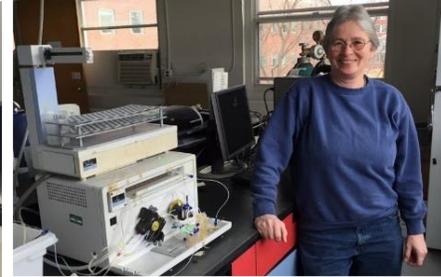


VAEL : Vermont Agriculture and Environmental Laboratory

A Partnership of Agencies:



VAEL Governance:

A Partnership between ANR and AAFM

VERMONT AGRICULTURE AND ENVIRONMENTAL LABORATORY MEMORANDUM OF UNDERSTANDING REGARDING LAB GOVERNANCE

Dated as of July 1, 2015

1. Purpose of Agreement. This Memorandum of Understanding (this “Agreement”) is by and between the Vermont Agency of Agriculture, Food and Markets (“AAFM”) and the Vermont Agency of Natural Resources (“ANR,” and together with AAFM, the “Agencies”). The purpose of this Agreement is to establish principles for the strategic, fiduciary and operational governance of the Vermont Agriculture and Environmental Laboratory (“VAEL”) by the Agencies, in order to ensure that the VAEL can provide laboratory analytical services, laboratory space, and a strategic vision to support and further the missions of both Agencies.

2. Statutory Mandate. This Agreement is adopted pursuant to mandate and authority granted to the Agencies by the Vermont General Assembly in Section E225.1 of Act 58 of the Acts and Resolves of 2015.

3. Governance Board. There is hereby established a “Governance Board” for the purpose of strategic and fiduciary governance of the VAEL.

a. The Governance Board shall comprise five voting members from each Agency, including the Secretaries of the Agencies, or their designees, as well as commissioners, division directors, section chiefs or program staff appointed by the Secretary of each Agency on an annual basis. Additional appointments for non-voting members of the Governance Board may be established by the Board, including for the VAEL Director, finance directors from the Agencies, IT staff or others.

VERMONT AGENCY OF NATURAL RESOURCES



By: Deb Markowitz, Secretary

VERMONT AGENCY OF AGRICULTURE FOOD AND MARKETS



By: Chuck Ross, Secretary



VAEL : *Governance Model*

Governance Board:

- Board Chair: Jolinda LaClair, Deputy Secretary
- Board Secretary: Trey Martin, Deputy Secretary ANR,
- Quarterly Board Meetings

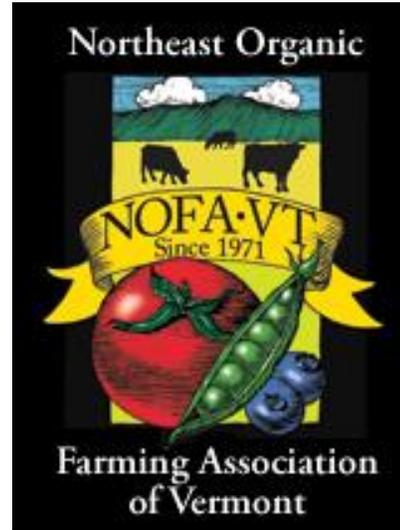
Lab Management Team:

- Monthly meetings

Laboratory Stakeholder Advisory Group:

- Commence meetings in FY '17
- 1-2 meetings annually

VAEL - *Community Partnerships*



La Rosa
Partners



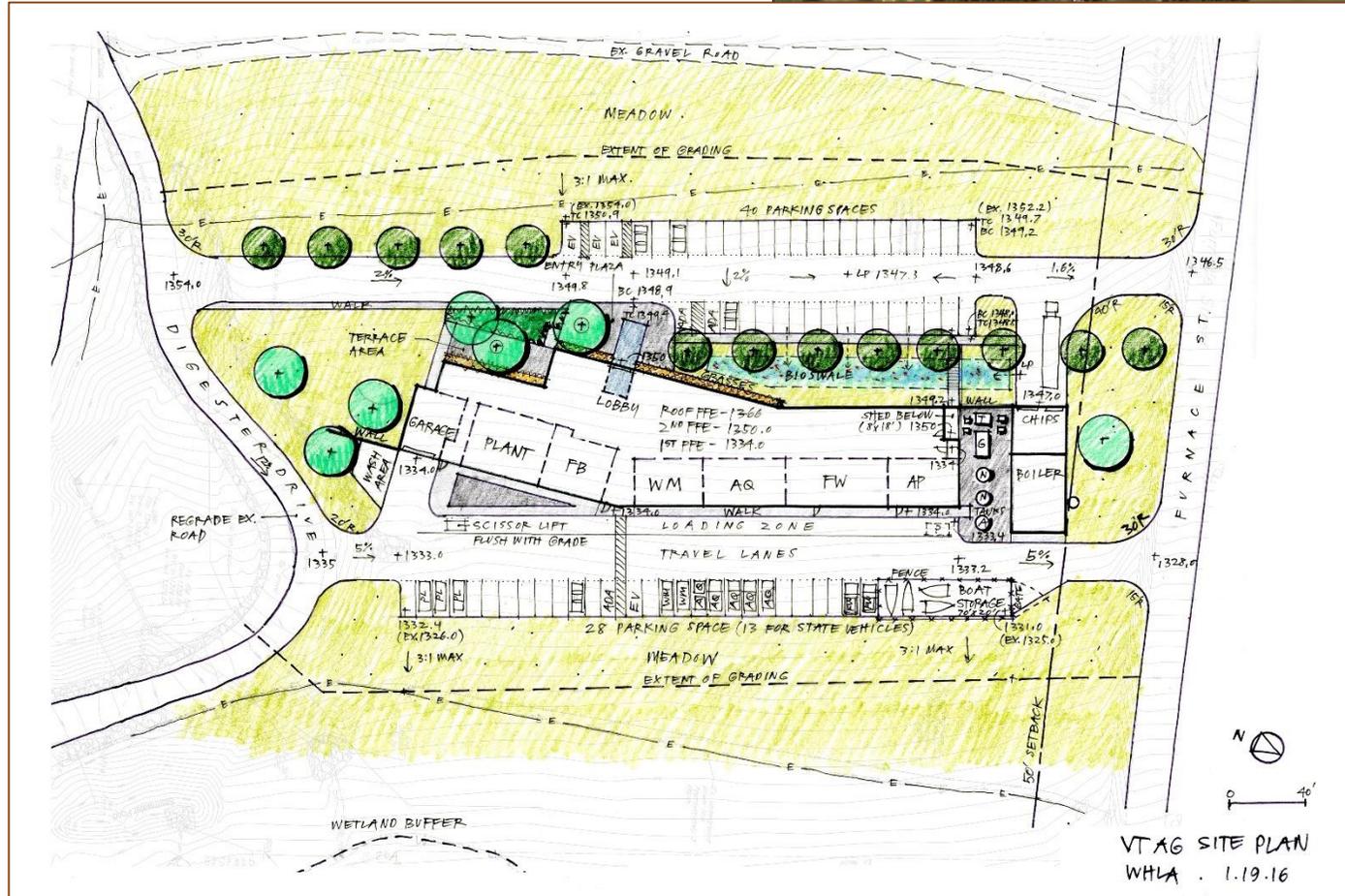
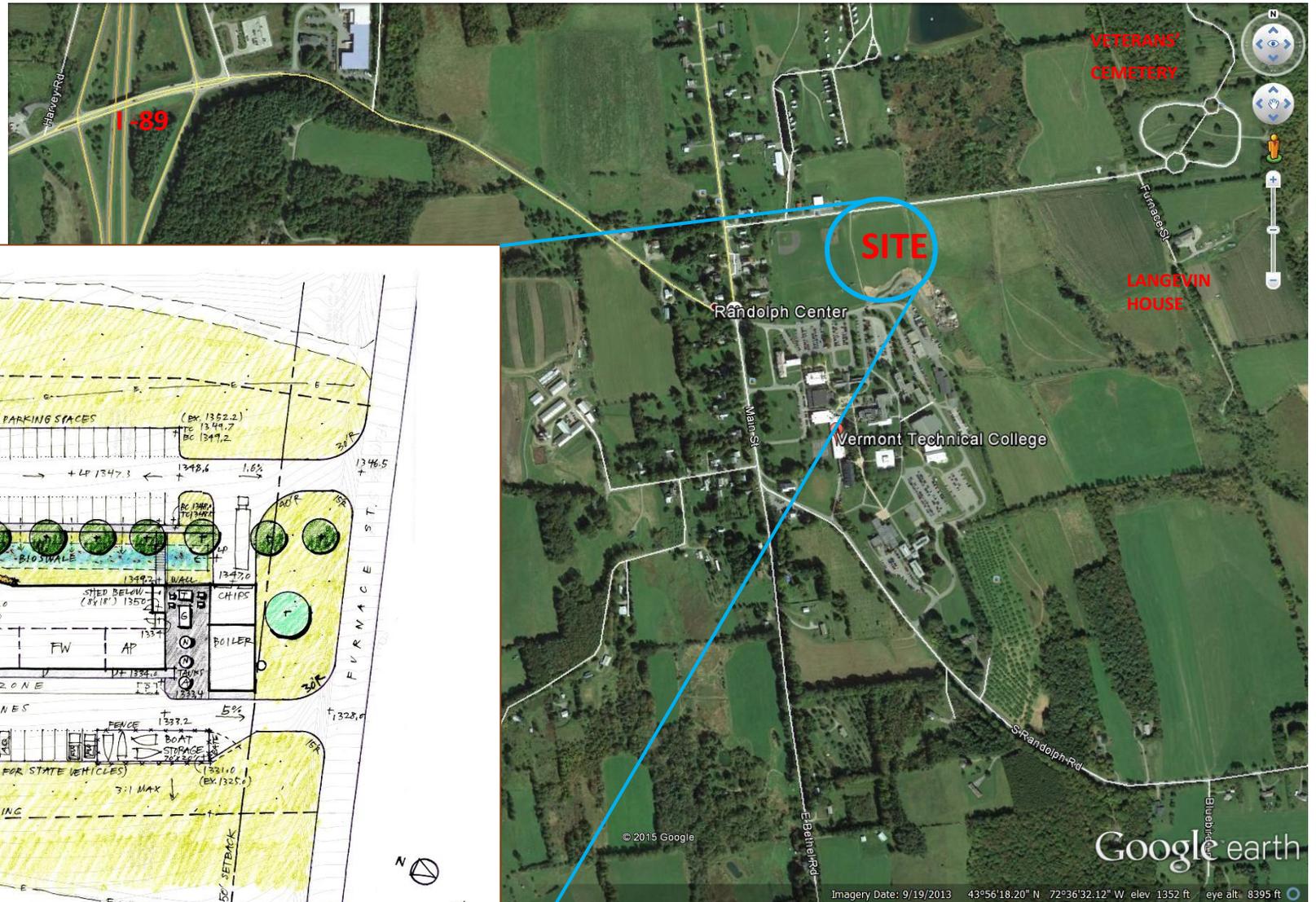
Lay Monitoring Program



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VAEL 2018

VTC Campus Randolph Center, VT

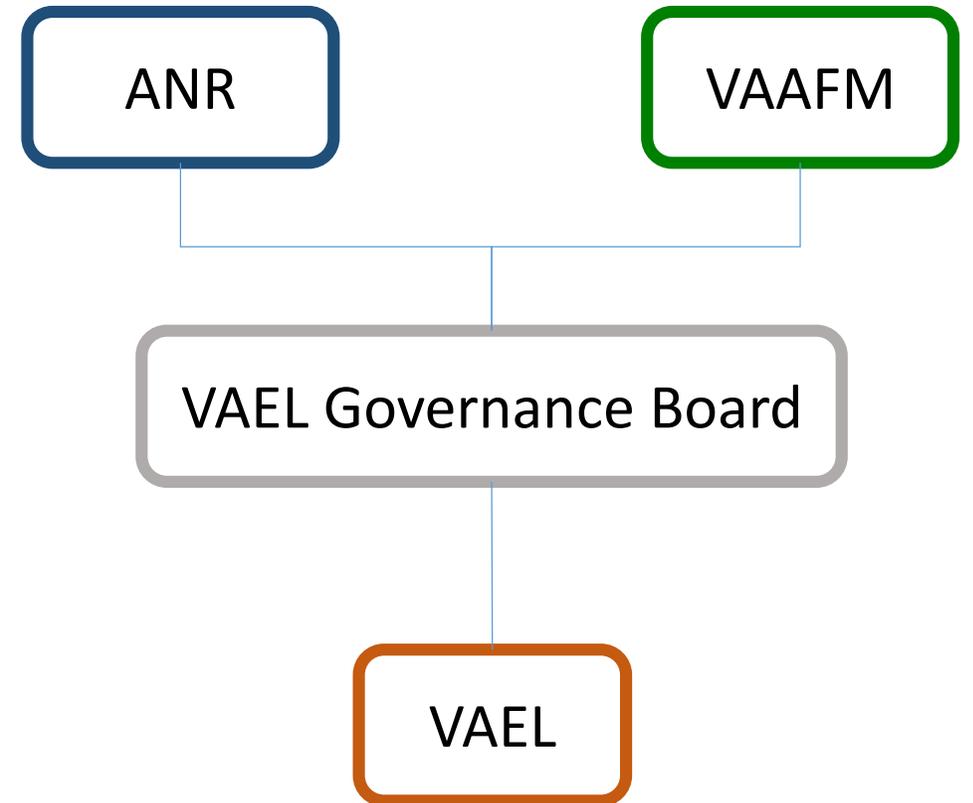


VAEL: Collaborative Laboratories

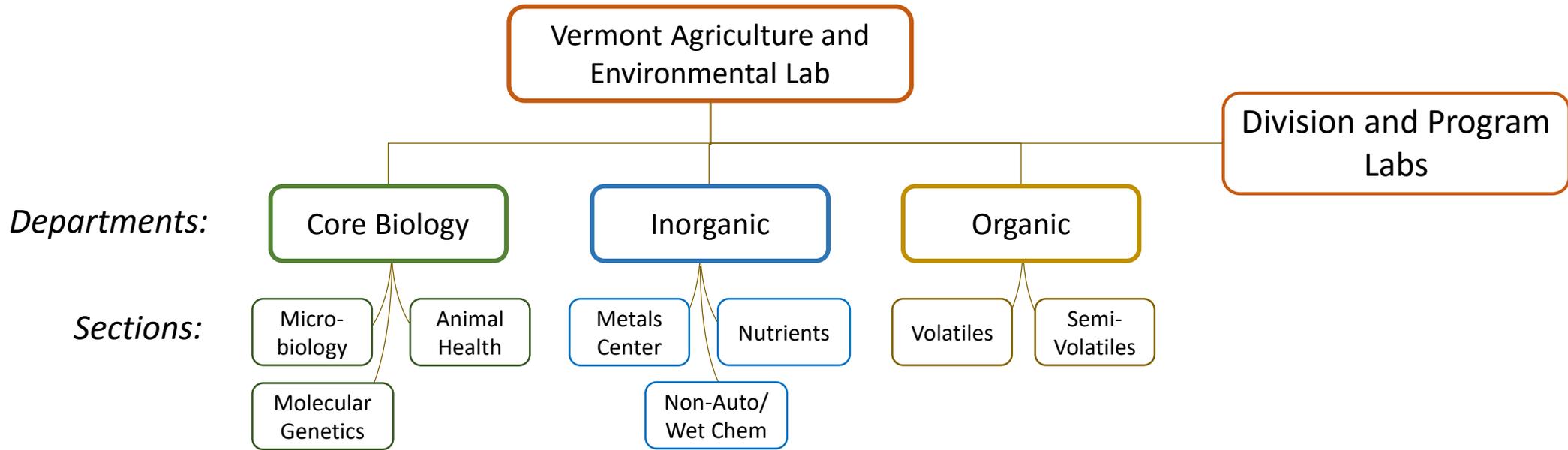
- Core Chemistry
- Core Biology

Co-located Division and Program Labs:

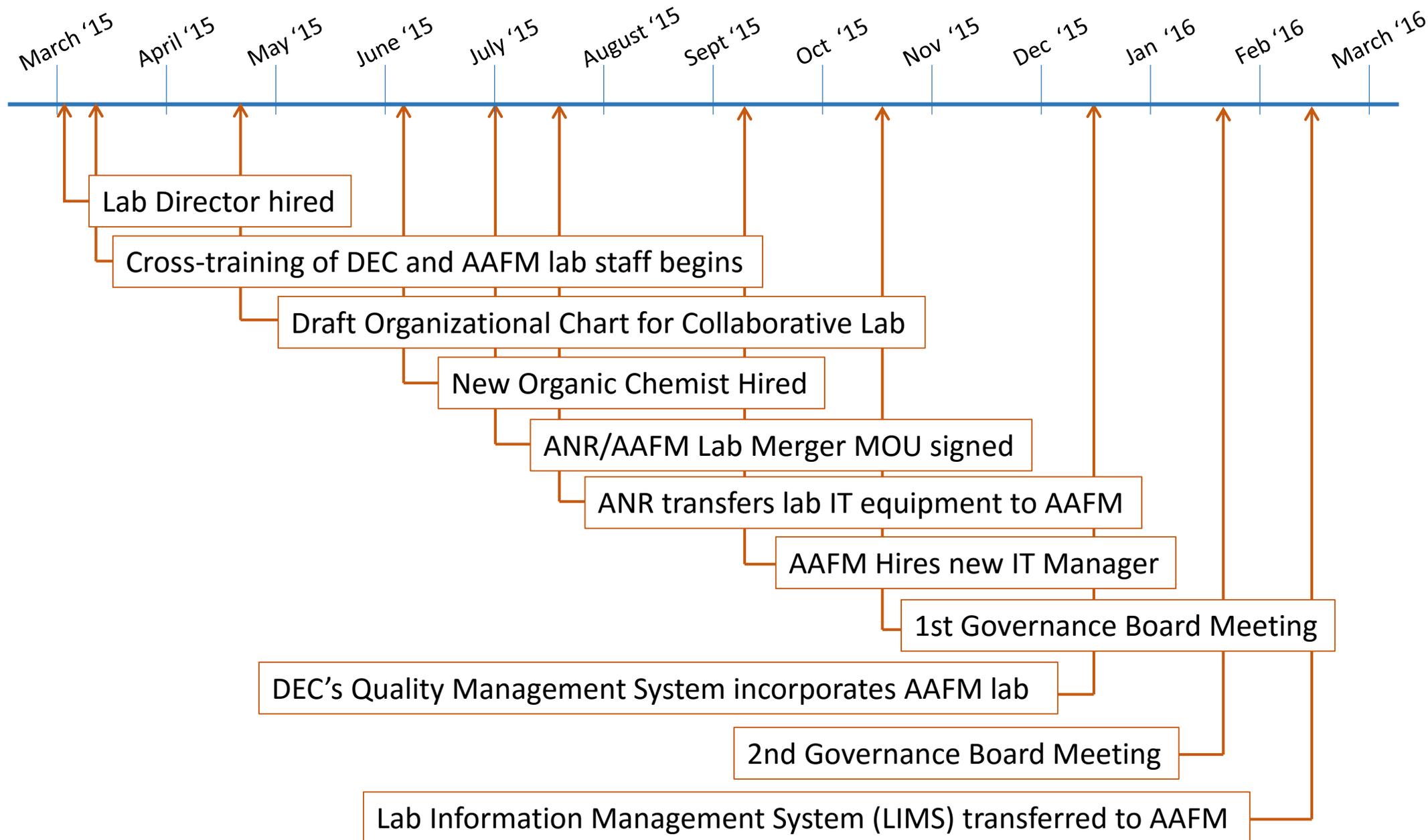
- Air Quality
- Watershed Monitoring
- Forest Biology
- Fish and Wildlife
- Weights & Measures
- Plant Industry
- Animal Pathology



VAEL: Organizational Chart



2015-2016 Timeline: Formation of a Collaborative Laboratory



Comparison of Historical Laboratory Space to the Proposed Laboratory Design

Site	Waterbury Pre-August 2011		Proposed Randolph Design	
	(sqft)			(sqft)
Core Chemistry and Microbiology Labs	15,375	(Ag and ANR)	Chemistry	6,973
			Microbiology	3,226
Shared Resources	1,300	(Classroom/Conference)	Admin/Support	5,759
Sub-total	16,675		Sub-total	15,958
Air Quality Lab (ANR)	1,100	(+ 350 @ 3 South, W'bury)		926
Watershed Monitoring Lab (ANR)	2,150			1,329
Plant Industry (AAFM)	1,300	(+ 300 off-site storage)		1,432
Forest Biology (FPR)	600			809
Animal Pathology (AAFM)	0	(new program)		817
Fish & Wildlife (ANR)	600	(+ 250 @ 10 South, W'bury)		1,267
Weights & Measures (AAFM)	900	(+ off-site storage)		1,944
Labs Net Area	23,325		Proposed Net Area	24,482
Unassigned	9,885		Unassigned	9,522
Gross Area	33,210		Gross Area	34,004
Other Sites	900			
Pre-Irene Gross Area	34,110		Proposed Gross Area	34,004

VAEL Core Lab Clients

Department of Environmental Conservation (DEC):

- Air Quality and Climate Division
- Watershed Monitoring Division
- Waste Management Division

Agency of Agriculture, Food and Markets (AAFM):

- Food Safety & Consumer Protection
 - Milk Quality
 - Animal Health
- Agriculture Resource Management
 - Feed and Fertilizer
 - Pesticide Monitoring Program
 - Water Quality



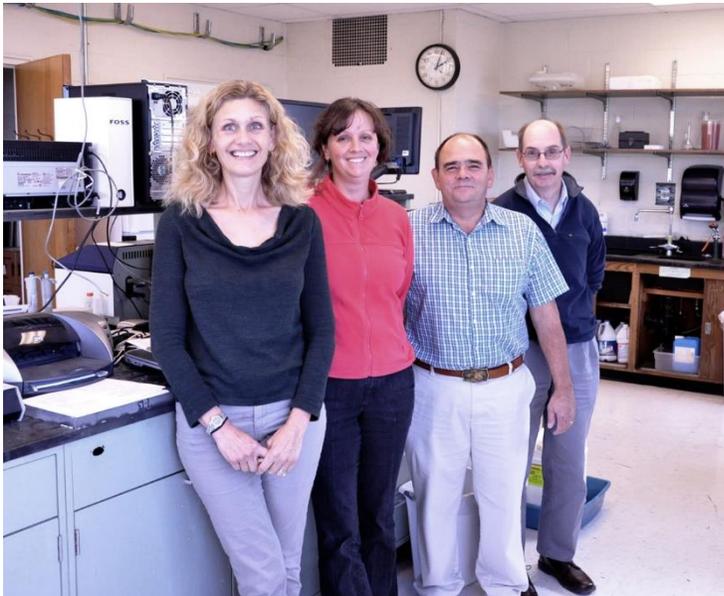
VAEL: *Biology Department*



Microbiology, Animal Health, Molecular Genetics

Major Clients/Customers:

- Food Safety and Consumer Protection (VAAFMT)
- Plant Industry (VAAFMT)
- NOFA – VT



Activities:

- Milk quality testing.
- Water quality testing – bacteriology.
- Mastitis and Serology testing for livestock.
- Molecular detection of GMOs and tick-borne illnesses.
- Training and certification of private dairy labs.

Biology

Microbiology/Milk Quality

*Kristen Needham, Wendy Blackman,
Megan Phillips*

- Bacterial testing (Dairy and Waters)
- Milk Fat
- Antibiotic Testing
- Somatic Cell Counts

Animal Health/Serology

Wendy Blackman, John Jaworski

- Antigen and Enzyme testing
- Mastitis pathogen culture
- PE drug testing

Molecular Genetics

Kristen Needham

- PCR Detection Methods:
 - **Borrelia**
 - **Anaplasma**
 - **Babesia**
 - GMO crops
 - (Forest Biology)

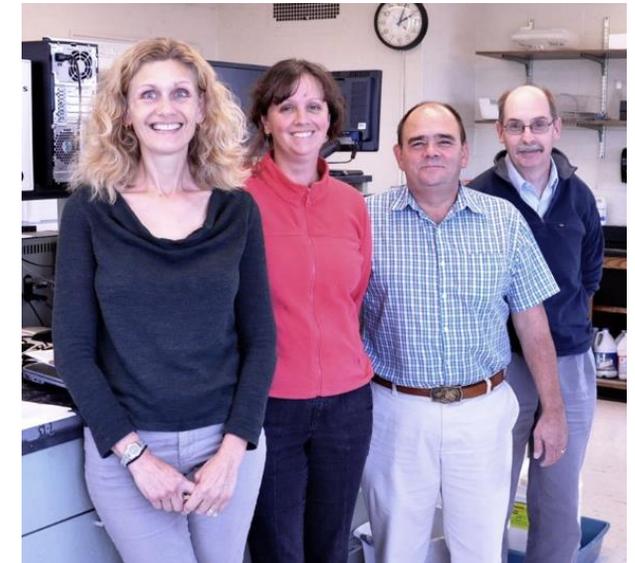
Inorganic Department Staff:

John Jaworski, Biology Supervisor – Serology, Lab Evaluation Officer (LEO)

Kristen Needham, Microbiologist V – Micro/Dairy and Molecular

Wendy Blackman, Microbiologist IV – Micro/Dairy/Animal Health, LEO

Megan Phillips, Environmental Chemist III – Micro/Dairy, Non-Auto WQ



VAEL: *Inorganic Chemistry Department*

Metals Center, Nutrients and Non-Automated Chemistry Sections

Major Clients/Customers:

- DEC Air Quality and Climate Change
- DEC Watershed Monitoring Division
- AAFM's Feed and Fertilizer Program



Activities:

- Analysis of airborne metals.
- Water quality - chemistry.
- Analysis of metals in fish.
- Verification of Meat, Feed and Fertilizer compositions.

Inorganic Chemistry

Metals Center

Anne Charbonneau

- ICP Metals
- ICP-MS Metals
- Mercury

Non-Automated Chemistry

Megan Phillips / Candace Barber

- pH
- Turbidity
- Conductivity
- Alkalinity
- TSS
- DO
- BOD
- COD
- Chlorophyll (CHA)
- Mojonnier
- Fat
- Fiber
- Moisture
- Ash
- Salt

Automated Chem/Nutrients

Dan McAvinney / Candace Barber

- Nutrients (TN, TP, Si, NH_4^+ , Cl^-)
- IC Anions
- Fat by ASE Extraction
- Protein/Nitrogen

Inorganic Department Staff:

Anne Charbonneau, Agricultural Chemist V – Metals Center, LIMS Support

Dan McAvinney, Environmental Chemist IV – Nutrients, LIMS support

Candace Barber, Agricultural Chemist III – Non-Auto, Nutrients

Megan Phillips, Environmental Chemist IV – Non-Auto WQ, Micro/Dairy

Seasonal Temporary Technicians (2) – Non-Auto, Sample Receiving,



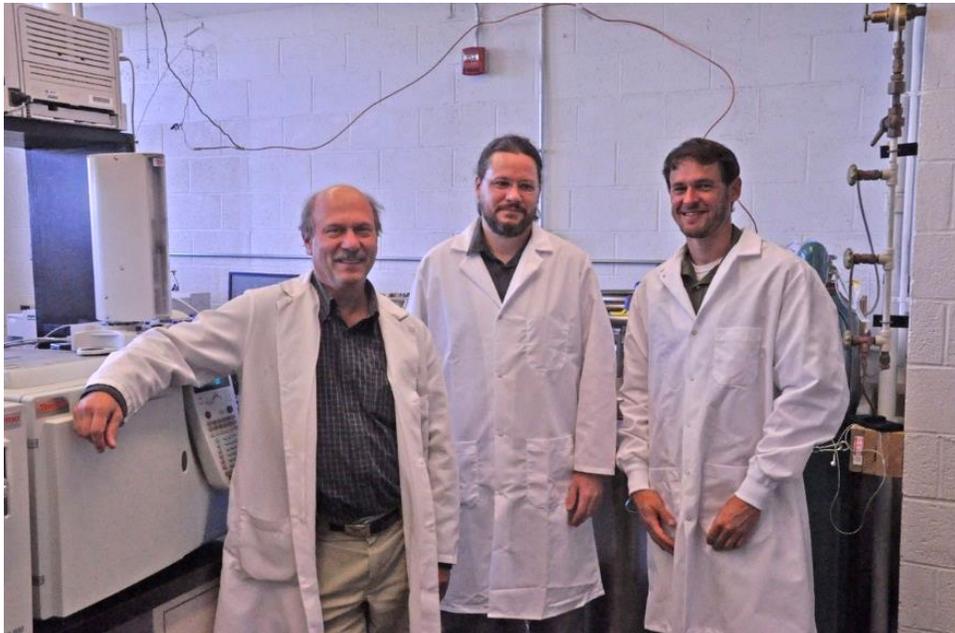
VAEL: *Organic Chemistry Department*



Volatiles and Semi-volatiles Sections

Major Clients/Customers:

- DEC Air Quality and Climate Change
- AAFM Pesticide Monitoring Program
- AAFM Pesticide Enforcement Program
- NOFA – VT



Activities:

- VT's Air Quality Monitoring Stations.
- Pesticides in surface waters, wells.
- Pesticide use enforcement cases.
- Contracted methods development pesticide residual testing.

Organic Chemistry

Volatiles

Dan Nielsen / Dave Crosby

- TO-11 (Airborne Carbonyls)
- TO-15 (VOCs in Air)
- 8260 (VOCs in Water)
- 8021 (VOCs subset)
- 8015-GRO (C₆ to C₁₀)

Semi-Volatiles

Nat Shambaugh / Dave Crosby

- Pesticide Monitoring
- Pesticide Enforcement
- Pesticides Residue testing on crops
- TO-13 (PAHs in Air)
- 8270 (PAHs subset)
- 8015-DRO (C₁₀ to C₂₈)
- Cannabinoids
- Pharmaceuticals

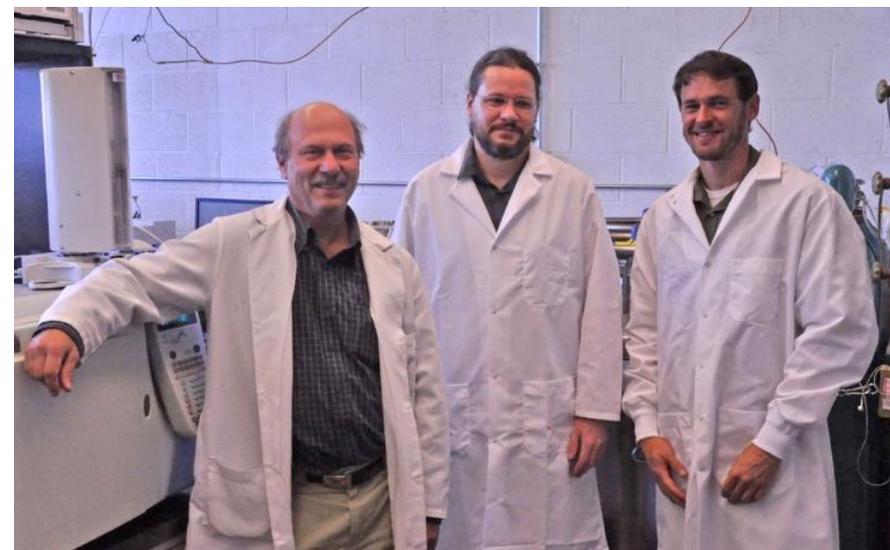
Organic Department Staff:

Nat Shambaugh, Agricultural Chemist V – Pesticides

Dan Nielsen, Environmental Chemist V – Air Quality

Dave Crosby, Agricultural Chemist III – Semi-Volatiles

Temporary Seasonal Hire (1) – Preparative Extractions



VAEL: Business Model – Plans for the Future

- New Clients and Customers
- Updated Schedule of Fees (Fee for Service)
- Equipment Infrastructure Analysis
- Contractual and Grant Opportunities



VAEL's new microwave digester was purchased jointly by DEC's AQCD and AAFM's Feed and Fertilizer program.

VAEL : Vermont Agriculture and Environmental Laboratory

A Partnership of Agencies:

