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February 1, 2013

Co-Chairs, Senate and House Appropriations Committee
Co-Chairs, Senate and House Appropriations Subcommittee on Justice and Public Safety

North Carolina General Assembly
Raleigh, North Carolina 27601-1096

Re: Required report for planning of a Western Regional Laboratory

Dear Members:

Section 15.4 of North Carolina Session Law 2012-142 directed the Department of Justice to "plan a Western Regional Laboratory to be located on the Edneyville Campus of the Training Academy." The General Assembly directed the report to be transmitted to the Chairs of the House of Representatives and Senate Appropriations committees, to the Chairs of the House of Representatives and Senate Appropriations subcommittees on Justice and Public Safety, and to the Fiscal Research Division.

The attached report covers the estimated costs and timeline of the proposed laboratory completion as well as the estimated cost of operating the laboratory during its first five years of operation. The Department has also prepared and included information on a facility lease option for the Western Regional Laboratory

Please let me know if you have any questions or would like to discuss the plans for the Western Regional Laboratory in greater detail.

Joseph R. John, Sr
Director, North Carolina State Crime Laboratory

cc: Kristine Leggett, NCGA Fiscal Research Division
Kristi Hyman, NCDOJ Chief of Staff
Greg McLeod, Director State Bureau of Investigation

Introduction: A Forensic Science Worksheet for the 21st Century

Section 15.4 of S.L. 2012-142 directed the Department of Justice to *"plan a Western Regional Laboratory to be located on the Edneyville Campus of the Training Academy."* This action by the General Assembly is consistent with the critical need of the North Carolina State Crime Laboratory (Lab) for substantial additions of personnel and resources to meet its statutorily mandated responsibilities in the 21st century.

In North Carolina, the nation's 10th most populous state, more than 20,000 law enforcement officers and over 600 law enforcement agencies submit evidence to the Lab. Submissions in 2011 rose by 15%, exceeding 42,000. Only 124 Lab scientist positions are currently available to process these submissions.

Toxicology requests (primarily in DWI cases) to analyze blood for the presence of alcohol and drugs, singularly or in combination, soared to nearly 10,000 between FY 2009/10 and 2011/12, and have increased 34% since FY 2008/09. Only 12 toxicology scientist positions are funded to test these submitted samples. More than one-third of Lab toxicology submissions (38%) originate in counties served by the present Western Lab, but must be transmitted either to Greensboro or Raleigh because the Western Lab has neither the specific personnel nor the scientific equipment to accomplish toxicological analysis. Current Lab toxicology service to the Western counties, therefore, requires markedly increased costs including transportation and travel.

Since 2007, DNA submissions have skyrocketed 64% while Lab appropriations were reduced $300,000 and five Lab positions were slashed in the 2011 budget. The rapidly developing DNA technology is increasingly relied upon by North Carolina's criminal justice system to identify suspects, convict the guilty, exonerate the innocent, eliminate potential subjects of investigation and bring closure to victims and their families.

During FY 2011/12, the Lab received 3,915 DNA casework submissions, a jump of 16.5% over the previous year. Approximately 20% of DNA requests originate in counties served by the Western Regional Lab and another 20% come from counties served by the Triad Regional Lab. Each case requires extensive and timely analysis. However, no DNA scientist or instrumentation capacity exists at either regional laboratory, and all DNA testing must be conducted at the Lab's Raleigh location with consequent expenditures of analyst time, resources and travel.

Further, following the US Supreme Court's 2009 decision in *Melendez-Diaz v. Massachusetts* requiring forensic analysts to testify live and in person in every case rather than by affidavit, the court time expended by Lab toxicologists multiplied 400% in a single year to 2,368.5 hours during 2010. Similarly, DNA analyst court time has doubled since 2009 and in 2011 exceeded over 800 hours of analyst time away from casework in the Lab. DNA scientists must travel from Raleigh to testify in North Carolina's 100 counties, and toxicologists depart daily from the Raleigh and Greensboro Labs to appear in District and Superior courts all over the state.

This "perfect storm" of insufficient staffing, escalating case submissions, and the judicial requirement that Lab scientists personally appear in every court proceeding, has taxed the Lab's current capacity to the limit. Caseload inventories have risen substantially, and turnaround and delivery times have expanded to unacceptable levels. The combined effects of these developments frustrate every employee and, understandably, criminal justice officials throughout the state as well. This circumstance has been commented upon by numerous news media across North Carolina.

Needless to say, any inference in such media accounts that Lab management or scientists are somehow responsible for matters beyond their control is disheartening at best. The Lab has diligently applied sound business practices to improve efficiency and productivity to the greatest extent possible within current resources.

For example, the Lab now operates under ISO 17025, the highest international standards and protocols applicable to forensic science laboratories, and seeks to become the nation's only ISO 17025 Lab accredited by

two separate accrediting agencies. Full time, on-site legal counsel assists the Lab in its interaction with the criminal justice system. Evidence management and hiring processes have been streamlined, and mandatory overtime is required of each analyst. A consulting firm specializing in forensic laboratories has been retained to review all Lab operations. Robotic technology has been deployed to accelerate DNA analysis. Other measures, including a locally funded scientist program, and an RFP for outsourcing, are being explored. However, despite these measures, the Lab will also require a significant infusion of scientists and other resources to manage present circumstances.

In response to the Lab's demonstrated need and Session Law 2011-242, Lab management, in conjunction with Department of Justice officials and the State Construction Office, partnered with RND Architects, MWL Architects, McKim and Creed Engineers, Stewart Engineers and Gardner & McDaniel Engineers to research construction, planning, design and facility programming options for an expanded Western Regional Laboratory.

The focus of the Lab and the architects throughout the process was to generate a laboratory which is scientifically functional and efficient at the optimum level, yet is economically grounded and practical. MWL brought to bear its experience of having been associated with planning and designing approximately 100 US forensic laboratories and medical examiner facilities, including the FBI laboratory in Quantico, Va. (See Appendix F).

The proposed location at Edneyville was toured to review potential construction venues. This site is an existing state property, so no land acquisition costs are required. The current undersized Western Regional Lab facility in Buncombe County is located in a leased building at a location which precludes any expansion.

Multiple visits were conducted at the existing Raleigh and Western Regional labs to examine the facilities and obtain input from Lab scientists. Through an on-going series of intensive programming workshops conducted by the design team and forensic science leaders, planning of the new facility began to crystallize into a final product which reflects both the Lab's true operational requirements and sensitivity to current State fiscal limitations. Lab analysts, for example, suggested that workplace efficiency could be improved and construction costs notably reduced by utilization of large, open work areas for multiple analysts rather than individual office spaces, a concept that was incorporated into the ultimate design.

In sum, the planned Western Regional Lab represents decades of scientific and construction experience focused upon today's demand in North Carolina for the State Crime Laboratory's forensic science services. The result is a facility designed, when fully staffed, to meet 21st Century needs for forensic analysis by Lab scientists. The many western counties of North Carolina would gain closer and quicker access to forensic testing and expert testimony as well as decreased turnaround time. Lab scientists in Raleigh and Greensboro would be free to focus on cases originating in other areas of the state and to achieve similar progress in those cases. Court and travel time for all Lab analysts, which keep them out of the laboratory, would be significantly reduced.

The North Carolina State Crime Laboratory presents the attached Report in compliance with S.L 2012-142, and without reservation recommends an appropriation by the General Assembly to implement the Report's provisions in full.

Respectfully submitted,

Joseph R. John, Sr
Director, North Carolina State Crime Laboratory

North Carolina State Crime Laboratory - Western Regional Laboratory Planning

Pursuant to Section 15.4 of Session Law 2012-142, the following describes detailed options to expand the scope of forensic crime laboratory services provided to Western North Carolina criminal justice agencies and associated stakeholders. Working with the State Construction Office, the North Carolina State Crime Laboratory partnered with RND Architects, MWL Architects, McKim and Creed Engineers, Stewart Engineers and Gardner & McDaniel Engineers to research construction, planning design and facility programming options.

This information was gathered in a series of intensive programming workshops conducted by the design team and forensic science leaders to guide the planning and design of the new facility which would replace the current undersized Western Regional Crime Lab facility located in a leased building in Buncombe County.

The leased facility utilizes approximately 8,800 square feet of space and supports 17.0 forensic science staff. Forensic science service disciplines provided at the current facility are limited to drug chemistry, latent evidence, and firearm and toolmark analysis.

Over the last few years, the State Crime Laboratory has experienced a significant increase in demand for drug toxicology services, DNA analysis and digital evidence services from the western NC criminal justice agencies and related stakeholders. Expanding service offerings in a new Western Regional Laboratory will also help normalize and balance the demand for these services in the Piedmont Triad and eastern portions of the state.

Construction Costs - The results of our intensive programming effort indicated the need to develop a new 36,050 square foot facility based on the staffing numbers and workload metrics utilized by the State Crime Laboratory. Based on recent construction data, crime laboratory facilities of this size would be expected to cost approximately $400 per square foot which equates to $14,420,000 for construction cost. Further, an additional $2,322,595 would be needed to provide design and engineering services, imbedded fixtures and equipment, bringing the total proposed facility cost to $16,742,595.

Best practices in forensic crime laboratory design recommend between 750 and 1000 square feet per forensic scientist be factored into the design of new facilities. Built examples of this practice are Virginia DFS Northern Forensic Lab at 970 SF, Oklahoma OSBI Forensic Lab at 860 SF and Indiana State Police Forensic Lab at 968 SF. When compared to generic commercial office space, forensic crime lab facilities cost significantly more to construct and operate for the following key reasons: HVAC systems makeup and exhaust air every 6-15 times per hour compared to recycled air turning 1-2 times per hour for an office building. Hazardous materials in labs prevent recirculating air. Electrical loading is also greater due to the amount of scientific equipment with much of it on back-up power generation. The security of evidence, which may house several thousand samples of narcotics or criminal evidence, requires that the facility incorporate robust security features that include steel wire mesh enclosures, motion detection, video surveillance and digital access controls. The internal structural framing of the building is far more rigid than an office building in order to minimize vibration for sensitive scientific equipment. Internal plumbing systems commonly use anti corrosive piping materials to dilute and discharge acids and other chemicals safely.

Operating Costs - In addition to capital construction related costs, recurring operational costs are needed to expand forensic services in western North Carolina. The most critical operating costs include the hiring of 28.0 staff positions, 26 of which will be new scientific Lab positions which include:

> *New Forensic Biology/DNA Unit*- The establishment of a new 11.0 staff member forensic biology/DNA analysis section composed of a DNA Forensic Scientist Supervisor, Evidence Control technician, Forensic Scientist I and Forensic Scientist II positions. At this time, only the Raleigh Crime Lab supports Forensic Biology/DNA analysis services.

New Drug Toxicology Unit - A new 13.0 person Drug Toxicology section would also be established and staffed by a Forensic Scientist Supervisor and forensic scientists. No toxicology analysis is currently available at the Western Regional Laboratory.

Exponded Drug Chemistry Unit – The existing Western Lab drug chemistry unit would be expanded to add 2 additional forensic scientists.

New Digital Evidence Staff – A new 2.0 person digital evidence unit would be established to better serve western NC demand. This would include 2 Forensic Scientists.

Staff Training – Following recruitment, selection, testing and hiring processes, all forensic science staff are required to complete an intensive twelve to eighteen month training program before they can start independent work on criminal forensic science cases. Once recruited, these new positions will be assigned to the existing Labs to undertake training and to shadow senior experienced scientific staff. All positions are recommended to be effective on July 1, 2013 in order to support this critical training schedule.

Focility Maintenance Staff – A building of this scope and complex internal systems would require 2.0 on site DOJ maintenance staff to manage the complex electrical and ventilation systems properly and to maintain the facility consistent with national scientific standards.

Other Operating Expenses – Based on a comparative review of the Raleigh State Crime Laboratory facility electric, natural gas and water utility charges, the new western facility would require $266,376 a year in recurring utility funding support. Scientific supplies for new DNA and drug toxicology disciplines would require $321,086 a year in annual funding. Maintenance contracts to calibrate and update scientific equipment would require $173,060 a year in recurring annual funds or 10% of startup equipment purchase costs.

Potential non-recurring receipt sources that could support start up costs for equipment and scientist training include federal DNA and forensic crime laboratory grants. Local law enforcement agencies are also expected to partner with state efforts and provide one time start up funds.

Non-recurring Equipment - These project costs do not include $1.73 million in onetime scientific equipment to support the new lab operation. Examples of new equipment necessary for analysis include DNA robotics, Gas Chromatograph/Mass Spectrometers and other scientific instruments, thermal cyclers and GeneMapper software.

This proposed building will provide an efficient facility where the existing investigational services provided by the current Western Regional Laboratory will continue to be offered and improved with additional staff and infrastructure. The current services provided by the Western Regional Laboratory are; Drug Chemistry, Latent Evidence, Firearms and Toolmarks. The new facility will greatly expand these services and allow the Western part of the state to process cases that are currently shipped to the Triad Regional or Raleigh facilities. This new facility will introduce Toxicology, Biology / DNA, Digital Investigations and Vehicle Processing services to the Western Regional Laboratory.

Construction Schedule – A facility of this scope would require 26 months to complete. Design time (up to bid award) would require 12 months. Construction time (bid award to move-in date) would require 14 months. Projected completion date would be the summer/early fall of 2015. This timeline assumes June 2013 adoption of the biennial state budget.

The design of this facility will take approximately 12 months starting at Schematic Design though to Bidding the completed and approved Construction Documents, including all appropriate reviews (State Construction Office as the agent of the State, State Crime Laboratory user agency reviews and the owner's commissioning agent.) After

awarding the bids, construction of the proposed facility is estimated to take 14 months from groundbreaking to occupancy including commissioning the building for optimal performance and to verify the energy savings estimated during the design of the systems.

In summary, the proposed western Crime Lab will cost $16,742,595 (excluding five-year operating costs) and the construction location is proposed as an addition at the Western Justice Academy campus. This design incorporates sustainable practices and materials as well as advanced building systems, creating an efficient building operation with lower costs over its lifecycle.

Facility Lease Option - As an alternative to the above capital construction approach, the State may consider a facility lease approach. The current Western Regional and the Triad Regional Crime Labs utilize a facility lease approach. The most recent lease acquisition took place in 2008 for the Triad lab which has a 10 year term with 2 five year renewal options (20 year total lease term). Annual rent for this facility is $269,352.00 a year for this 9,976 square foot facility which is equivalent to a 2008 rate of $27.00 per square foot.

A similar lease acquisition approach could be used for the expanded western laboratory. A 36,050 square foot facility lease would require $972,000 a year in annual recurring lease funding at the 2008 rate. It is recommended that a lease use a minimum ten to fifteen year term with renewal options. The location of a leased facility could include the Asheville metro region and would not be limited to the Western Justice Academy site.

Use of a lease acquisition approach has some potential to expedite the timeline to bring the facility online for occupancy by crime lab staff. In 2008, the Triad Regional Laboratory was acquired through a competitive bidding process and a vacant office building was retrofitted to meet crime lab forensic science standards in 9 months. The availability of a suitable location and actual lease costs compared to this example are subject to change based on actual current market conditions.

In summary, constructing a new western laboratory would cost $16,742,595 in non-recurring capital funds. Leasing a similar facility would require new lease funding in the operating budget that equals $972,000 a year in recurring payments to support a minimum ten year lease. Annualized crime lab operating costs are $3,524,412 which includes lease payments. When using a construction approach, annual operating costs drop to $2,956,862 a year. Over 5 years, the State would spend $14.29 million less by using leased facility approach. However, with the $972,000 annual lease charge, the capital construction approach would provide a savings payback period of 17.2 years. This means that with a construction approach the state would invest more capital up front. However the state would not have to pay rent or lease charges after 17.2 years to cover the up-front construction costs when compared to a lease approach. Attached are appendices that provide additional detail and information supporting this report.

Appendix A : Architectural Rendering – New Western Crime Laboratory / Site Orientation view

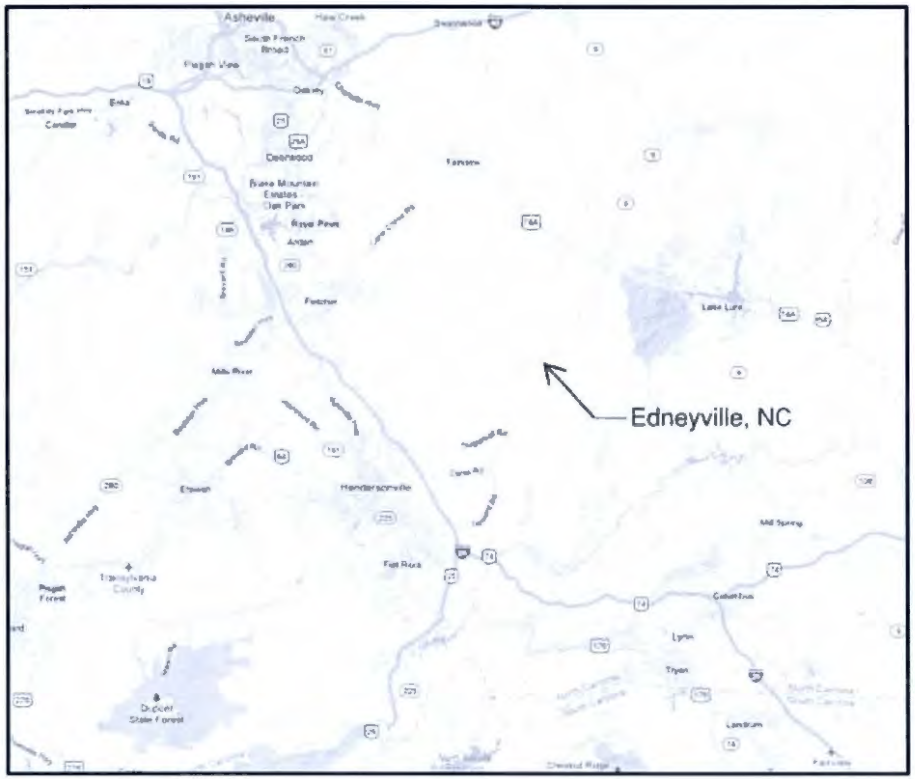
Appendix B : Summary of Rent vs. Build Five Year Finance Information

Appendix C : Summary of Construction Costs

Appendix D : Detail Description of Square Foot Construction Costs

Appendix E : Space Analysis by Staff & Scientific Discipline

Appendix F: MWL Forensic Science/Medical Examiner Laboratory projects



Edneyville, NC

Site Plan Page 7

Larry T. Justus Western Justice Academy

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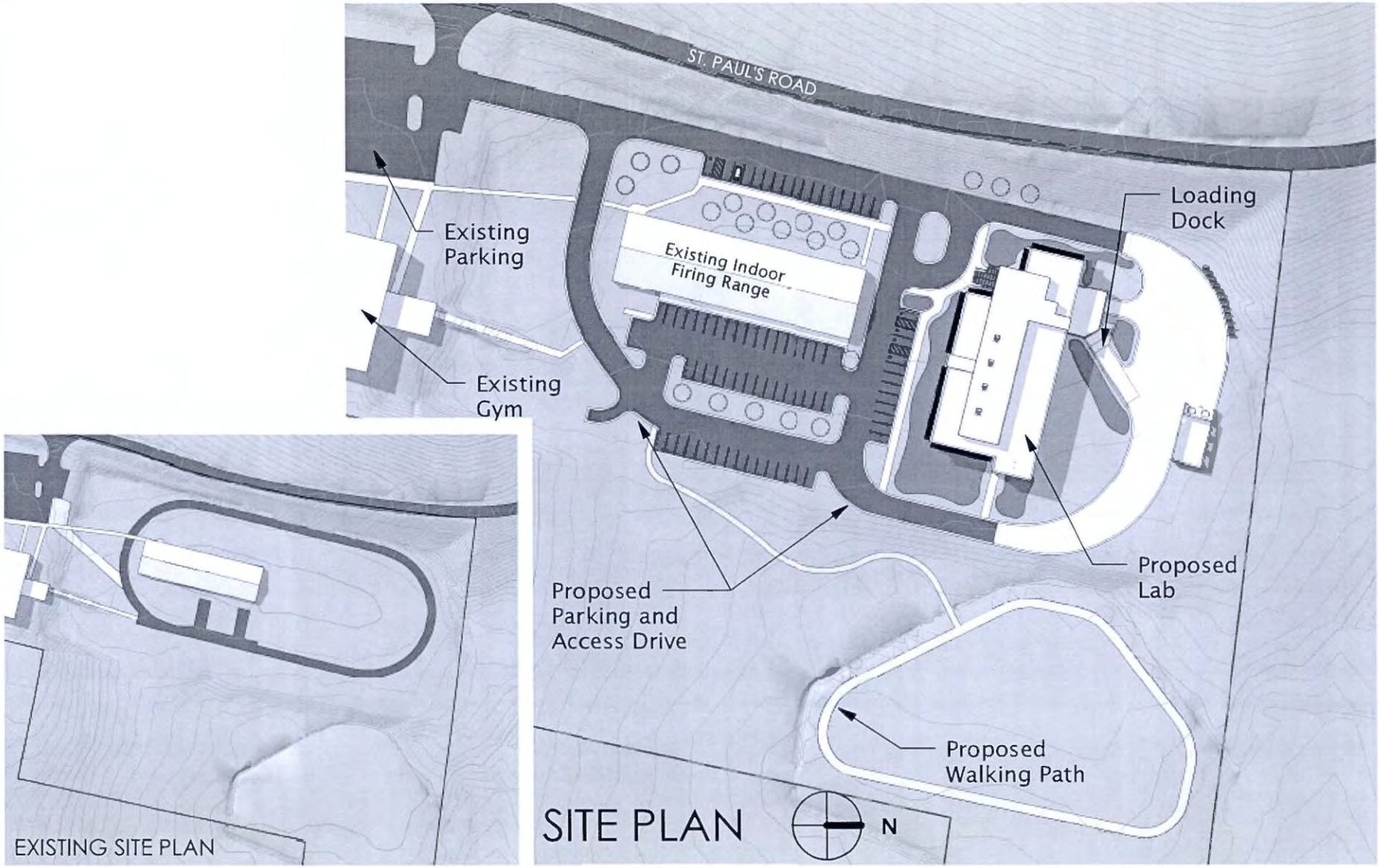
North Carolina State Crime Laboratory – Western Regional Laboratory

Page 6 Aerial Photograph of Edneyville & Vicinity/Location Maps

Scale: 1" = 40'-0"

Project No. 1238.01

RND
ROUGHTON NICKELSON DE LUCA
architects



North Carolina State Crime Laboratory – Western Regional Laboratory

Page 7 Conceptual Site Plan

Project No. 1238.01

ROUGHTON NICKELSON DE LUCA architects

Appendix B : Summary of Rent vs. Build Five Year Finance Information

	FY1314	FY1415	FY1516	FY1617	FY1718	5 YEAR TOTALS
OPTION 1: Build Approach - Construct New State Owned Facility at Edneyville Justice Academy Campus						
Staff Costs	$ 1,978,551	$ 1,998,337	$ 2,018,320	$ 2,038,503	$ 2,058,888	$ 10,092,599
Operating Costs	$ 949,035	$ 958,525	$ 968,110	$ 977,792	$ 987,569	$ 4,841,031
Start Up Equipment Costs	$ 2,085,094	$ -	$ -	$ -	$ -	$ 2,085,094
Construction Costs	$ 16,742,595					$ 16,742,595
Total Expenses	$ 21,755,275	$ 2,956,862	$ 2,986,430	$ 3,016,295	$ 3,046,458	$ 33,761,320
Less Receipts	$ (1,201,368)					$ (1,201,368)
Net Appropriation	$ 20,553,908	$ 2,956,862	$ 2,986,430	$ 3,016,295	$ 3,046,458	$ 32,559,952
OPTION 2: Lease Approach - Expand Current Lease Approach in Western NC						
Staff Costs	$ 1,978,551	$ 1,998,337	$ 2,018,320	$ 2,038,503	$ 2,058,888	$ 10,092,599
Operating Costs (includes $972,000 Annual Lease)	$ 1,096,624	$ 1,526,075	$ 1,541,336	$ 1,556,749	$ 1,572,317	$ 7,293,100
Start Up Equipment Costs	$ 2,085,094	$ -	$ -	$ -	$ -	$ 2,085,094
Total Expenses	$ 5,160,269	$ 3,524,412	$ 3,559,656	$ 3,595,252	$ 3,631,205	$ 19,470,793
Less Receipts	$ (1,201,368)	$ -	$ -	$ -	$ -	$ (1,201,368)
Net Appropriation	$ 3,958,901	$ 3,524,412	$ 3,559,656	$ 3,595,252	$ 3,631,205	$ 18,269,426
Cost Difference using Build vs. Lease	$ 16,595,006	$ (567,550)	$ (573,225)	$ (578,958)	$ (584,747)	$ 14,290,527
NEW POSITIONS/STAFFING						
Total New Positions/FTE	28.00	28.00	28.00	28.00	28.00	28.00

Appendix C : New Western Regional Laboratory - Summary of Construction Costs

Line Item		Cost	Comment
Building Area (Square Feet)		36,050	Building Size Determined by Programming
Building Construction Cost per Square Foot	$	400.00	Construction Cost Estimated using recent similar projects, MWL's database of Forensic Labs & Contractor verified using recent Lab Building Construction projects
Total Construction Cost	$	14,420,000.00	Building Area times Building Cost per unit (Square Foot)
Design Fee SD - CA (% of Construction Cost)	$	1,442,000.00	10.0% of Construction Cost
Design Fee - Commissioning	$	35,745.00	RND estimate based on similar projects
Construction Contingency New Building 3%	$	432,600.00	Value Required by State for New Building Construction
FF&E Systems & Typ. Furniture @ $5,000 per person (39 Staff at Move-in)	$	195,000.00	Estimated using RND Architects Data from Recent Projects Average factors in cubicles and Office Furniture (Managers)
FF&E Lab Stools @ $375 per stool 2 per staff member (39 Staff at Move-in)	$	29,250.00	Estimated using RND Architects Data from Recent Projects
Commissioning Fee Owner's 3rd Party Commissioning Agent	$	120,000.00	Estimated using RND Architects Data from Recent Projects
Construction Testing Allowance	$	68,000.00	Estimated using RND Architects Data from Recent Projects
Total Project Costs	$	16,742,595.00	
Project Cost minus Construction Cost	$	2,322,595.00	

Appendix D : Detail Description of $400.00 Square Foot Construction Costs : Western Regional Laboratory

Task	SF	Per SF	Bldg. Area	NOTES - COMMENTS
			36,050	
Site Work	9890		$ -	
Erosion Control		$ 0.81	$ 29,200.00	Stewart Estimated
Site Demolition		$ 0.58	$ 20,900.00	Stewart Estimated
Mass Grading		$ 0.63	$ 22,800.00	Stewart Estimated
Sanitary Sewer + Lift Station		$ 1.47	$ 53,000.00	Stewart Estimated
Water Service		$ 0.33	$ 11,801.00	Stewart Estimated
Storm Sewer		$ 2.01	$ 72,300.00	Stewart Estimated
Parking Drives & Dock		$ 13.28	$ 478,800.00	Stewart Estimated
Landscaping & Irrigation		$ 1.49	$ 53,780.00	Stewart Estimated
Relocating Running Track		$ 0.92	$ 33,000.00	Stewart Estimated
	Site Subtotal	$ 21.51	$ 775,581.00	
General Conditions & Fees				
Permits		$ 0.90	$ 32,332.00	RND Estimated From Previous Projects
CM Construction Fee		$ 9.07	$ 327,000.00	RND Estimated From Previous Projects
General Liability		$ 4.86	$ 175,350.99	RND Estimated From Previous Projects
Builders Risk		$ 1.01	$ 36,450.96	RND Estimated From Previous Projects

Appendix D : Detail Description of $400.00 Square Foot Construction Costs : Western Regional Laboratory

Task	SF	Per SF	Bldg. Area	NOTES - COMMENTS
			36,050	
Building Concrete Foundations & Slabs		$ 24.83	$ 895,000.00	RND Estimated From Previous Projects
Masonry		$ 3.60	$ 259,822.45	RND Estimated From Previous Projects
Metals - Structural Steel		$ 14.05	$ 506,573.58	RND Estimated From Previous Projects
Carpentry		$ 0.42	$ 15,036.02	RND Estimated From Previous Projects
Building Casework (excluding Lab)		$ 1.33	$ 48,000.00	RND Estimated From Previous Projects
Damp-proofing / Waterproofing		$ 2.94	$ 106,156.13	RND Estimated From Previous Projects
Fireproofing		$ 2.19	$ 78,974.65	RND Estimated From Previous Projects
Roofing including Roof Insulation		$ 14.00	$ 275,000.00	IRMA Roof
Composite Wall Panels		$ 0.71	$ 215,000.00	RND Estimated From Previous Projects
Building Insulation -		$ 1.72	$ 62,000.00	RND Estimated From Previous Projects
Brick Veneer		$ 4.99	$ 180,000.00	RND Estimated From Previous Projects
Doors		$ 3.33	$ 120,000.00	RND Estimated From Previous Projects
Windows		$ 11.51	$ 415,000.00	RND Estimated From Previous Projects

Appendix D : Detail Description of $400.00 Square Foot Construction Costs : Western Regional Laboratory

Task	SF	Per SF	Bldg. Area	NOTES - COMMENTS
			36,050	
Louvers		$ 1.94	$ 70,000.00	RND Estimated From Previous Projects
Storefront / Curtain Wall Assemblies		$ 9.02	$ 325,000.00	RND Estimated From Previous Projects
Sunscreens - Shading		$ 2.64	$ 95,000.00	RND Estimated From Previous Projects
Stair Construction & Railings		$ 21.65	$ 72,000.00	RND Estimated From Previous Projects
Finishes, Wall Framing & Ceilings		$ 21.65	$ 1,443,892.63	RND Estimated From Previous Projects
Specialties		$ 1.05	$ 37,792.36	RND Estimated From Previous Projects
Radiation Protected Room		$ 0.67	$ 24,000.00	RND Estimated From Previous Projects
Equipment		$ 1.39	$ 49,937.82	RND Estimated From Previous Projects
Elevator - Hydraulic 3 stops		$ 1.00	$ 36,000.00	RND Estimated From Previous Projects
Plumbing		$ 31.00	$ 1,117,550.00	McKim & Creed Estimated
HVAC		$ 73.00	$ 2,631,650.00	McKim & Creed Estimated
Fire Protection		$ 5.00	$ 180,250.00	McKim & Creed Estimated

Appendix D : Detail Description of $400.00 Square Foot Construction Costs : Western Regional Laboratory

Task	SF	Per SF	Bldg. Area	NOTES - COMMENTS
			36,050	
Electrical		$ 54.00	$ 1,946,700.00	McKim & Creed Estimated
Fire Alarm		$ 6.00	$ 216,300.00	McKim & Creed Estimated
Security Access Control		$ 4.00	$ 144,200.00	McKim & Creed Estimated
Security Camera & NVR System		$ 0.85	$ 125,000.00	RND Estimated From Previous Projects
Lab Equipment - (Fixed)		$ 19.22	$ 693,000.00	MWL Estimated
Lab Wall Casework		$ 1.56	$ 56,250.00	MWL Estimated
Mobile Tables with Epoxy Tops		$ 1.94	$ 70,000.00	MWL Estimated
Fume Hoods		$ 3.77	$ 136,000.00	MWL Estimated
Biological Safety Cabinets		$ 0.87	$ 31,500.00	MWL Estimated
Snorkels		$ 1.32	$ 47,500.00	MWL Estimated
Emergency Shower / Eye Wash		$ 1.00	$ 36,000.00	MWL Estimated
Freezers & Refrigerators		$ 1.11	$ 40,000.00	MWL Estimated
Photographic Equipment		$ 0.97	$ 35,000.00	MWL Estimated

Appendix D : Detail Description of $400.00 Square Foot Construction Costs : Western Regional Laboratory

Task	SF	Per SF	Bldg. Area	NOTES - COMMENTS
			36,050	
Shipping		$ 0.69	$ 25,000.00	MWL Estimated
Firing Range Trap, Target, Controls Ceiling & Wal		$ 2.36	$ 85,000.00	MWL Estimated
Projectile Recovery Tank		$ -	$ -	Reused Existing
Office Furniture (systems & other)		$ -	$ -	In Operating Cost
Building Commissioning - Enhanced		$ 3.34	$ 120,407.00	Estimated
Total Building Construction		**$ 400.00**	**$ 14,420,000.00**	

Appendix E : Space Analysis by Staff & Scientific Discipline

	Current Staff	Proposed Staff	Current Gross Building Area (square feet)	Gross Area per Staff Member (Square Feet)
Current Western Regional Laboratory Asheville, NC	17	N/A	8,800	518
Proposed Western Regional Laboratory Edneyville, NC	N/A	45	36,050	801

Current Services - Asheville, NC Western Regional Laboratory	Staffing: Current Staff	Staffing: Proposed Staff	Staff Variance	Facility Area: Current Area Asheville Laboratory	Facility Area: Proposed Area Edneyville Laboratory	Space Variance
Lab Administration	2	2	0	450	1,268	818
Lab Support / NCDoJ Employee Facilities	0	2	2	2,200	3,889	1,689
Evidence Control	2	3	1	650	1,813	1,163
Drug Chemistry	8	10	2	4,000	4,767	767
Firearms / Toolmark / Impressions	2	2	0	650	2,119	1,469
Latent Evidence	3	3	0	650	1,423	773
Wall Construction Structure	0	0	0	200	2,773	2,573
Multi-Floor Factor (Stairs & Elevator)	0	0	0	0	832	832
Mechanical Electrical Chases	0	0	0	0	4,714	4,714
SubTotals	**17**	**22**	**5**	**8,800**	**23,598**	**14,798**

Proposed Services - Edneyville, NC Western Regional Laboratory	Current Staff	Proposed Staff		Current Area Asheville Laboratory	Proposed Area Edneyville Laboratory	Difference
Forensic Biology / DNA	0	10	10	N/A	5,344	5,344
Toxicology	0	11	11	N/A	5,129	5,129
Digital Investigation	0	2	2	N/A	1,015	1,015
Vehicle Processing	0	0	0	N/A	964	964
SubTotals	**0**	**23**	**23**	**0**	**12,452**	**12,452**
Total	**17**	**45**	**28**	**8,800**	**36,050**	**27,250**

Appendix F:
McClaren, Wilson & Lawrie, Inc. (MWL) Forensic Science/Medical Examiner Laboratories

- **Forensic Science Laboratory**
  Anchorage, Alaska – Alaska State Troopers
- **Scientific Crime Detection Laboratory**
  Anchorage, Alaska – State of Alaska
- **Forensic Science Laboratory**
  Phoenix, Arizona – Department of Public Safety
- **Forensic Science Laboratory**
  Phoenix, Arizona – Phoenix Police Department
- **Forensic Science Laboratory**
  Scottsdale, Arizona – Scottsdale Police Department
- **Forensic Science Laboratory**
  Tucson, Arizona – Department of Public Safety
- **Forensic Science Laboratory, Coroner Facility, Public Health Laboratory**
  Oakland, California – Alameda County
- **Crime Laboratory**
  Bakersfield, California – Kern County District Attorney
- **DNA Profiling Laboratory**
  Berkeley, California
- **Forensic Crime Laboratories**
  Eureka, Fresno, Santa Barbara, Santa Rosa, Stockton, & Riverside, California – California Department of Justice
- **Forensic Science Laboratories**
  Fresno, Riverside, Ripon, & Redding, California – Department of Justice
- **Forensic Science Laboratory**
  Lancaster, California – Los Angeles County Sheriff
- **Technology Forensic Laboratory**
  Los Angeles, California – Police Department
- **Coroner Facility**
  Modesto, California – Stanislaus County
- **Forensic Science Laboratory**
  Oakland, California – Oakland Police Department
- **Forensic Science Laboratory, Coroner Facility**
  Sacramento, California – Sacramento County
- **Forensic Science Laboratory, Medical Examiner Facility**
  San Diego, California – San Diego County
- **Forensic Science Laboratory**
  San Diego, California – San Diego County Sheriff Department
- **Forensic Laboratory, Coroner Facility**
  San Leandro, California – Alameda County Sheriff Department
- **Forensic Science Laboratory**
  San Jose, California – Santa Clara County
- **Forensic Science Laboratory**
  Ventura, California – Ventura County
- **DNA Laboratory**
  Colorado Springs, Colorado – Police Department
- **Academic Forensic Laboratory**
  Colorado Springs, Colorado – University of Colorado
- **Forensic Science Laboratory**
  Golden, Colorado – Jefferson County
- **Medical Examiner Facility, Forensic Center**
  Littleton, Colorado – Arapahoe County
- **Forensic Science Laboratory**
  Washington, D.C – U.S. Dept. of Justice DEA
- **Forensic Laboratory, Phases I & II**
  Fort Lauderdale, Florida – Broward County Sheriff's Department

- **Medical Examiner Facility, Forensic Laboratory**
  Largo, Florida – Pinellas County
- **Forensic Laboratory**
  Orlando, Florida – Florida Department of Law Enforcement
- **Forensic Science Laboratory**
  Coeur D'Alene, Idaho – Idaho State Police
- **Forensic Science Laboratory**
  Chicago, Illinois – Illinois State Police
- **Forensic Science Laboratory, Forensic & Health Sciences Center**
  Indianapolis, Indiana – Indiana State Police
- **Forensic Science Laboratory**
  Des Moines, Iowa – Department Of Public Safety
- **Forensic Science Laboratory**
  Olathe, Kansas – Johnson County
- **Central Forensic Laboratory**
  Topeka, Kansas – Kansas Bureau of Investigations
- **Radiological, Chemical & Biological Sample Receiving Center, FBI Sample Analysis Lab**
  Aberdeen Proving Ground, Maryland – US Army Corps of Engineers
- **Forensic Center, Medical Examiners Facility**
  Baltimore, Maryland – State of Maryland
- **Academic Forensic Science Laboratory**
  Baltimore, Maryland – Coppin State University
- **DNA Laboratory**
  Palmer Park, Maryland – Prince George's County
- **Forensic Science Laboratory**
  Pikesville, Maryland – Maryland State Police
- **Forensic Crime Laboratory**
  Rockville, Maryland – Montgomery County
- **Forensic Science Laboratory**
  Grand Rapids, Michigan – Michigan State Police
- **Forensic Science Laboratory**
  Lansing, Michigan – Michigan State Police
- **Forensic Science Laboratory**
  Marquette, Michigan – Michigan State Police
- **Forensic Science Laboratory**
  Pontiac, Michigan – Oakland County Sheriff's Department
- **Forensic Science Laboratory, Evidence Processing Facility**
  Anoka, Minnesota – Anoka County
- **Crime Laboratory**
  Clayton, Missouri – St. Louis County
- **Forensic Laboratory**
  O'Fallon, Missouri – St. Charles County Sheriff's Department
- **Forensic Science Laboratory, Medical Examiner Facility**
  Missoula, Montana – State of Montana
- **Forensic Science Laboratory**
  Albuquerque, New Mexico – Albuquerque Police Department
- **Forensic Science Laboratory, Medical Examiner Facility**
  Albany, New York – New York State Police
- **Forensic Science Laboratory**
  Buffalo, New York – Erie County
- **Forensic Science Laboratory**
  Rochester, New York – Monroe County
- **Forensic Science Laboratory**
  Syracuse, New York – Onondaga County
- **Academic Forensic Laboratory**
  Winston Salem, North Carolina – Winston Salem State University
- **Crime Laboratory**

Columbus, Ohio – Police Department

- **Coroner Facility, Forensic Science Laboratory**
  Dayton, Ohio – Montgomery County
- **Forensic Science Laboratory**
  Edmond, Oklahoma – Oklahoma State Bureau of Investigation
- **Forensic Science Laboratory**
  Deschutes County, Oregon – Oregon State Police
- **Coroner Facility, Forensic Science Laboratory**
  Pittsburgh, Pennsylvania – Allegheny County
- **Forensic Science Laboratory**
  Jackson, Tennessee – Tennessee Bureau of Investigation
- **Forensic Center, Medical Examiner Facility**
  Johnson City, Tennessee – East Tennessee State University, James H. Quillen College of Medicine
- **Forensic Science Laboratory**
  Knoxville, Tennessee – Tennessee Bureau of Investigation
- **Forensic Science Laboratory**
  Memphis, Tennessee – Tennessee Bureau of Investigation
- **Medical Examiner Facility, Forensic Center**
  Memphis, Tennessee – Shelby County Department of Health
- **Forensic Science Laboratory**
  Nashville, Tennessee – Tennessee Bureau of Investigation
- **Forensic Science Laboratory Expansion**
  Nashville, Tennessee – Tennessee Bureau of Investigation
- **Forensic Science Laboratory**
  Austin, Texas – Police Department
- **Forensic Science Laboratory, Medical Examiners Facility**
  Dallas, Texas – Dallas County, Southwestern Institute of Forensic Sciences
- **Forensic Science Laboratory**
  El Paso, Texas – Department of Public Safety
- **Community Laboratory**
  El Paso, Texas – City of El Paso
- **Forensic Science Laboratory**
  Fort Worth, Texas – Police Department
- **Medical Examiner Facility, Forensic Science Laboratory**
  Fort Worth, Texas – Tarrant County
- **Forensic Crime Laboratory**
  Garland, Texas – Department of Public Safety
- **Forensic Crime Laboratory**
  Houston, Texas – Department of Public Safety
- **Forensic Sciences Laboratory**
  Lubbock, Texas – Department of Public Safety
- **Forensic Sciences Laboratory, CSI Laboratory**
  West Valley City, Utah
- **Forensic Science Laboratory**
  Burlington, Vermont – Division of Criminal Justice Services
- **Forensic Science Laboratory**
  Waterbury, Vermont
- **Forensics Facility**
  Fairfax County, Virginia – Police Department
- **Forensic Science Laboratory, Medical Examiner Facility**
  Manassas, Virginia – Commonwealth of Virginia, Northern District
- **Research Forensic Science Laboratory**
  McLean, Virginia – U.S. Dept. of Justice DEA
- **Forensic Science Laboratory, Medical Examiner Facility**
  Norfolk, Virginia – Commonwealth of Virginia. Tidewater District
- **National Forensic Laboratory**
  Quantico, Virginia – Federal Bureau of Investigation

- **Forensic ID Laboratory**
  Richmond, Virginia – Police Department
- **Forensic Science Laboratory, Medical Examiner Facility**
  Richmond, Virginia – Commonwealth of Virginia, Central District
- **Forensic Science Laboratory, Medical Examiner Facility**
  Roanoke, Virginia – Commonwealth of Virginia, Western District
- **Forensic ID Laboratory**
  Bellevue, Washington Police Department
- **Forensic Science Laboratory**
  Cheney, Washington – Washington State Patrol, Eastern Washington
- **Forensic Science Laboratory**
  Seattle, Washington – Washington State Patrol
- **Academic Forensic Science Laboratory**
  Morgantown, West Virginia – West Virginia University
- **Forensic Science Laboratory**
  Hamilton, Ontario, Canada – Hamilton Wentworth Regional Police
- **Forensic Services & Coroner's Complex**
  Toronto, Ontario, Canada
- **Identification Laboratory**
  Toronto, Ontario, Canada – Metropolitan Toronto Police