	\$ -
		Insurance	\$ -	\$ -
		Total Fringe	\$ -	\$ -
Sonja Swiger	Co-PI	Person Months	-	
		Salary	\$ -	\$ -
		Fringe	\$ -	\$ -
		Insurance	\$ -	\$ -
		Total Fringe	\$ -	\$ -
Subtotal Salaries Senior Personnel			\$ -	\$ -
Subtotal Benefits Senior Personnel			\$ -	\$ -
Subtotal Senior Personnel			\$ -	\$ -
Total Salaries			\$ -	\$ -
Total Benefits			\$ -	\$ -
Total Personnel Costs			\$ -	\$ -
DIRECT COSTS				
<u>Travel: Domestic</u>				
	Hurley - Travel to Present at IPM Symposium	\$	2,067	\$ 2,067
	Hurley & Swiger - Travel to El Paso	\$	1,416	\$ 1,416
	Hurley & Swiger - Travel to Austin	\$	1,156	\$ 1,156
	Hurley & Swiger - Travel to El Paso	\$	1,147	\$ 1,147
	1,500 miles x \$0.56	\$	840	\$ 840
Total Domestic Travel		\$	6,626	\$ 6,626
<u>Publication Costs/Documentation/Dissemination</u>				
		\$	4,538	\$ 4,538
Total Publications		\$	4,538	\$ 4,538
<u>Other Costs</u>				
	Consultants/Professional Services	\$	6,000	\$ 6,000
	Envelopes and Notebooks	\$	1,500	\$ 1,500
	Incentives	\$	3,000	\$ 3,000
	International IPM Symposium Registration	\$	400	\$ 400
Total Other Costs		\$	10,900	\$ 10,900
Modified Total Direct Costs (MTDC)		\$	22,064	\$ 22,064
Total Direct Costs (TDC)		\$	22,064	\$ 22,064
INDIRECT COSTS				
	Rate Base	30.0% MTDC		
		\$	6,620	\$ 6,620
TOTAL REQUEST FROM SPONSOR (TRS)		\$	28,684	\$ 28,684
Total Amount Approved by Lead:		\$		\$ 28,684

UNRECOVERED IDC

Notes:			
IDC on Modified Total Direct Costs (MTDC)		30.0%	
	\$	6,619	\$ 6,619
Sponsored Allowed IDC*:	MTDC	30.0%	

Component A: Building Core Capacity: A community-based rodent surveillance collaborative

EXHIBIT E - Project Logic Model

