



Fact Sheet

Oakland International Airport-Materials Management Program (MMP) Updated November 2007

Over the next several years, Oakland International Airport (OAK) has many facilities requiring infrastructure improvements including, maintenance and repair of runways, taxiways, aircraft aprons and buildings. Demolition projects generate substantial quantities of used asphalt, concrete, and soil while construction projects require large quantities of aggregate drain rock, aggregate base (AB) material, and clean fill. In the past, projects trucked demolition materials to regional landfills and recycling centers and paid considerable offsite transport and disposal costs; projects then purchased and transported new construction materials onto the Airport.

Looking ahead to 2011, the Airport's Capital Improvement Program (AIP) includes over 14 facilities and infrastructure projects – both airside and landside - which will generate over 600,000 cubic yards of recyclable concrete, asphalt and soil. Recognizing the environmental and fiscal benefits of a programmatic approach to managing these materials, and the need to import new materials, Port Engineering Division staff responded three years ago by conceptualizing and developing a **Materials Management Program (MMP)** at the OAK. The MMP objectives include:

- Realize significant financial savings by reducing 1) transport and disposal of construction materials to off site landfills and 2) material purchase and transport to the OAK;
- Increase sustainability on Airport projects through recycling and re-use;
- Expand OAK sustainability efforts and reduce impacts to the local and regional communities by reducing truck traffic, truck emissions, and landfill waste; and
- Increase OAK project efficiencies by developing and implementing material handling guidelines.

Program Development

With the need and objectives defined, an interdisciplinary dedicated working group collaborated with Aviation Planning to develop a criteria matrix to score and rank potential sites identified within the OAK. Three Airport sites were subsequently identified as ***potential MMP areas***:

- 65-Acre Site, comprised of two areas in the South Field;
- D-5 Site, located in the North Field adjacent to Harbor Bay Parkway;
- Eden Road Site, at the corner of Doolittle Drive and Eden Road.



Planning & Permits

Once the above potential MMP sites were identified, the following CEQA and permit requirements were completed in preparation of implementing the OAK MMP:

- Final Initial Study / Mitigated Negative Declaration (IS/MND), August 2004
- Final Subsequent Initial Study / Mitigated Negative Declaration for Oakland International Airport Materials Management Program (SIS/MND), March 2005
- Addendum - Final Subsequent Initial Study / Mitigated Negative Declaration, Dec 2006
- Army Corp of Engineers Section 10 Permit, April 2005
- Regional Water Quality Control Board (RWQCB) 401 Certification, April 2005
- FAA 7460 Permit (for two of the designated MMP sites)
- RWQCB Construction General Permit

As soil handling and disposal is a large part of OAK demolition and construction projects, a *Soil Management Protocol (SMP)* was also prepared, submitted and subsequently accepted by the Regional Water Quality Control Board (RWQCB). The SMP outlines project procedures to permit soil disposal and stockpiling at one of the MMP sites. Procedures include the number and types of samples to be collected to ensure soil targeted for stockpiling at the MMP sites is not a risk to human health or the environment. As detailed in the SPM, soil sample analytical results are compared to commercial Environmental Screening Levels (cESLs) developed by the RWQCB, and only those passing the cESLs are allowed to be transported to one of the MMP sites and reused on the OAK.

Business Planning

An MMP Business Plan, including a three year Operating Budget, and project savings projections were prepared to provide the framework for Airport management to evaluate the implementation of the MMP. Business planning included compiling and analyzing costs associated with Port staff labor, consultant services, and a local impact area on-call contractor required to prepare, implement and manage MMP site operations, and to report on the performance of the OAK MMP operations.

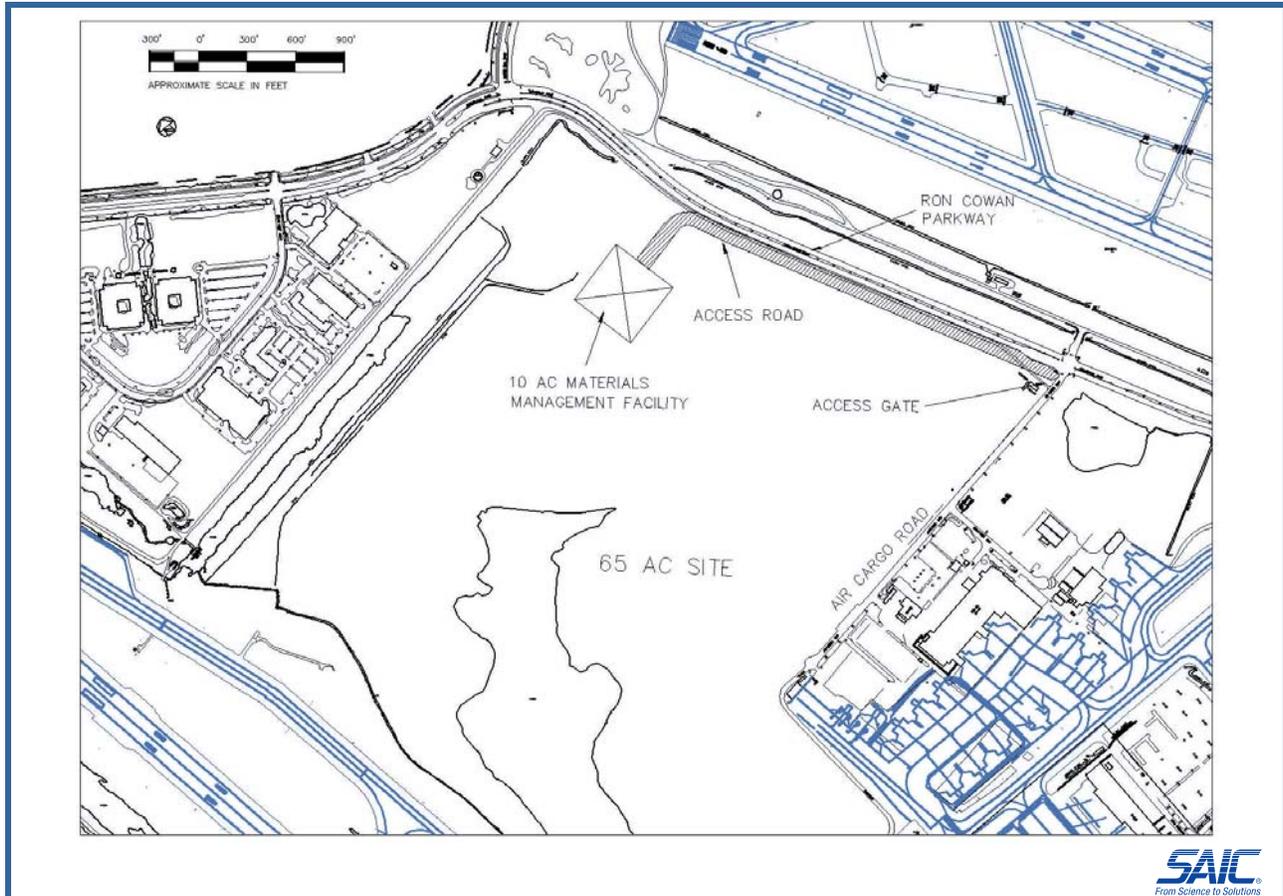
Stakeholder Communications and Input

Planning efforts also included obtaining OAK stakeholder input regarding construction project schedules, material disposal and import estimates, traffic routes, material hauling schedules, and communication needs. Input from the stakeholders was incorporated into the Business Plan as well as MMP Site Operating Procedures. An OAK MMP Fact Sheet was prepared and distributed and will be periodically updated, aiding in increased communications with the OAK, Port and community stakeholders.

MMP Coordination and Site Preparation

An MMP Coordinator was identified and given the responsibility for coordinating the implementation of the program. Additional Finance, Engineering and Facilities staff also support the coordination of project disposal and import needs, cost tracking and reporting. To optimize timely reuse of processed materials, the MMP Coordinator obtains quarterly updates of construction and utility project schedules and material import needs on Airport construction, maintenance, and roadway projects.

Site layout plans detailing the location of crushing equipment and material stockpiles were developed, reviewed and approved by the FAA and Airport Security. Truck routes and schedules were communicated and confirmed with community stakeholders. Site grubbing, grading, construction of fencing and gates was completed at the D-5 and the 65-Acre Sites in preparation for receiving material. Although the D-5 Site was initially used to stockpile, crush and recycle construction materials, the primary MMP site being used to stockpile, crush, and recycle material is the ten acre MMP site, located adjacent to Ron Cowan Parkway.



On-Call Crushing Contractor

The Port prepared a Request for Proposal for On-call Crushing Services, and bids were solicited from local and regional companies known to provide expertise in material management and crushing operations and services. Bids were received and a qualified Local Impact Area Business Enterprise (LIABE) was retained to provide as needed material crushing services at the OAK MMP sites.



Site preparation including grading, fencing, and a locked gate was completed at two sites. A Pilot Study was completed at the D-5 Site and the operations and procedures refined.

Since April 2005, over 158,000 tons of concrete and asphalt has been stockpiled at the D-5 and 65-Acre MMP sites and subsequently crushed to Federal Aviation Administration (FAA) P-209 and P-154 aggregate base specifications.

To date, approximately 130,000 tons of crushed material has been reused on OAK projects.



Stockpile of P-209 at OAK MMP site off Ron Cowan Parkway. Nov 2007

Operating Procedures

MMP Operating Procedures were prepared and distributed to OAK staff and contractors most likely to utilize the MMP for material disposal and reuse. Guidelines provided include site contact data, site utilization procedures, security requirements, optimal truck routes to access the MMP sites, and steps for coordinating and scheduling project disposal and material import activities. Training programs have been implemented to ensure OAK staff and contractors understand the Operating Procedures and what is specifically “In” and “Not In” the OAK MMP.

What’s Allowed at the OAK MMP

- Stockpile concrete and asphalt generated outside the Port and within the OAK and Port areas.
- Crush, weigh, transport and reuse concrete and asphalt on OAK and Port projects.
- Stockpile and reuse soil from OAK projects meeting the RWQCB commercial Environmental Screening Levels (cESL).

What’s Not Allowed at the OAK MMP

- Stockpile and reuse of soil outside the Port
- Fill
- Other waste

Stockpile Management and MMP Site Maintenance

Based on OAK construction project schedules and needs, material disposal to and reuse from the MMP Sites are anticipated to be intermittent over the five year Master Plan. During the wet season, the MMP Coordinator ensures documentation and compliance with the applicable Storm Water Pollution Prevention Plan (SWPPP) monitoring requirements. In addition, during periods of inactivity, the MMP Coordinator conducts daily site visits to ensure site security and stockpile management compliance.

OAK MMP Site Operations (July 2004 – September 2007)

The 65-Acre Site is currently used as the active MMP site for material stockpiling, crushing, and reuse operations. A permanent scale and ticket reader are located at the 65-Acre Site and used to weigh aggregate and soil as reused.

CIP and facility projects continue to coordinate and stockpile the following construction materials at the 65-Acre Site:

- Concrete
- Asphalt Grindings
- Soils passing commercial Environmental Screening Levels (cESLs)
- Green Waste

The Port LIABE contractor crushes stockpiled materials to FAA Specified P-209 and other aggregate as requested.



Concrete stockpiled at MMP site off Ron Cowan Pkwy. Nov 2007

OAK MMP Performance through September 2007

The Port has successfully implemented three years of operations and financial management of the OAK MMP. From July 2004 through September 2007, the MMP has documented significant project cost savings by reducing offsite material disposal and import.

- Eleven projects have disposed of approximately 420,463 tons of construction materials to the MMP sites resulting in disposal savings estimated at \$4.9 million.
- Nine projects have reused approximately 129,860 tons of recycled and crushed materials from the D-5 and 65-acre MMP sites resulting in material transport and import savings estimated at \$686,136.

The OAK MMP has created sizeable project efficiencies by allowing for large quantities of soil, concrete, asphalt, and aggregate base to be transported quickly between project sites and the OAK MMP sites, resulting in a significant decrease in trucking activities and trucking schedules.

The OAK MMP operations including stockpile management and crushing costs totaling \$1 million have been reimbursed by the nine projects below that have reused the aggregate base.

| Project Disposing of Materials to OAK MMP Sites | Projects Reusing MMP Materials |
|--|---------------------------------------|
| Overlay of Taxiway D & Construction of Drainage Improvements | East Apron Phase 1 |
| L-812 Reconstruction of Aircraft Apron | East Apron Phase II |
| Hangar 7 & 8 Reconstruction | Terminal Two Extension |
| East Apron Phase 1 | UST Liability Account |
| East Apron Phase II | Airport Facilities |
| Terminal Two Extension | Hangar 1-5 Reconstruction |
| Airport Roadways & Parking Lot | Runway 27L |
| Airport Signs Project | South Field Dike Repair |
| Hangar 1-5 Reconstruction | Terminal Two Extension |
| FedEx Ramp Repair | UST Liability Account |
| Airport Facilities | |

Environmental Outcomes and Benefits

The OAK MMP has helped to achieve Port Sustainability, Recycling and Diversion of Waste goals, and in achieving the following outcomes:

- Increased sustainability by recycling and reusing construction materials;
- Reduced regional truck traffic and road congestion resulting in over 80,000 pounds of air pollutant emission reductions;
- Reduced waste in regional landfills;
- Performed studies and mitigating impact to the Northern Harrier;
- Conducting MMP activities away from sensitive areas.



In the fall of 2006, OAK prepared and submitted an application summarizing the program design, objectives and performance benchmarks for the OAK MMP. OAK was subsequently awarded the **Airports Council International 2006 Environmental Achievement Award for the OAK MMP.**

OAK MMP Emission Reductions

The OAK MMP allows for the recycling of construction waste at the Airport rather than transporting the material long distances such as Livermore. It also allows for the production of aggregate base on the Airport rather than obtaining quarry supplied rock from regional quarries. By disposing of material at the OAK MMP, the net reduction in travel distance is approximately 74.4 miles per round trip, assuming material is disposed at a landfill in Livermore.

As summarized below, in the first two years of the program, the Port **achieved 64,455 pounds in Disposal Emission Reductions** through the disposal of concrete, asphalt, and soil to the OAK MMP sites. Based on similar disposal quantities, comparable emission reductions are anticipated for 2007 and 2008.

Emission Reductions from Disposal of Materials to OAK MMP (July 04 to Dec 06)

| Pollutant | July 04/2005 Emissions | 2006 Emissions | Total Emissions (lbs) |
|------------------|-------------------------------|-----------------------|------------------------------|
| ROG | 925 | 871 | 1,796 |
| CO | 4,160 | 3,912 | 8,072 |
| NO _x | 27,392 | 25,671 | 53,063 |
| PM ₁₀ | 510 | 481 | 991 |
| SO _x | 266 | 267 | 533 |
| Totals | 33,253 | 31,202 | 64,455 |

The nearest quarry to OAK is in Fremont, 38.0 miles per round trip. As summarized below, in the first two years of the MMP, OAK has **achieved 9,325 pounds in Emission Reductions by reusing 96,000 tons of aggregate base** from the OAK MMP sites.

Emission Reductions from Reuse of Materials from OAK MMP (July 04 to Dec 06)

| Pollutant | July 04/2005 Emissions | 2006 Emissions | Total Emissions (lbs) |
|------------------|-------------------------------|-----------------------|------------------------------|
| ROG | 134 | 126 | 260 |
| CO | 602 | 566 | 1,168 |
| NO _x | 3,962 | 3,713 | 7,675 |
| PM ₁₀ | 74 | 70 | 144 |
| SO _x | 39 | 39 | 78 |
| Totals | 4,811 | 4,514 | 9,325 |

For 2007 and 2008, the MMP Team estimates an additional 7,858 pounds in emission reductions will be achieved by reusing crushed aggregate and soil from the OAK MMP sites.

OAK MMP Emission Equivalencies

Based on the above OAK MMP disposal and reuse activities from July 2004 through January 2007, the following Airport truck emissions equivalencies, by pollutant, have been achieved:

- Total Carbon Monoxide emissions saved = 9,240 pounds
- Total NO_x emissions saved = 60,738 pounds
- Total SO_x emissions saved = 611 pounds
- Total PM emissions saved = 1,135 pounds

Social Benefits realized through the OAK MMP program include:

- Increased communication with Port staff, contractors and community stakeholders;
- Hired Local Impact Area Business Enterprise crushing contractor.

Engineering Best Management Practices achieved include:

- Continued support of the Airport Development Program and expanded support of OAK Facility project disposal and reuse needs and savings.
- Continued collaboration with Port Finance to ensure integrated MMP budgets into Aviation AIP and MMP financial tracking and reporting.
- Coordination with Aviation Facilities for the disposal and tracking of concrete, asphalt, soil and green waste generated by Facilities.
- Achievement of project efficiencies with continuous process improvement (Soil Summit I, II, III, Annual Reports, and Lessons Learned meetings with Port Resident Engineers).
- Updating and improving centralized coordination and security procedures; and
- Expanding use of Local Impact Area consultants for specialized tasks.
- Ongoing operational documentation, financial tracking and reporting.

For further information on the OAK MMP, contact Douglas Herman, MMP Coordinator and Port Environmental Scientist at (510) 627-1184.



**Stockpiled Asphalt, Concrete and Soil
Blended to Create P-209**



**Newly Crushed P-209 Conveyed and
Stockpiled for Reuse**