Response to Supplemental Inquiries from the Legislative Analyst's Office – Part A
Air Resources Board's Proposed Southern California Consolidation Project

1. Building Size and Scope: Please provide an assessment of how ARB determined the workload estimates that form the basis of the proposed building size and scope of activities. For example, how did ARB determine:

   (1) the number of tests that would be needed in 2020; and

   (2) the amount of testing equipment that would be needed to conduct this projected number of tests?

   Response: As discussed in the meeting on February 20, the workload estimates are based on ARB's experience in conducting testing over the last 40 years. In general, the overarching priority is to ensure that there is a sufficient amount of testing capability to meet our air quality and climate change responsibilities. Historically, ARB's testing needs have far exceeded its capacity. The new facility is designed to increase capacity to meet today's program needs. We expect these program needs to last through at least 2050.

   The following general approach to developing the number of tests applies to each of the multiple areas identified in the COBCP (light-duty testing; heavy-duty testing; onboard diagnostic systems; and portable emissions measurement systems (PEMS).

   - Identify the need for the testing. The need for the testing establishes the overall priority for the testing program. Over the last few years and in conjunction with the development of the feasibility study, ARB has assessed its program needs in the multiple areas listed above. Once ARB identified these program needs, the task of assessing the specific requirements for space and equipment began. Based on historical experience, ARB prioritizes testing activities that can be performed with existing resources, both staff and equipment. ARB's proposed facility is designed to balance program needs with these practical limits.

   - Identify the type of tests needed. The type of tests varies depending on the program area. For example, tests for in-use compliance with motor vehicle emission standard may involve only one specific test cycle and only a few pollutants. By contrast, research and technology development may involve a much larger number of chemical compounds analyzed, multiple test cycles, and different vehicle configurations. For each program area, ARB determined the type of testing that would be required.

   - Determine the duration of the tests. Tests vary in duration. For example, a test to assess emissions for inventory purposes may involve a number of different test cycles, thus increasing the duration of the testing. In contrast, testing to determine in-use compliance is conducted following a single and very precise test procedure. The duration of tests factors directly into the how many tests can reasonably be done in a calendar year.

   - Estimate the number of annual tests. ARB estimated the number of tests generally based on historical experience with how many tests had been

conducted in a given program area and an assessment of current and future program needs. As mentioned above, equipment availability and staff resources limit the number of tests that can be done.

As discussed in the meeting on February 20, ARB agreed to provide detailed information regarding how the workload is determined using the light-duty chassis dynamometer testing needs as an example. Note, however, that similar logic would apply to testing for motorcycles, small off-road equipment, large spark-ignited equipment, and heavy-duty vehicles. As background, Table 4 of the Capital Outlay Budget Change Proposal is provided below.

Table 4
Current and Future Light-Duty Chassis Dynamometer Testing Needs

Program Support	Number of Annual FTP Tests Current	Percent of Total Annual Tests	Number of Annual FTP Tests 2020	Percent of Total Annual Tests
Emission Inventory	779	50%	779	38%
Regulatory Development	389	25%	389	19%
In-use Compliance	78	5%	250	12%
Aftermarket Parts Evaluation	156	10%	156	8%
Research	156	10%	300	14%
OBD Audits	0	0%	200	10%
New Vehicle Audits	0	0%	50	2%
All	**1,558**	**100%**	**2,174**	**100%**

In developing this table, ARB started with the current situation of having five light-duty chassis dynamometers in test cells that are capable of conducting emissions sampling. At this time, the test cells are not operated on weekends. In addition, a quality control analysis is conducted on each test cell every Monday. Therefore, each test cell is available for testing approximately 200 days per year. For five test cells, this results in about 1,000 test days per year. Two of the five test cells are used primarily for the emissions inventory program; however, these two test cells are also used to support the other test programs identified in Table 4. The other three test cells are used exclusively to support the other programs identified in Table 4.

As Table 4 shows, ARB currently conducts approximately 1,500 tests each year, or approximately one to two tests per day per test cell. ARB is proposing to add two new chassis dynamometer test cells. These test cells would be used for conducting preconditioning and other test preparation activities. With this change, along with the other test cell improvements that are identified, ARB expects to increase the test cell efficiency to over 2 tests per emissions-based chassis dynamometer per day.

The following discussion highlights the basis and rationale for how and why these tests are conducted. Understanding the basis and rationale for these tests establishes the framework for understanding the increased number of tests estimated for 2020 and future years.

- Emissions Inventory: Historically, ARB has conducted an annual program to determine the emissions of vehicles that are currently in-use. The tests form the basis of the emissions inventory for light-duty vehicles. The emissions inventory is then used in air quality modeling efforts to determine the amount of overall emissions reductions necessary to meet federal air quality standards pursuant to the State Implementation Plan. In the last 10 years, this program has added a number of greenhouse gases to its analysis protocols for climate change program purposes.

  This emission inventory program is designed to measure the emissions from a variety of different types of engine technologies and model year vehicles currently in-use in California. In addition, a sufficient number of vehicles must be tested to provide confidence that the results are representative of in-use emissions. ARB has determined that approximately 250 to 300 vehicles must be tested each year to ensure that representative emission results are obtained. Each year, ARB staff determines the matrix of different vehicle technologies and model years that are to be tested. An independent contractor procures the vehicles for ARB from the public.

  For each vehicle, the following steps are conducted:

  1. Pre-Check Analysis. The vehicle is brought to the El Monte facility. At the facility, ARB staff conducts a thorough pre-check of the vehicle. The pre-check analysis entails documenting specific information about the vehicle including the make, model, model year, vehicle identification number, and license plate. This information is used for tracking the vehicle for a given test program. The vehicle is also checked and photographed for any scratches or damage to the exterior and interior of the vehicle and for any damage that would render the vehicle unsafe to test. This pre-check function provides the essential vehicle information for tracking purposes and provides the State vehicle documentation to ensure the vehicle is delivered back to the owner in the original condition.

     After the initial inspection, the vehicle may receive some basic restorative maintenance to ensure the vehicle is operating at its optimum operating conditions. In some cases, ARB may choose to test the vehicle in the as-is condition prior to performing the maintenance. This provides ARB with additional information about how the vehicles are performing without proper maintenance. Some maintenance functions performed may include an oil/filter change, air filter replacement, gas filter replacement, brake maintenance, spark plug change, and installation of special test equipment. The pre-check usually takes 2-3 hours per vehicle to complete; sometimes longer depending on the test program.

  2. Smog Check Analysis. The vehicle then undergoes a Smog Check analysis following specified State procedures and using ARB staff licensed to perform the analysis. ARB staff uses the same equipment that is currently used in California's Smog Check program. ARB will also begin using the new procedures that rely on Onboard Diagnostic Systems (OBD). This analysis typically takes about one hour.

3. Emissions Tests. The Federal Test Procedure (FTP) is the recognized standard exhaust emissions test used in the United States and other parts of the world. An FTP test requires that the vehicle undergo certain procedures that are conducted in a precise manner. Any deviation from these procedures will render the FTP test invalid and will require the FTP to be repeated. The procedures require that the vehicle soak in a temperature-controlled environment for at least six hours

   After six hours, the vehicle must be drained of fuel and filled to 40 percent of the tank capacity (initial fuel and drain). ARB staff performs this task pursuant to specified drain and fill safety procedures. Presently, this operation is performed at ARB's Haagen-Smit Laboratory's fill and drain room. This room provides the necessary air circulation requirements that the State requires for handling gasoline and diesel fuel. The room is explosion-proof and is equipped with a number of different types of safety detectors. The fueling process can take as much as 2 to 3 hours to complete on a single vehicle.

   Once fueled, the vehicle is preconditioned on the dynamometer for one to two preconditioning cycles. After preconditioning, the vehicle must undergo a second fuel and drain process (similar to the initial fuel and drain procedure). In addition, an evaporative emission canister loading procedure is conducted that takes about one hour.

   The vehicle is then soaked in the temperature-controlled cold soak area of the laboratory overnight. The following day, the vehicle is rolled back onto the dynamometer in the test cell to conduct the FTP exhaust emissions test. Gaseous and particulate matter exhaust emissions are then measured using a variety of different techniques and analyzers.

   The FTP test takes about one hour and follows a prescribed cycle that varies the speed of the vehicle. This cycle is designed to represent how the vehicle operates in actual use. For the emissions inventory program, there may be additional cycles that are run to provide supplemental information that supports emissions inventory development.

4. Post Check Analysis. Once testing is complete, ARB staff must review the emissions data for errors or inconsistency. If the data are found to be invalid, the entire FTP process must be redone starting with the initial fuel and drain.

   This procedure is then repeated for every vehicle in the program. In 2013, this amounted to 779 FTP tests. For this program, ARB primarily used two of the five light-duty test cells, which equates to about 390 tests per test cell. This amounts to about 2 tests per test cell per test day. However, about 2 to 3 days are required per vehicle to conduct all of the activities discussed above.

An integral part of the operation is the chemical analysis that is conducted as part of the test procedure. Samples collected from the FTP and other tests are analyzed either continuously in the test cell or in ARB's chemical laboratory. As

discussed above, there are a variety of techniques and equipment that are used to analyze the samples. These include continuous monitoring of gases such as carbon monoxide and oxides of nitrogen, real-time analysis of compounds that are very unstable such as acrolein, and other analyses conducted using highly sophisticated and sometimes very expensive analytical instruments. For certain samples, the analysis is conducted in environmentally controlled clean rooms.

In the future, this testing would continue at the same level in order to track the emissions from in-use vehicles. However, in order to make the emissions-based chassis dynamometer test cells more efficient, ARB is proposing to add two new test cells that would be equipped with chassis dynamometers but no emissions sampling equipment. These dynamometers would be used exclusively for vehicle preconditioning and mileage accumulation activities. These activities typically consume about 20 percent of the test cell use. Using these dynamometers would allow the emissions test cells to be used primarily for exhaust emissions testing. Although we would not expand the emissions inventory program, these additions would allow for testing to be conducted in other program areas as discussed below.

- Regulatory Development. Virtually every ARB motor vehicle-related regulation has been supported by vehicle or engine testing activities. These regulatory development activities range from evaluating the ability to achieve and maintain proposed emissions standards to developing emissions test procedures. For each regulatory development effort, ARB prepares an emissions test plan. The test plan often involves FTP testing as a means of establishing a baseline test to compare against a new regulatory standard or process. Therefore, we have used the number of FTP tests as a surrogate for the myriad of test programs that can occur in regulatory development activities.

  Historically, ARB conducts about 400 FTP tests per year in support of our regulatory activities. This represents about 25 percent of our testing efforts. Note, however, that the regulatory development efforts often evaluate many different types of issues and the testing does not follow a particular standardized protocol. Often, there are different cycles or test conditions that are evaluated to ensure that the proposed standards are achieving the intended benefits. Additionally, the chemistry laboratory is involved in test projects when there is a need for specialized analysis.

  ARB projects this baseline activity will continue at its current level through 2020 and beyond. This projection is based on ARB's need to continue to evaluate new motor vehicle and engine emission reduction strategies now and into the future to meet our air quality and climate change responsibilities.

- In-Use Compliance. The in-use compliance program is designed to ensure that vehicles continue to meet specified emissions standards over the life of the vehicle. As such, this program only looks at the emissions from vehicles that have at least 40,000 accumulated miles. This program represents the basis for recalling vehicles if they fail to meet the in-use emission standards.

  To support this program, the vehicle manufacturers are required to conduct testing on their own vehicles and submit these data to ARB. ARB then reviews

the data to determine the likelihood that the vehicles are in compliance. Based on this review, ARB selects test groups to test that have a high likelihood of failing to meet the emissions standards. A test group represents vehicles that have similar engine and emissions control system characteristics.

Currently, ARB tests approximately five to six test groups per year consisting of 14 vehicles per test group. The number of vehicles tested ensures that there is a representative sample and that the results are sufficient to take recall action. Note that there are over 500 different test groups. Thus, we are currently testing only one percent of the total number of test groups. Every vehicle tested in ARB's in-use compliance program is subject to an FTP test. Additionally, ARB will conduct other standard test cycles to assess compliance.

Historically, ARB has been limited in its capacity to conduct this testing. Therefore, ARB has not been able to test all of the test groups that may fail to meet the emission standards. Testing just two percent of the total number of test groups would provide greater assurance that the in-use vehicles are achieving the emission standards. In addition, this testing would send a strong signal to the manufacturers that emissions control system durability is critically important as the vehicles age.

Furthermore, there are new technologies that are being introduced today and we know that more advanced vehicles will be introduced in the future. This will increase the number of test groups that are in-use in California. Thus, in total, ARB expects to test about 15 – 20 test groups in the future, representing approximately 250 FTP tests.

- Aftermarket Parts Evaluations. Manufacturers of add-on and modified parts planning to sell their product for use on California vehicles must apply for an exemption from Vehicle Code Section (VC) 27156. An exemption is granted if the product has been determined not to cause any increase in vehicular emissions. Most aftermarket part test programs involve testing aftermarket catalysts. ARB will often conduct confirmatory testing of the aftermarket catalyst replacement parts to ensure these parts maintain the integrity of the vehicle's original equipment. In most cases this testing requires FTP testing and accounts for 10 percent of ARB's annual FTP tests.

  In the future, ARB expects this level of testing to remain constant based on our historical experience with aftermarket parts evaluations.

- Research. Research testing utilizes FTP testing for evaluating fuels, test methods, emission control technologies, particulate measurement methods, and other types of motor vehicle and engine studies. Many of these test programs are unique and may involve working with universities, manufacturers, and other agencies. FTP tests from research in most years accounts for 5 percent of the FTP tests performed by ARB in a given year.

  ARB expects that this effort will approximately double in the future. This is due to the daunting task of meeting future federal air quality standards and climate change responsibilities. Additionally, further research will be needed in evaluating new emission control technologies that are not yet available. Other

areas of research will include, but is not limited to, aged battery range testing, extended range internal combustion engine technology advancements, fuel cell range studies, and test equipment evaluation studies. ARB expects to increase its collaboration with experts to develop test programs that can be conducted at the new facility. These test programs will help identify cost-effective and innovative approaches to meeting our air quality and climate change responsibilities.

Onboard Diagnostic Systems. Onboard diagnostic systems (OBD) are self-diagnostic systems incorporated into the computers of new vehicles. All 1996 and newer light-duty vehicles are equipped with OBD systems. The OBD system monitors virtually every component that can affect the emission performance of the vehicle to ensure that the vehicle remains as clean as possible over its entire life. In addition, the OBD systems assist repair technicians in diagnosing and fixing problems with the computerized engine controls. If a problem is detected, the OBD system illuminates a warning lamp on the vehicle instrument panel to alert the driver. For many newer vehicles, OBD systems are replacing the tailpipe inspections as part of California's Smog Check program.

The OBD systems need to be audited to ensure that these systems are performing within the regulatory guidelines per the manufacturers' certified specifications. Each OBD system consists of about 30 different parameters. These include catalyst efficiency, evaporative emissions leak detection, fuel metering, and oxygen sensor operation.

As part of this process, ARB must conduct an FTP test in an as-received condition. Staff will then replace certain emission-related components with "threshold parts" and conduct another FTP. Under the FTP, the threshold part should trigger a malfunction and illuminate an OBD malfunction indicator light at the malfunction criteria. If the OBD systems fails to function for any of the threshold part trials, then the manufacturer may have to recall the vehicles to resolve the problem.

Testing is currently limited by the availability of emission-based chassis dynamometer test cells, although ARB is now beginning to conduct limited testing. With additional testing capability in the future, more OBD systems can be effectively checked to ensure proper operation.

Vehicles tested under this program will primarily come from vehicles already in-house to support the new vehicle audit program or the in-use compliance program. ARB expects that approximately 25 – 50 vehicles will be tested per year. For each vehicle, ARB will likely test four to eight different threshold parts. This results in about 200 FTP tests per year. As OBD systems are now an integral part of the Smog Check Program, we expect this need to continue well beyond 2020.

- New Vehicle Audits. ARB certifies new vehicles based on an extensive review of emissions and other data provided by the manufacturers. Historically, ARB used to test many new vehicles as part of the certification program. However, over the last 20 years, ARB has not conducted any new vehicle audits because the

manufacturers have continuously met the new vehicle standards. In addition, ARB lacked the testing capacity to conduct new vehicle audits due to higher priority programs.

ARB now sees there is a need to reinstate the testing of new vehicles. This need is driven by the introduction of new technologies, such as plug-in hybrid vehicles. ARB is concerned that these vehicles may not reach the needed exhaust temperatures to activate the catalyst and may fail to comply with the very low emissions standards certified for these vehicles. Therefore, ARB is proposing to expand this program by conducting an FTP test on approximately 50 vehicles per year. This number of tests will allow ARB to conduct testing on a representative number of vehicles and technologies and ensure that these new vehicles are meeting new vehicle emissions standards.

In summary, the test programs described above are ongoing programs that will continue to carry on over the next 30 years. While it is understood that zero emission vehicle technology is growing, older gasoline vehicles will still be available and plug-in hybrids will carry a new challenge for the programs identified above.

2. Performance Criteria: Please provide a more detailed justification for the $5.9 million cost estimate.

   Response: The table below provides a cost comparison for the Performance Criteria Phase. The table compares the proposed ARB project with three other fairly recently completed Design-Build Projects: Caltrans District 3 Building in Marysville completed in 2010; and Veterans Affairs facilities in Fresno and Redding completed in 2012. Please consider the following points.

   - Master Architect – The cost for development of the Performance Criteria is 0.52% of the total project cost. ARB has issued a separate response indicating the level of detail anticipated in the Performance Criteria. The cost of equipment is included in this calculation because each piece of equipment must be accounted for in the program identifying location, electrical needs, lighting needs, heat production for cooling, and special requirements such as vibration isolation.

   - Stipends – The Stipends for the three Design-Build Teams in the competition are set at $150,000. DGS deems this reasonable for a project of this size and complexity. DGS anticipates each team actually spending approximately $500,000 for this effort; therefore this amount helps defray some of the cost of the effort. Paying a Stipend also allows the State to "own" the proposal and the items contained can be used on the project even if a specific Design-Build Team is not selected. Note that the District 3 project only paid out one Stipend payment of $50,000 because two of the proposals were found to be unresponsive.

   - Special Consultants – There is approximately $400,000 in the Special Consultant category budget for a Laboratory Expert and a LEED consultant since we are pursuing LEED Platinum and possibly LEED Zero Net Energy. In addition to the Special Consultants for LEED work, the remaining $400,000 is needed to investigate the site once it is identified. The COBCP indicates that a site of approximately 14 acres is needed. Therefore, the anticipated costs include a survey with topography map, substantial geotechnical investigation since the facility grounds are spread out, hazardous materials investigation, utility design fees, and a hydrological study.

   - Project Management – Due to the size and complexity of the project, DGS will provide a full time Project Director to lead the project and a ½ time Supervisor. The current billing rate is $182; therefore, DGS used $185 as an estimate for the next few years. The calculation is 1.5 staff times 168 hours per month times 24 months for this phase times $185 per hour = $1,118,880 (rounded down to $1,100,000).

   - Contracted Construction Management (CM) – It will take DGS 4 months to hire the CM. DGS expects to employ a full time CM plus scheduling and estimating services. The calculation is 1.0 staff times 168 hours per month times 20 months times $175 per hour = $588,000 plus $56,000 for Scheduling and $56,000 for Estimating.

- Environmental Document – DGS anticipates that the CEQA document will be complex due the laboratory-based nature of the project and the large equipment and trucks that will enter and exit the property.

- Due Diligence – This will be a large parcel and may require substantial title search. Bond funding is anticipated for the project financing, which requires a higher level of due diligence.

- State Fire Marshal hourly rates have increased substantially and they now charge hourly for their services rather than a percentage based on project value.

- Acquisition – DGS anticipates a transfer of jurisdiction if a land transfer is involved. This category also includes some site evaluation work.

ARB Southern California Consolidation Project
Comparison of Performance Criteria and Site Acquisition Costs

Project Number	114126		116547		118643		136676	
Project Description	CalTrans District 3		Vets Home Redding		Vets Home Fresno		ARB SoCal Facility	
Total Project Budget	$75,655,000		$88,102,000		$158,633,000		$366,000,000	
Description	**Costs**	**%**	**Costs**	**%**	**Costs**	**%**	**Costs**	**%**
Master Architect	$806,000	1.1	$950,200	1.1	$1,386,800	0.9	$1,900,000	0.5
Stipends	$50,000	0.1	$150,000	0.2	$150,000	0.1	$450,000	0.1
Advertising/Printing	$7,200	0.0	$10,000	0.0	$35,000	0.0	$50,000	0.0
Special Consultants	$112,300	0.1	$239,000	0.3	$271,000	0.2	$800,000	0.2
Project Management	$363,200	0.5	$816,200	0.9	$1,019,000	0.6	$1,100,000	0.3
Contract Construction Management	$206,100	0.3	$447,800	0.5	$860,400	0.5	$800,000	0.2
Environmental Document	$381,000	0.5	$243,000	0.3	$280,000	0.2	$500,000	0.1
Due Diligence	$5,000	0.0	$6,000	0.0	$25,000	0.0	$75,000	0.0
Other – State Fire Marshal	$400	0.0	$1,500	0.0	$5,500	0.0	$18,000	0.0
Small Business Assessment	$5,800	0.0	---	---	---	---	---	---
OSHPD Checking	---	---	$73,300	0.1	$73,300	0.0	---	---
Subtotal: Performance Criteria	**$1,937,000**	**2.6**	**$2,937,000**	**3.3**	**$4,106,000**	**2.6**	**$5,693,000**	**1.6**
Acquisition	$327,000	0.4	$44,000	0.0	$47,000	0.0	$200,000	0.1
Total: Performance Criteria/Acquisition	**$2,264,000**	**3.0**	**$2,981,000**	**3.4**	**$4,153,000**	**2.6**	**$5,893,000**	**1.6**

3. Alternatives: Does ARB have an estimate of ongoing operating and maintenance costs under all of the different alternatives?

   Response: ARB estimated operating and maintenance costs for two of the alternatives listed in the COBCP and two additional alternatives provided at the request of the Legislative Analyst's Office (LAO). ARB assumed that Alternative 4 in the COBCP and LAO Alternative 2 are similar; therefore, a separate breakdown was not provided. The following table summarizes the annual operating and maintenance costs. A description of each alternative is provided following the table. Note that not all alternatives meet program needs. Any upgrade costs to existing facilities are not included.

Alternatives	**Annual Operating and Maintenance Costs (thousands)**							
	Bond Payment / Lease	**Utilities [1]**	**Janitorial [2]**	**Security [3]**	**Testing Services [4]**	**Equipment. Maintenance [5]**	**Facility Repair/ Maintenance [6]**	**Total**
Baseline – Existing Facilities	$2,000	$434	$70	$210	$1,929	$2,213	$306	$7,162
COBCP Alt 1A New Facilities (Preferred)	$24,000	$1,000	$360	$210	$1,929	$2,213	$1,332	$31,044
COBCP Alt. 2 Take No Action	*Same as Baseline – Existing Facilities*							
COBCP Alt. 3 Rebuild on the Existing Site	*Not a viable option; analysis not performed*							
LAO Alt. 1 New Heavy-Duty and Partial Lab; Maintain HSL/ Leases	$15,000	$767	$190	$420	$1,929	$2,213	$750	$21,269
LAO Alt. 2 New Vehicle Testing and Limited Lab, Maintain HSL and Leases	$22,000	$1,207	$349	$420	$1,929	$2,213	$1,337	$29,455

1 Baseline utility costs are based on 2014 data. The utilities for the alternatives are highly dependent upon facility location and design. For the preferred alternative, the utility costs could range from $0.8 million to $1.5 million depending on the level of energy savings. For this analysis, ARB assumed the costs would be $1.0 million. For the other alternatives, ARB assumed the new facility utility costs are proportional to the $1.0 million based on facility square footages, plus the energy costs associated with the existing facilities.

2 Janitorial costs are estimated to be $0.10/sqft per month. Leases include janitorial services.

3 Security costs are based on the current contract for the El Monte facilities. ARB assumed that similar security costs would be incurred for all other alternatives. The LAO Alternative 1 and LAO Alternative 2 costs are double as two separate facilities would be maintained.

4 Testing Services costs are based on current contracts and associated with vehicle procurement, DMV-related costs, and vehicle test system maintenance; costs are ongoing.

5 Equipment maintenance costs are based on current contracts and associated with major vehicle testing and chemical equipment laboratory equipment; costs are ongoing.

6 Baseline repair/maintenance costs of $.44/sqft/month are based on current contracts for electrical, plumbing, HVAC, cardkey systems, deionization water system, and underground storage tanks. Estimates for the alternatives are based on a 20 percent decrease of costs for plumbing, electrical, HVAC, and general maintenance. Therefore, ARB applied a cost of .37/sqft/month to each alternative.

Analysis: The most expensive alternative is the preferred alternative. However, that is primarily due to the bond payment. The preferred alternative includes a $24 million bond payment and approximately $7 million in other operating and maintenance costs. By comparison, under the baseline analysis, the total costs are approximately $7 million. This includes the $2 million dollar lease payment that would not be incurred with the preferred alternative. Similarly, the total operating and maintenance costs including the $2 million lease payment for LAO Alternative 1 and LAO Alternative 2 are $8.3 million and $9.5 million. The operating and maintenance costs for the two LAO alternatives are higher due to the need to maintain the existing facilities.

The analysis shows that the operating and maintenance expenses for the new facility would likely be equal to or less that either the baseline analysis or the two alternatives. Therefore, these costs were not included in the cost analysis presented in the COBCP.

Description of Alternatives:

Baseline – Existing Facilities: Total square footage: 132,000 square feet (67,000 for testing/laboratory; 65,000 for office, shared, and administrative services). Of this amount, HSL is 54,000 square feet, MTA is 4,000 square feet, and Annex 4 is 13,668 square feet.

COBCP - Alt 1A: Total square footage: 299,253 square feet (208,186 for testing/laboratory; 91,067 for office, shared, and administrative services).

LAO Alt. 1: Total square footage: 100,000 square feet for new facility (89,000 for testing/laboratory; 11,000 for office, shared, and administrative services) plus 128,000 square feet for existing facilities.

LAO Alt. 2: Total square footage: 232,300 square feet for new facility (172,300 for testing/laboratory; 60,000 for office, shared, and administrative services) plus 128,000 square feet for existing facilities.