



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

BOARD OF DIRECTORS
AD HOC COMMITTEE ON PORT EMISSIONS

COMMITTEE MEMBERS

NATE MILEY – CHAIRPERSON
TOM BATES
LIZ KNISS
TIM SMITH
GAYLE B. UILKEMA

JOHN GIOIA – VICE CHAIRPERSON
SCOTT HAGGERTY
MARK ROSS
PAMELA TORLIATT

THURSDAY
MAY 17, 2007
9:30 A.M.

FOURTH FLOOR CONFERENCE ROOM
DISTRICT OFFICES

AGENDA

1. **CALL TO ORDER – ROLL CALL**
2. **APPROVAL OF MINUTES OF APRIL 5, 2007**
3. **PUBLIC COMMENT PERIOD** (*Public Comment on Non-Agenda Items Pursuant to Government Code § 54954.3*) *Members of the public are afforded the opportunity to speak on any agenda item. All agendas for regular meetings are posted at District headquarters, 939 Ellis Street, San Francisco, CA, at least 72 hours in advance of a regular meeting. At the beginning of the regular meeting agenda, an opportunity is also provided for the public to speak on any subject within the Committee's subject matter jurisdiction. Speakers will be limited to three (3) minutes each.*
4. **REPORT ON THE SAN PEDRO BAY PLAN AND FOLLOW UP ON OTHER INFORMATION REQUESTS FROM THE APRIL 5, 2007 MEETING OF THE COMMITTEE**

H. Hilken/4642
hhilken@baaqmd.gov

Staff will present a summary of the joint Clean Air Action Plan adopted by the Ports of Los Angeles and Long Beach in November 2006 and will respond to questions from the prior meeting of the committee.
5. **REPORT ON THE CREATION OF A WORKGROUP TO ASSIST THE DISTRICT IN DEVELOPING REGULATORY CONCEPTS**

Brian Bunger/ 4797
bbunger@baaqmd.gov

Staff will present a brief report on the potential members for a workgroup that would assist the Air District in developing regulatory concepts for the San Francisco Bay Area Green Ports Initiative.
6. **COMMITTEE MEMBER COMMENTS/OTHER BUSINESS**

Any member of the Committee, or its staff, on his or her own initiative or in response to questions posed by the public, may ask a question for clarification, make a brief announcement or report on his or her own activities, provide a reference to staff regarding factual information, request staff to report back at a subsequent meeting concerning any matter or take action to direct staff to place a matter of business on a future agenda. (Gov't Code § 54954.2).
7. **TIME AND PLACE OF NEXT MEETING 9:30 A.M. –JUNE 21, 2007 AT PIER 9, SF, CA**
8. **ADJOURNMENT**

**CONTACT CLERK OF THE BOARDS - 939 ELLIS STREET
SAN FRANCISCO, CA 94109**

**(415) 749-4965
FAX: (415) 928-8560
BAAQMD homepage:
www.baaqmd.gov**

- To submit written comments on an agenda item in advance of the meeting.
- To request, in advance of the meeting, to be placed on the list to testify on an agenda item.
- To request special accommodations for those persons with disabilities notification to the Clerk's Office should be given at least three working days prior to the date of the meeting so that arrangements can be made accordingly.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 ELLIS STREET, SAN FRANCISCO, CALIFORNIA 94109
(415) 771-6000

EXECUTIVE OFFICE:
MONTHLY CALENDAR OF DISTRICT MEETINGS

MAY 2007

<u>TYPE OF MEETING</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>ROOM</u>
Board of Directors Regular Meeting (<i>Meets 1st & 3rd Wednesday of each Month</i>)	Wednesday	16	9:45 a.m.	Board Room
Board of Directors Ad Hoc Cme. on Port Emissions (<i>At the Call of the Chair</i>)	Thursday	17	9:30 a.m.	4th Floor Conf. Room
Joint Policy Committee	Friday	18	10:00 a.m. – 12:00 p.m.	Metro Center Auditorium 101 – 8 th Street Oakland, CA 94607
Board of Directors Public Outreach Committee (<i>1st Thursday every other Month</i>)	Monday	21	9:30 a.m.	Board Room
Board of Directors Budget & Finance Committee (<i>Meets 4th Wednesday of each Month</i>) - CANCELLED	Wednesday	23	9:30 a.m.	Board Room
Board of Directors Mobile Source Committee – (<i>Meets 4th Thursday of each Month</i>) - CANCELLED	Thursday	24	9:30 a.m.	Board Room
Board of Directors Executive Committee – (<i>At the Call of the Chair</i>)	Wednesday	30	9:30 a.m.	Board Room

JUNE 2007

<u>TYPE OF MEETING</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>ROOM</u>
Board of Directors Regular Meeting (<i>Meets 1st & 3rd Wednesday of each Month</i>)	Wednesday	6	9:45 a.m.	Board Room
Advisory Council Technical Committee (<i>Meets 2nd Monday of each even Month</i>)	Monday	11	9:00 a.m.	Board Room
Advisory Council Air Quality Planning Committee (<i>Meets 2nd Wednesday of each even Month</i>)	Wednesday	13	9:30 a.m.	Board Room
Advisory Council Public Health Committee (<i>Meets 2nd Wednesday of each even Month</i>)	Wednesday	13	1:30 p.m.	Board Room

JUNE 2007

<u>TYPE OF MEETING</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>ROOM</u>
Board of Directors Stationary Source Committee – (Meets 3rd Monday quarterly) - TO BE RESCHEDULED	Thursday	14	9:30 a.m.	4 th Floor Conf. Room
Board of Directors Stationary Source Committee – (Meets 3rd Monday quarterly)	Friday	15	9:30 a.m.	4 th Floor Conf. Room
Board of Directors Regular Meeting (Meets 1 st & 3 rd Wednesday of each Month)	Wednesday	20	9:45 a.m.	Board Room
Board of Directors Ad Hoc Cme. on Port Emissions (At the Call of the Chair)	Thursday	21	9:30 a.m.	4th Floor Conf. Room
Board of Directors Legislative Committee (Meets 4 th Monday of every Month)	Monday	25	9:30 a.m.	4 th Floor Conf. Room
Board of Directors Budget & Finance Committee (Meets 4 th Wednesday of each Month) - TO BE RESCHEDULED	Wednesday	27	9:30.m.	4 th Floor Conf. Room
Board of Directors Mobile Source Committee – (Meets 4 th Thursday of each Month)	Thursday	28	9:30 a.m.	4 th Floor Conf. Room

JULY 2007

<u>TYPE OF MEETING</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>ROOM</u>
Board of Directors Regular Meeting (Meets 1 st & 3 rd Wednesday of each Month)	Wednesday	4	9:45 a.m.	Board Room
Advisory Council Executive Committee	Wednesday	11	9:00 a.m.	Room 716
Advisory Council Regular Meeting	Wednesday	11	10:00 a.m.	Board Room
Board of Directors Regular Meeting (Meets 1 st & 3 rd Wednesday of each Month)	Wednesday	18	9:45 a.m.	Board Room
Board of Directors Climate Protection Committee (Meets 3 rd Thursday every other Month)	Thursday	19	9:30 a.m.	4 th Floor Conf. Room
Joint Policy Committee	Friday	20	10:00 a.m. – 12:00 p.m.	Metro Center Auditorium 101 – 8 th Street Oakland, CA 94607
Board of Directors Legislative Committee (Meets 4 th Monday of every Month)	Monday	23	9:30 a.m.	4 th Floor Conf. Room
Board of Directors Budget & Finance Committee (Meets 4 th Wednesday of each Month)	Wednesday	25	9:30 a.m.	4 th Floor Conf. Room
Board of Directors Mobile Source Committee – (Meets 4 th Thursday of each Month)	Thursday	26	9:30 a.m.	4 th Floor Conf. Room

hl

5/9/07 (4:25 p.m.)

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BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairperson Miley and Members
of the Ad Hoc Committee on Port Emissions

From: Jack P. Broadbent
Executive Officer/APCO

Date: April 12, 2007

Re: Ad Hoc Committee on Port Emissions Draft Minutes

RECOMMENDED ACTION:

Approve attached draft minutes of the Ad Hoc Committee on Port Emissions meeting of April 5, 2007.

DISCUSSION

Attached for your review and approval are the draft minutes of the April 5, 2007 Ad Hoc Committee on Port Emissions meeting.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

**Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California 94109
(415) 749-5000**

DRAFT MINUTES

Summary of Board of Directors
Meeting of the Ad Hoc Committee on Port Emissions
9:30 a.m., Thursday, April 5, 2007

1. **Call to Order – Roll Call:** Vice-Chair John Gioia called the meeting to order at 9:38 a.m.

Present: Nate Miley, Chairperson (9:46 a.m.); John Gioia, Scott Haggerty (9:50 a.m.), Mark Ross, Tim Smith, Pamela Torliatt (9:42 a.m.), Gayle B. Uilkema.

Absent: Tom Bates, Liz Kniss.
2. **Public Comment Period:** There were none.
3. **Presentation of Emissions from Ports and Marine Activity in the San Francisco Bay Area:**
The Committee received information on emissions from ports and maritime activity in the San Francisco Bay Area. This is an informational item.

Jack Broadbent, Executive Officer/APCO, provided background information and stated that this Committee was formed at the January Board Retreat. There are five ports in the Bay Area and they each need to be under a regulatory umbrella to ensure that emission reductions will take place at these ports.

Director Pamela Torliatt arrived at 9:42 a.m.

In response to a question from Director Uilkema, Mr. Broadbent stated that each port has a distinct boundary and within that boundary are ship, truck, and rail operations. These operations run on diesel and the rule-making process will start off very broadly regarding regulation of these operations. The operations would be treated as stationary sources similar to the flare rule and the Flare Minimization Plans (FMP's).

Chairperson Nate Miley arrived at 9:46 a.m.

Michael Murphy, Advanced Projects Advisor, stated that in addition to emissions from the ports in the Bay Area, there are emissions from other maritime activities, such as ferry boats, commercial fishing boats, and tug boats. Mr. Murphy presented the report and provided information on the following:

- The location and description of the ports in the San Francisco Bay Area, of which there are five, and the location of anchorages eight and nine.

Director Scott Haggerty arrived at 9:50 a.m.

- A list of 2005 ocean going vessel movements within San Francisco Bay. The Port of Oakland has the highest percentage of movements, with the anchorages second. Vessels going to the Port of Oakland generally do not go to the anchorages, but go directly to the port.
- The maritime trade is growing with the largest growth in containerized cargo. Liquid cargo requires more vessels per ton.
- Emissions from maritime activities (diesel PM, NO_x and SO_x). The average length of stay for vessels is 21 hours at the Port of Oakland, 31 hours at the anchorages, and 10 hours at the refineries. Mr. Broadbent noted that the Bar Pilots have offered to provide tours to interested Board members.
- The federal and international measures to control emissions. The Environmental Protection Agency (EPA) has either adopted or proposed new engine emission standards for trains, ships and off-road equipment. The state has also developed measures to control emissions. The \$1 billion state incentive plan is waiting for legislative action and there was discussion on using this funding for shore power for vessels at the ports.
- Overview of current Air District activities. Director Uilkema requested that staff provide follow-up information on the Health Risk Assessment at the Port of Oakland and West Oakland. Director Uilkema also requested more information on the APL Singapore Water Emulsion Fuel Demonstration.

Chair Miley requested that staff provide information on the history and background of the Clean Air Action Plans for the ports at Los Angeles and Long Beach.

In summary, Mr. Murphy stated that the maritime trade is projected to grow significantly, international trade/container volume is the highest growth area, emissions of NO_x, SO_x and diesel PM are projected to increase, and additional action is necessary to ensure that the public's health is protected.

Mr. Broadbent noted that the District has met with several of the stakeholders. Chair Miley requested staff provide a list of all of the stakeholders.

Committee Action: None. This report provided for information only.

4. Discussion of San Francisco Bay Area Green Ports Initiative: *The Committee received information and discussed the new initiative for green ports.*

Brian Bunger, Counsel, presented the report and noted two documents provided to the Committee: 1) San Francisco Bay Area Green Ports Initiative, and 2) San Francisco Bay Green Ports Initiative Regulatory Authority. Mr. Bunger introduced the key staff members who are working on the initiative and rule development: Kathleen Walsh, Bill Guy, and Michael Murphy.

Continuing, Mr. Bunger stated that the port emissions in the Bay Area are significant, with diesel emissions a large contributor at 6 tons a day. This represents 35% of the total emissions and it was noted that diesel emissions are a toxic health risk. The District's current estimates of region-wide port emissions that occurred in 2005 were reviewed. Sources of concern at the ports

include ocean-going vessels, tugs, harbor craft, cargo handling equipment, and refrigerator units on containers to name a few.

The District is proposing to engage in rule making to reduce air pollution and health risks from marine port activities. The District has met with the ports and discussed goals for reduction of emissions at existing and new or expanded marine ports. The ports will develop action plans similar to the Flare Minimization Plans required of the refineries. There was a brief discussion on container fees. Components of the action plans were reviewed.

Mr. Bunger reported that the process has started and there are a number of groups the District has, or will be, meeting with. A Ports Working Group will be established, language for the rule will be developed by the end of 2007, and at the end of the first quarter of 2008 there should be a proposed regulation for the Board's consideration.

Speakers: The following individuals spoke on this agenda item:

Teri Shore
Friends of the Earth
San Francisco, CA 94104

Jay Ach
Port of San Francisco
San Francisco, CA 94111

Committee Action: None. This report provided for information only.

5. **Committee Member Comments/Other Business:** There were none.
6. **Time and Place of Next Meeting:** At the Call of the Chair, with the recommendation that the next meeting be held in approximately six weeks.
7. **Adjournment:** The meeting adjourned at 11:44 a.m.

Mary Romaidis
Clerk of the Boards

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Miley and Members
Of the Ad Hoc Committee on Port Emissions

From: Jack P. Broadbent
Executive Officer/APCO

Date: May 10, 2007

Re: Summary of the San Pedro Bay Clean Air Action Plan

RECOMMENDED ACTIONS

None.

BACKGROUND

The Ports of Los Angeles and Long Beach are the two largest ports in the United States, and combined represent the fifth largest port complex in the world. Nearly 40% of all containerized trade in the United States passes through these two ports. By 2020 container traffic is expected to double. The Ports also have major oil terminals. The movement of goods in and out of this major port complex requires the use of thousands of engines, nearly all diesel fueled.

The high level of emissions, especially of diesel particulate matter, has led to various efforts by the Ports and others to find cleaner and more efficient means for moving containers and other materials. For example, the development of the Alameda Rail Corridor helped shift containers from trucks to rail and a court case by local community members resulted in the Port of Los Angeles developing and installing the nation's first shore power facility for container ships. More recently the Ports combined resources to develop and adopt a unified plan for reducing emissions from both current and future activities. Many of the efforts by the San Pedro Bay Ports may be instructive in formulating strategies to reduce maritime emissions in the Bay Area.

DISCUSSION

In November 2006, the Ports of Los Angeles and Long Beach adopted a joint action plan to reduce emissions by 45 to 50 percent from their respective ports within 5 years, with additional emission reductions occurring over the subsequent ten years. The San Pedro Bay Clean Air Action Plan (CAAP) sets forth actions to reduce criteria pollutants (NO_x, diesel PM and SO_x) and greenhouse gas emissions from the trucks, trains, vessels and off-road equipment involved in moving goods to, from and around the two Ports. The plan was developed in cooperation with the South Coast AQMD, the California Air Resources Board (ARB) and EPA, Region IX. The

goals and measures in the plan build upon the Port of Los Angeles' "No Net Increase" strategy and ARB's recently adopted *Goods Movement Emission Reduction Plan*.

The main goals of the plan are to reduce public health risk from toxic air contaminants, prevent port-related violations of ambient air quality standards and reduce criteria pollutants from port-related activities to ensure a "fair share" contribution towards achieving attainment for the South Coast Air Basin. Additionally, new development projects will be approved by the two Ports only if project emissions do not result in a cancer risk of more than 10 in 1,000,000 persons. This acceptable risk standard will also apply whenever the lease to operate a terminal is let or renewed.

The major initiatives identified in the CAAP are: 1) replacement or retrofit of approximately 16,000 trucks; 2) limit truck access to port terminals to truck firms under contract to the ports, similar to requiring taxis and vans to have a permit to access an airport; 3) development of shore power at all terminals; 4) use of low-sulfur fuel by ocean going vessels; 5) a complete turnover of off-road equipment to engines that meet the very low-EPA Tier 4 emission standards; 6) accelerated deployment of low emission locomotives and harbor craft by the railroad and tugboat companies; 7) a technology advancement program, in partnership with the South Coast AQMD. A mixture of impact fees, bond revenue, and grants from the South Coast Air District will be used to pay for lower-emission engines and emission reduction technology. Attachment 1 provides a complete list of the clean air measures adopted in San Pedro Bay CAAP.

The strategies in the CAAP represent an intensive, and expensive, turn over of the existing fleet of on- and off-road equipment to newer, cleaner equipment. The most extensive changes are proposed for heavy duty trucks used to haul containers to and from the marine terminals. The trucking business is currently dominated by individuals that own and operate a single truck. These owner operators tend to run older trucks and book work through shipping brokers. Beginning in 2008, only trucks operated by licensed motor carriers that have been granted a concession from the Ports will be allowed into the marine terminals. There will be no limit to the number of trucking firms that can be granted an operating concession. The Ports will have a transition period of five years at the end of which there will be no independent owner-operators working at the two San Pedro Bay ports.

Additionally, between 2008 and 2012 older trucks will be phased out of service; by 2012, trucks will need to either meet ARB's 2007 on-road emission standards or be a post 1994 model year truck equipped with a diesel particulate filter. During the phase-out period firms using trucks that do not meet these requirements will be charged a Truck Impact Fee of \$34 per visit to a marine terminal. The proceeds from the impact fee will be used to underwrite the truck replacement and retrofit programs. The cost estimate for reducing the emissions of the trucks is \$1.8 billion.

EMISSIONS AND COSTS

Emissions from activity at the Ports of Los Angeles and Long Beach contribute significantly to the overall emissions within the South Coast Air Basin. Overall, the two ports contribute 12% of the regional diesel particulate matter, 9% of the NOx and 45% of SOx emissions. Heavy duty trucks and ocean going vessels are the two largest source categories of regional emissions, while trucks and locomotives represent the most significant sources of local exposure to harmful diesel particulate matter emissions.

To reduce emissions over the next five years, the Ports propose to expend approximately \$2.1 billion in public funds and impact fees. The Ports have committed \$418 million and the South Coast Air District has committed to date \$47 million in funding. The balance of the public funding would come from either bond funding or impact fees. No estimate of costs to the private sector is currently available.

The Ports are proposing to allocate 87.5% of the \$2.1 billion in funding towards the clean-up of the heavy duty trucks operating at the Ports. Approximately, 10% of the funds are targeted towards reducing ship emissions, largely through the implementation of shore power at the shipping terminals. The reduction of emissions from cargo handling equipment, locomotives, and harbor craft will primarily be funded by the owners of the equipment.

CONCLUSION

The San Pedro Bay CAAP adopted last November by the Ports of Los Angeles and Long Beach represent an ambitious effort to reduce harmful pollutants in a very short period of time. Many of the strategies called for in the CAAP can be implemented at maritime ports in the San Francisco Bay Area, particularly at the Port of Oakland. However, the lower activity levels at Bay Area ports means the proposed CAAP measures can be scaled down in terms of cost and implementation. The San Pedro Bay CAAP, along with the ARB's *Goods Movement Emission Reduction Plan*, represent useful reference points for Bay Area ports in developing their own plans for reducing emissions.

BUDGET CONSIDERATION / FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Michael Murphy
Reviewed by: Henry Hilken

Attachment

Attachment 1
Emission Reduction Measures
San Pedro Bay Clean Air Action Plan

Control Measure	Description	Actions/Standards	Initial Implementation Strategies
SPBP-HDV1	Performance Standards for On-Road Heavy-Duty Vehicles	By 2012, all trucks operated by permit from Ports and meet ARB 2007 emission standards for on-road engines	Incentive/Lease Requirements/ Tariff/Impact fees/CEQA
SPBP-HDV2	Alternative Fuel Infrastructure for Heavy Duty Natural Gas Vehicles	Develop infrastructure for alternative fuels to expand options available to trucking firms	Incentives (Ports & SCAQMD Funding)
SPBP-OGV1	OGV Vessel Speed Reduction (VSR)	Mandatory speed limit of 12 knots per hour within 40 nautical miles of the Ports	Tariff /Incentives/Lease Requirements/CEQA
SPBP-OGV2	OGV Emissions Reduction of At-Berth	Shore power or alternative technology with equivalent emission reductions	Lease Requirements/ CEQA
SPBP-OGV3	OGV Auxiliary Engine Fuel Standards	Use of cleaner fuels with <0.2% sulfur content.	Lease Requirements/Tariff (if applicable)/CEQA
SPBP-OGV4	Main Engine Fuel Standards	Use of cleaner fuels with <0.2% sulfur content.	Lease Requirements/ Tariff (if applicable)/CEQA
SPBP-OGV5	OGV Main & Auxiliary Engine Emissions Improvements	Demonstration program to identify additional controls for ocean going vessel engines	Lease Requirements Incentives/CEQA
SPBP-CHE1	Performance Standards for CHE	Accelerated turn over of the fleet; all engines meet EPA Tier 4 standards by 2014	Lease Requirements/CEQA
SPBP-HC1	Performance Standards for Harbor Craft	Repower of all harbor craft to at least EPA Tier 2 emission standards.	Lease Requirements/CEQA/ Incentives
SPBP-RL1	Pacific Harbor Line Switch Engine Modernization	Upgrade of engines or turn over of fleet to EPA Tier 3 standards once the standards are adopted	Second Amendment to Operating Agreement
SPBP-RL2	Existing Class 1 Railroad Operations	Retrofit of existing locomotives and future upgrade to EPA Tier III engines when available.	MOU/Lease Requirements/CEQA
SPBP-RL3	New and Redeveloped Rail Yards	Performance standards for new rail yards to require use of cleanest engines.	MOU/Lease Requirements/CEQA

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Miley and Members
of the Ad Hoc Committee on Port Emissions

From: Jack P. Broadbent
Executive Officer/APCO

Date: May 10, 2007

Re: San Francisco Bay Area Green Ports Rule Workgroup

RECOMMENDED ACTIONS

None.

DISCUSSION

At the April 5, 2007 meeting of the Ad Hoc Committee on Port Emissions, District Counsel Brian Bunker presented the San Francisco Bay Area Green Ports concept. The District is undertaking a rule development process to address emissions from marine ports and associated activities. To assist in the process, District Staff will convene a working group comprised of 25 to 30 individuals representing a broad range of interests that may be affected by this regulatory effort. District Staff has identified the following individuals and organizations as desired members of the Ports Rule Workgroup:

- Margaret Gordon, West Oakland Environmental Indicators Project
- Representatives from Ports of Oakland, San Francisco, Richmond, Benicia, Redwood City, as well as City of Pittsburg
- Representatives from the cities of Richmond, San Francisco, Oakland, Benicia and Redwood City
- Representatives from terminal operators and truckers
- Labor – Teamsters (Chuck Mack), Longshoreman
- Pacific Merchant Shipping Association
- Bay Planning Coalition
- Air Resources Board
- Sacramento & San Joaquin Air Districts
- Metropolitan Transportation Commission
- Bay Conservation & Development Commission
- SF Bar Pilots

- US Coast Guard
- EPA, Region 9
- Teri Shore, Friends of the Earth

District Staff is in the process of contacting the organizations and individuals identified above. The initial meeting of the Ports Rule Workgroup will take place early this Summer.

BUDGET CONSIDERATION / FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Kathleen Walsh

Reviewed by: Brian Bunger