HAWAI'I BROWNFIELDS CLEANUP REVOLVING LOAN FUND

Annual Report to the Twenty-Sixth Legislature, Fiscal Year 2011

Prepared by the Office of Planning
Department of Business, Economic Development & Tourism

In Response to Hawai'i Revised Statutes § 201-18(e)

Honolulu, Hawai'i
January 2012

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Annual Report to the Twenty-Sixth Legislature, Fiscal Year 2011

This annual report is prepared pursuant to Hawai'i Revised Statutes (HRS) § 201-18(e). It provides an overview of activities and transactions related to the Hawai'i Brownfields Cleanup Revolving Loan Fund (HBCRLF), which was established by 2002 Haw. Sess. Laws Act 173 and codified as HRS § 201-18, pursuant to 2007 Haw. Sess. Laws Act 20.

1. Introduction

In recognition of the affect of the presence of 'brownfields' on public health and community economic vitality, the U.S. Environmental Protection Agency (EPA) established a Brownfields Economic Redevelopment Initiative in the 1990s to facilitate state and local efforts to redevelop brownfields sites. A 'brownfield' site is defined as "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presences of a hazardous substance, pollutant, or contaminant" in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. § 101(39). As part of this Initiative, the EPA established a Brownfields Cleanup Revolving Loan Fund (RLF) grant program to capitalize state and local revolving loan funds for low-cost loans for the cleanup of contaminated sites.

In 2002, a coalition of the Department of Business, Economic Development and Tourism (DBEDT), the City and County of Honolulu and the County of Maui received a grant of $2.0 million from the U.S. Environmental Protection Agency (EPA) to establish and capitalize the Hawai'i Brownfields Cleanup Revolving Loan Fund. The purpose of the Hawai'i Brownfields Cleanup Revolving Loan Fund is to provide a source of funding for low interest loans or other financial assistance to eligible public, private, and nonprofit borrowers for the cleanup of contaminated sites, and confirmation sampling and site monitoring activities necessary to determine the effectiveness of a cleanup or remedial action. All environmental response activities receiving grant funds must be conducted in accordance with CERCLA (42 U.S.C. § 9601 et seq.), as amended, and must be consistent with the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300, as amended.

Brownfields redevelopment serves several objectives. One is the economic revitalization of communities through the redevelopment and reuse of abandoned or underutilized sites. Another is the elimination or reduction of potential public and environmental health risks through the cleanup of contaminated sites. Brownfields redevelopment also promotes more efficient and effective use of the State's existing urbanized areas, and assists in reducing development pressure on undeveloped open lands or agricultural lands.

2. HBCRLF Program

The primary objective of the HBCRLF is to facilitate the reuse and/or redevelopment of contaminated sites by making low-cost financing available for the cleanup of eligible public or

privately-held properties. The funding sources for this endeavor are the EPA Brownfields Cleanup Revolving Loan Fund grant moneys, HBCRLF program fees, repayment of loan principal and interest, and other federal or private funds deposited in the revolving fund.

The HBCRLF is administered in accordance with Hawai‘i Administrative Rules (HAR) Chapter 15-155, adopted in 2005, a program implementation plan approved by EPA in 2005, and a Hawai‘i Brownfields Cleanup Revolving Loan Fund Memorandum of Agreement executed and amended in October 2008 by the three coalition partners and their technical advisor, the State Department of Health, Office of Hazard Evaluation and Emergency Response (HEER Office). The Memorandum of Agreement defines the program structure, roles of the partner entities, and general procedures for administering the loan fund.

OP is the Project Manager for the grant, and is responsible for program activities and loan administration, as well as all administrative and fiscal reporting. The HEER Office serves as the Site Manager providing the technical oversight of all cleanup activities funded through the HBCRLF. The county partners are primarily responsible for providing a county liaison to the program, and ensuring that cleanup projects are consistent with county plans and community involvement requirements are met for cleanup activities under the loan program. A Coalition Loan Committee representing the State, the City and County of Honolulu, and the County of Maui will be responsible for approving all loans. Information on the HBCRLF program is available on the DOH HEER Office website at http://hawaii.gov/health/environmental/hazard/brownfields.html.

3. Summary of Fiscal Year 2011 Activities and Accomplishments

3.1 Loan Fund Activities and Transactions

In June 2009, DBEDT and the Department of Hawaiian Home Lands (DHHL) executed loan agreement HBCRLF 09-01 for $1.97 million for the remediation or cleanup of the former ‘Ewa Sugar Company’s East Kapolei Pesticide Mixing and Loading (East Kapolei PML) Site in East Kapolei, O‘ahu. The site is a priority for cleanup of the DOH and EPA. DHHL acquired the site along with the surrounding 400 acres to build the East Kapolei II residential community for Native Hawaiians. Additional information on the site and the East Kapolei II project are included in the attached Final Performance Report to EPA.

The DHHL loan was not charged interest or fees and was awarded a twenty percent discount on the repayment amount, as allowed for eligible public entities under EPA grant guidelines. The loan is to be repaid with a single lump-sum payment within six months of the issuance of a letter of completion from DOH. The first loan funds were disbursed to DHHL in Fiscal Year (FY) 2010. OP disbursed the final loan funds to DHHL for cleanup activities in FY 2011, and DHHL’s remediation contractor has begun site remediation activities. Repayment of the loan to the revolving loan fund is expected to occur in FY 2013, at which time funds will be available for new loans.

3.2 State HBCRLF Special Fund Revenues and Expenditures

The table below summarizes financial transactions for the HBCRLF Special Fund, Appropriation Symbol, S 359 B, which occurred or is anticipated to occur during the FY 2010-2012 period. The annual appropriation ceiling for the Fund was raised to $2 million pursuant to 2011 Haw. Sess. Laws Act 28, to facilitate the transfer of loan funds for larger loans.

HBCRLF Special Fund (S 359 B) Revenues and Expenditures
(In Thousands)

	FY 2010	FY 2011	FY 2012
Beginning Fund Balance	$ 0.0	$ 0.0	$ 0.0
Revenues			
EPA grant funds	452.1	1,517.9	-
Fees	-	-	-
Repayment of principal	-	-	-
Interest on loans	-	-	-
Interest	-	-	-
Expenditures	452.1	1,517.9	-
Ending Fund Balance	$ 0.0	$ 0.0	$ 0.0

3.3 EPA Grant Expenditures and Grant Closeout

The EPA RLF grant ended on April 30, 2011, and OP submitted all necessary documents to close out the grant, including the submission of a final performance report, a copy of which is attached.

The EPA grant expenditures for the grant period are summarized in the table on the following page.

EPA and DBEDT are executing a Closeout Agreement in accordance with EPA financial assistance guidelines for revolving loan fund grants. The Closeout Agreement ensures that EPA eligibility criteria for sites and prospective borrowers are maintained for at least one year following the end of the grant.

Summary of Grant Expenditures by Grant Workplan Task

Workplan Task		Grant Expenditures
1	Establish Program Structure	$ -
2	Develop Program Documents	296.46
	Public notice/Ads	296.46
3	Outreach & Marketing	22,194.27
	Training	
	Travel, subsistence, fees	18,512.39
	Misc subscriptions	1,187.80
	Outreach	
	Liaison travel, subsistence, fees	865.81
	Conference costs, speaker expenses	1,260.36
	Supplies	367.91
4	Loan Solicitation & Awards	1,970,151.20
	Loan awards	1,970,000.00
	Travel, subsistence	151.20
	Dun-Bradstreet subscription/fees	-
5	Site Community Involvement	3,415.00
	Travel, subsistence	3,415.00
6	Site Management	-
7	Administration & Reporting	3,943.07
	Supplies	161.21
	Indirect cost charges for all tasks	3,781.86
TOTAL		$ 2,000,000.00

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3.4 Other Activities

East Kapolei PML Project Activities. Program staff collaborated with DBEDT's Strategic Industries Division staff to plan and conduct an ecocharrette brainstorming session with DHHL and DOH staff to determine the viability and parameters for an ecocharrette for EKPML site redevelopment. DHHL ultimately determined that they could not pursue an ecocharrette at this time since actual development of the site is a year or more out. Appendix D in the attached *Final Performance Report* provides summary notes on ideas and principles to be considered should an ecocharrette be considered at a later date. Program staff will continue to monitor cleanup activities at the EKPML site and ensure that the loan funds are repaid in accordance with the executed loan agreement.

Program staff also participated in the DOH-sponsored Annual Brownfields Forum, which was held in conjunction with a DBEDT-sponsored Build Green, Buy Green Conference on May 24,

2011. Staff also assisted the HEER Office with inquiries they received related to the availability of brownfields funding for cleanup and remediation.

4. Activities Planned for Fiscal Year 2012

Program staff will continue to collaborate with the DOH HEER Office and county partners on brownfields redevelopment initiatives and outreach statewide as opportunities arise. As the DHHL loan repayment timeframe approaches, staff will work with coalition partners to conduct informal marketing and outreach to identify prospective sites and solicit new loan applications.

ATTACHMENT A

Final Performance Report for the Hawaii Brownfields Cleanup Revolving Loan Fund Pilot, EPA Cooperative Agreement BL 97943301

Submitted to U.S. Environmental Protection Agency, Region 9, on September 12, 2011, in partial fulfillment of grant closing requirements

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

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September 12, 2011

Mr. Wallace Woo
U. S. Environmental Protection Agency, Region 9
75 Hawthorne Street, SFD-1
San Francisco, California 94105

Dear Mr. Woo:

Subject: Final Performance Report for Grant Closeout,
Hawai'i Brownfields Cleanup Revolving Loan Fund (HBCRLF) Pilot
Cooperative Agreement BL-97943301-3

On behalf of the Cooperative Agreement (CA) recipient, the State Department of Business, Economic Development and Tourism, the Office of Planning (OP) submits the attached original and two copies of the Final Performance Report for the subject grant. The Office was granted a request to submit the final report by September 1, 2011.

This completes the CA recipient's closeout requirements for the grant, which ended April 30, 2011.

We appreciate all the support that you and prior Project Officer and Grant Management Specialists have provided us over the years, and will continue to provide low-cost financing through the HBCRLF Program to support the redevelopment of eligible contaminated properties.

If you have any questions, please call Ruby Edwards at (808) 587-2817.

Sincerely,

Jesse K. Souki
Director

Enclosures

c: Vernese Gholson, EPA Region 9
Alan M. Arakawa, Mayor, County of Maui
Richard C. Lim, Director, DBEDT
Tim Steinberger, Director, Dept. of Environmental Services, City & County of Honolulu
Keith Kawaoka, DOH HEER Office
Dennis T. Ling, SMSD, DBEDT
Timothy Houghton, Dept. of Environmental Services, City & County of Honolulu

Hawaii Brownfields Cleanup Revolving Loan Fund Pilot
COOPERATIVE AGREEMENT BL-97943301-3

FINAL PERFORMANCE REPORT

Coalition Partners: State of Hawai'i
City and County of Honolulu
County of Maui

Grant & Program Manager: State Office of Planning
Department of Business, Economic Development & Tourism

EXECUTIVE SUMMARY

In May 2002, the U.S. Environmental Protection Agency (EPA) awarded a $2 million grant to a coalition of the State of Hawai‘i, the City and County of Honolulu, and the County of Maui for a Brownfields Cleanup Revolving Loan Fund (BCRLF) Pilot project in Hawai‘i. The BCRLF program provides a source of low-cost financing to eligible public, private, and non-profit borrowers for the cleanup of contaminated sites across the State.

DBEDT is the BCRLF Cooperative Agreement Recipient, and the Office of Planning (OP), administratively attached to DBEDT, is the BCRLF Project Manager and Fund Manager. DOH's Office of Hazard Evaluation and Emergency Response (DOH-HEER) serves as the Site Manager for the Hawai‘i BCRLF Program and provides technical oversight through its Voluntary Response Program (VRP) and its authority to enter into Agreements for Remedial Action pursuant to Chapter 128D, Hawai‘i Revised Statutes (HRS).

The Cooperative Agreement was approved by U.S. EPA Region 9 in September 2002. A revised workplan and budget that allocated almost all of the grant funds to direct loans was approved in November 2004. A memorandum of agreement between Coalition members and the State program team formalizing the program structure, the BCRLF program's administrative rules, and the Program Implementation Plan and sample loan documents were all formally adopted in 2005.

The BCRLF program received two loan applications once the program was operational. The first loan application file was closed due to the inability of the loan applicant to secure funding to move forward with final acquisition of the project site. In 2009, a loan for up to $1.97 million was executed with the second loan applicant, the State Department of Hawaiian Home Lands (DHHL), for the cleanup of a former pesticide mixing and loading facility site on the island on O‘ahu.

As a result of uncertainty and delays associated with the first loan application and pre-cleanup activities required for the PML site—a high priority site for the State Department of Health and EPA—the grant period was extended twice with the final grant period ending on April 30, 2011. Loan fund disbursement for the DHHL cleanup was completed in May 2011. Cleanup at the PML site is anticipated to be completed by the end of 2011 or January 2012. DHHL will make a lump-sum repayment of loan funds within six months of the issuance of a "No Further Action" letter from DOH-HEER.

Pursuant to grant closure requirements, the Hawai‘i BCRLF Program will continue to solicit and fund cleanup loans for eligible properties and borrowers as funds from BCRLF loans are repaid. OP and DBEDT will continue to collaborate with DOH-HEER and other State and County agencies to identify and market the loan fund to potential loan applicants on an ongoing basis.

The following describes program highlights during the grant period and program performance.

1. PROJECT WORKPLAN GOALS & OBJECTIVES

The BCRLF grant was envisioned as a means to promote the reuse of contaminated sites through the capitalization of low-cost loans for site cleanups, thereby stimulating new economic activity where investments in infrastructure, facilities, and services have already been made. Brownfields redevelopment is also an important tool for infill redevelopment and directing growth away from Hawai‘i’s open space and productive agricultural lands.

Goals. The primary goals of the Hawai‘i BCRLF Program are to incentivize the redevelopment of contaminated sites to spur the reuse of such properties, and to reduce or remove the public health risks of contaminated sites to their surrounding communities through site remediation or cleanup.

Objectives. The BCRLF grant workplan identified the following objectives for the BCRLF program:

(1) Increase the number of properties cleaned up for redevelopment through BCRLF loans;
(2) Establish an effective revolving loan fund program that stimulates public and private activity in brownfields cleanup and reinvestment;
(3) Leverage resources and assistance from a range of federal, State, County, and private sources for the revitalization of brownfields sites;
(4) Increase the County property tax base and State revenue tax base by promoting economic reuse of idled brownfields sites;
(5) Expand the range of tools and programs available in the State to promote brownfields redevelopment; and
(6) Promote the use of sustainable technologies and materials in the cleanup and development of brownfields projects.

While the primary focus of the BCRLF grant program was to establish the loan fund program and make loans for cleanups, the Coalition grant’s reliance on State and County partners was also seen as an opportunity to build State and County brownfields development capacity and to foster mutually supportive, working relationships among State and County brownfields activities. The BCRLF grant added a new tool to Hawai‘i’s evolving brownfields program, which is a collaboration of State and County brownfields activities funded in large part by EPA Brownfields grants.

2. PROGRAM MILESTONES & MEASURES

2.1 Milestones

Grant Application and Award **October 2001 – May 2002**

DBEDT submitted the Coalition grant application in October 2001; EPA awarded a grant of $2 million to the Coalition in May 2002. The BCRLF grant was awarded under Section 104(d) of the U.S. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), which was a pilot brownfields grant program. Authorization for a Hawai‘i Brownfields Cleanup Revolving Loan Fund program and the creation of a State special fund for the revolving loan fund was enacted by the Governor in June 2002, with a sunset date of June 30, 2007 (Act 173, Session Laws of Hawai‘i 2002).

Cooperative Agreement and Approved Workplan **September 2002**

EPA Region 9 executed a Cooperative Agreement (CA) with DBEDT and approved the grant workplan in September 2002. The CA grant period was from October 1, 2002 to September 30, 2007. The workplan outlined tasks and activities for three phases: program development, outreach and marketing, and program implementation.

A revised workplan and budget were approved in November 2004 based on agreements worked out with DOH-HEER and DBEDT's Strategic Marketing and Support Division (DBEDT-SMSD) to use State agency capacity to perform the technical oversight and loan servicing components of the BCRLF Program. A two-year grant extension and an 18-month grant extension, in September 2007 and October 2009 respectively, were awarded by EPA Region 9 to allow for completion of pending loan applications and loan fund disbursements.

Program Structure Established **May – August 2005**

The key program elements of the Hawai'i BCRLF Program were in place by August 2005. A memorandum of agreement between the State and County Coalition members, which formalized the roles and responsibilities of Program partners and operational procedures for the program, had been executed. The BCRLF Program's administrative rules were adopted. The Program's Implementation Plan—the procedural manual for Program operations and administration—and loan document templates were approved by EPA Region 9. See **Appendix A** for a diagram of the BCRLF Program partner roles and responsibilities and process flows for a BCRLF loan under the State's Voluntary Response Program. A Coalition Partners' Orientation and an informational workshop for public, private, and non-profit stakeholders conducted in July 2005 launched the Program.

Outreach and Marketing **2002 – Ongoing**

The approved BCLRF Implementation Plan includes a marketing strategy. Networking with State and County agencies with brownfields programs, including a brownfields job training grant, and consultation with and training of the BCRLF Coalition partners, in particular, County program liaisons, has been a key element in making key brownfields agents aware of the Program. The Program paid for County program liaisons' participation at brownfields conferences and regional workshops to enable them to be informed advocates for the Program as well as a source for referrals in their counties.

Program staff participation in community and agency meetings held in each county conducted under various State and County Brownfields Site Assessment Grants in 2004-2005 was useful in informing community groups and decisions makers of the availability of low-cost financing for sites that were being considered for site assessments under those grants. Participation in the Brownfields Working Group convened under DBEDT's 2000 Brownfields Site Assessment Pilot Grant, and later DOH-HEER's Brownfields Forums, provided opportunities to inform a cross-sector of entities of the BCRLF Program and to have Program information and application packets available for interested parties. Program staff has worked with DOH-HEER and the Hawai'i Community Development Authority to ensure that staff are aware of the BCRLF Program and can inform potential project developers of the availability of low-cost cleanup loans through the Program. Staff has also worked with DOH-HEER and the Center for Creative Land Recycling to have BCRLF

program and contact information posted at their respective websites. OP staff has made presentations at conferences and for individual groups to provide information on the BCRLF Programs, and has met with private firms and individuals who have expressed interest in the BCLRF Program. The Program was included in a *Pacific Business News* article on brownfields programs in Hawai‘i.

Program Implementation: Loan Awards & Cleanups **May 2005 – Ongoing**

The Program received two serious loan inquiries before making its first loan to the State Department of Hawaiian Home Lands in May 2009. The first loan application resulted from a referral from DOH-HEER in May 2005. The applicant was negotiating a Prospective Purchaser Agreement (PPA) with EPA Region 9 for the cleanup and redevelopment of a long-abandoned wood treatment facility on O‘ahu, which was under an EPA enforcement order. Despite two years of ongoing consultations and trouble-shooting with the loan applicant, EPA, and DOH-HEER, complications related to acquisition of the site from the bankruptcy trustee ultimately led to the Program formally closing the loan application file in June 2008. The second loan inquiry from a State agency for the cleanup of State land in Kaka‘ako on O‘ahu was also filed when EPA determined that the agency was ineligible to borrow under the BCRLF grant guidelines.

Program staff assisted DHHL with its October 2008 Brownfields Cleanup Grant application for the East Kapolei Pesticide Mixing and Loading Facility (EKPML) site, and suggested they consider applying for a cleanup loan to complement any future cleanup grant award. After a determination in January 2009 by EPA Region 9 that DHHL was eligible to borrow from the BCRLF Program, DHHL submitted a loan application in April 2009. The loan review and award process culminated in a loan agreement executed in June 2009. Remediation of the site is scheduled to be complete in early 2012. Additional information related to the EKPML cleanup loan and project is provided in Section 4 and **Appendix B**.

2.2 Measures

The following table summarizes key program measures identified in the BCRLF grant workplan.

Program Measure	
Number of inquiries received for BCRLF loan program	14 [1]
Number of BCRLF loan applications received	2
Number of BCRLF loans made	1
Amount of BCRLF funds loaned	$1.97 million
Number of properties with cleanup activities started using BCRLF funds	1
Funding leveraged from other sources for BCRLF-funded cleanup project	$109,000 [2]
Total acreage of BCRLF-funded cleanup sites	2.56 acres
Total project acreage impacted/influenced by BCRLF-funded cleanups	375 acres
Total number of agencies/organizations worked/working with through BCRLF program	23 [3]

[1] Known logged.

[2] Limited to DHHL funds expended for sub-surface sampling and analysis performed at EKPML site.

[3] Includes in addition to BCRLF Program partner agencies, Hawaii Community Development Authority, State Department of Land & Natural Resources, County planning departments, County economic development agencies, University of Hawai'i Honolulu Community College, Moloka'i Community Services Council, NOAA Office of Response & Restoration, and U.S. Housing & Urban Development Honolulu Office.

3. PROGRAM BUDGET & EXPENDITURES

3.1 Budget and Expenditure Summary

The original 2002 Workplan budget allocated approximately $508,000 for contractual services for loan services and technical assistance in overseeing cleanup activities, with $1.4 million allocated for loan capitalization. OP estimated its in-kind staff support for the Program for the five-year grant period would be a minimum of $270,000. When the BCRLF Program was restructured in 2004 to partner with DOH-HEER and DBEDT-SMSD for technical oversight of loan-funded cleanups and loan support services, respectively, the Workplan budget was subsequently revised to shift the cost savings to direct loans, resulting in $1.912 million allocated for loans and $88,000 for program expenses.

The following table summarizes the BCRLF Program budget in the 2004 Workplan and actual expenditures by Workplan tasks. The variance in budgeted and actual expenditures reflect programmatic decisions to not pursue certain expenditures in favor of directing the balance of funds—approximately $53,000—to loan capitalization. (For example, a decision was made not to use $30,000 in grant funds for a proposed Brownfields conference. DOH-HEER has

subsequently sponsored a successful annual Brownfields forum with EPA State and Tribal Response Program grant funds.)

Summary of Grant Budget, Expenditures, and Variance

	Workplan Task	Grant Budget (2004 Workplan)	Grant Expenditures	Variance
1	Establish Program Structure	$ -	$ -	$ -
2	Develop Program Documents	600.00	296.46	303.54
	Public notice/Ads	600.00	296.46	303.54
3	Outreach & Marketing	73,115.00	22,194.27	50,920.73
	Training			-
	Travel, subsistence, fees	30,700.00	18,512.39	12,187.61
	Misc subscriptions	675.00	1,187.80	(512.80)
	Outreach			-
	Liaison travel, subsistence, fees	2,640.00	865.81	1,774.19
	Brochure design, printing	8,300.00	-	8,300.00
	Public notice/Ads	500.00	-	500.00
	Conference costs, speaker expenses	30,000.00	1,260.36	28,739.64
	Supplies	300.00	367.91	(67.91)
4	Loan Solicitation & Awards	1,916,350.00	1,970,151.20	(53,801.20)
	Loan awards	1,912,000.00	1,970,000.00	(58,000.00)
	Travel, subsistence	2,250.00	151.20	2,098.80
	Dun-Bradstreet subscription/fees	2,100.00	-	2,100.00
5	Site Community Involvement	6,154.00	3,415.00	2,739.00
	Travel, subsistence	4,770.00	3,415.00	1,355.00
	Supplies	710.00	-	710.00
	Public notice/Ads	674.00	-	674.00
6	Site Management	-	-	-
7	Administration & Reporting	3,781.00	3,943.07	(162.07)
	Supplies	-	161.21	(161.21)
	Indirect cost charges for all tasks	3,781.00	3,781.86	(0.86)
	TOTAL	$ 2,000,000.00	$ 2,000,000.00	

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To date, non-EPA funds used to support BCRLF cleanup projects total $109,100 in State funds, which DHHL contributed for sampling and analysis performed at the EKPML site in the demolition phase of the cleanup project. Three thousand dollars ($3,000) in U.S. Department of Energy American Recovery and Reinvestment Act funds were expended in support of an EKPML site ecocharrette brainstorming session.

3.2 Loan Information

Loan information is summarized in the table below. The DHHL loan is a no-interest loan with a discount of 20 percent on the loan amount, which is capped at $200,000 in accordance with EPA Brownfields Revolving Loan Fund guidelines. Loan repayment is to be paid in a single, lump-sum payment to the HBCRLF Special Fund within six months of the effective date of a "No Further Action" (NFA) letter issued by DOH.

Loan Activity	Date	Description		Amount
HBCRLF 09-01, DHHL				
Loan award	10-Jun-09	Loan executed		$ 1,970,000.00
Loan fund disbursement				
	25-Aug-09	Cleanup planning	452,100.00	
	22-Nov-10	Cleanup planning/remediation oversight	159,100.00	
	7-Apr-11	Site remediation [1]	840,900.00	
	1-May-11	Site remediation	517,900.00	
Loan fund repayment/income				
		Discount, capped at grant max [2]		$ (200,000.00)
		Interest income		-
	Jul-12	Payment on principal to HBCRLF Special Fund		$ 1,770,000.00

[1] Disbursement capped by appropriation ceiling; remainder transferred upon enactment of 2011 legislation increasing appropriation ceiling.

[2] Discount is capped at the lesser of 20% of loan amount or $200,000. DHHL loan discount is capped at $200,000; 20% of loan is $394,000.

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4. HIGHLIGHTS OF CLEANUP ACTIVITY FUNDED

Site background. The $1.97 million loan to the State Department of Hawaiian Home Lands is funding cleanup planning, site remediation, and post-cleanup confirmation sampling and analysis for the former East Kapolei Pesticide Mixing and Loading Facility site. The cleanup plan/process includes: (1) pre-cleanup plan community review and comment on remedial alternatives; (2) preparation of a final cleanup plan, design, and necessary quality assurance, and site health and safety plans; (3) demolition of existing structures and disposal of contaminated structural waste; (4) remediation of the site through construction of a geomembrane liner and cap; and (6) confirmation sampling at appropriate stages.

The site is currently planned to be a 5-acre park as part of a 375-acre master-planned development, East Kapolei II, which will include 1,000 for-sale affordable homes for native Hawaiians and 1,000 affordable rental units for the general public, as well as schools, parks, and a major new community center to be built by the Salvation Army.

The site and surrounding lands were owned by the Estate of James Campbell and leased by various plantations to cultivate sugarcane from around 1890 to 1994. Agricultural pesticides were stored, mixed, and loaded for field application at the EKPML site for almost 40 years until the site was closed and fenced in 1994. Structures on the site included two storage buildings, a

boiler, and four elevated steel storage tanks. Soils at the site became contaminated as a result of periodic chemical spills that occurred over the years. Pentachlorophenol with diesel or kerosene was also mixed and applied in the 1950s. Surface and subsurface soil sampling has documented elevated levels of the following within the fenced area of the site: dioxins/furans, arsenic, pentachlorophenol, dieldrin, diuron, atrazine, ametryn, trifluralin, terbacil, hexazinone, DDT, and other chemicals. Contamination levels are highest around the elevated storage tanks and boiler house. The field roads immediately outside the fenced area are included in the cleanup workplan.

Activities completed to-date. The cleanup project required demolition of existing structures followed by substructure/subsurface sampling and analysis to determine the extent and volume of contaminated soils that needed to be cleaned up or remediated. (DHHL used State funds to pay for the post-demolition sampling and analysis.) The following activities and documents were completed with BCRLF loan funds:

Sept 2009	• Environmental contractor for cleanup planning and cleanup oversight hired by DHHL; notice to proceed issued
Oct-Dec 2009	• Community Involvement Plan completed, reviewed by EPA Brownfields Project Officer
	• Community outreach documents prepared, information repository and project website established
	• Small group informational meetings and stakeholder interviews conducted
	• Health & Safety Plan completed
Dec 2009	• Site demolition completed
Jan 2010	• Hazardous materials disposal from site demolition completed
Jan 2010	• Project public information meeting
Apr-June 2010	• Environmental Hazard Evaluation Report, Remediation Alternatives Analysis Report, Draft Remedial Action Memorandum completed and accepted by DOH-HEER
May and July 2010	• Community information meetings on contaminants of concern and Draft Remedial Action Memorandum
Sept 2010	• Remedial Action Memorandum approved by DOH-HEER
Nov 2010	• Remedial Response Work Plan approved by DOH-HEER
Jan 2011	• Construction Bid Package prepared and posted for site remediation contractor solicitation
Mar 2011	• Site remediation contractor selected
May and June 2011	• Site remediation contract executed; notice to proceed issued
	• Confirmation sampling plan being prepared

Anticipated remediation work and completion date. Site work for the selected remedy was to have begun by July 2011. Site work is anticipated to be completed by January 2012, with the final report and NFA letter from DOH anticipated shortly thereafter. The site remediation

combines engineering controls utilizing a geomembrane liner cover system and institutional controls to address contaminated soils at the site. A description of the proposed remedy is provided in **Appendix B**.

5. ASSESSMENT OF PROJECT ACCOMPLISHMENTS

Accomplishments vs. objectives. Despite initial hurdles and staff and resource constraints during the grant period, the grant resulted in the establishment of another tool available to public and private entities to facilitate cleanup and redevelopment of underutilized contaminated sites.

The BCRLF Program has made only one loan, but the particular site was of long-standing concern to DOH and contamination at the site was an impediment to continued development and growth of Oahu's second urban center. In addition, the site cleanup will provide an amenity to native Hawaiians who will reside in the homes to be developed in the East Kapolei II Project, and help ensure that residents are not exposed to the health hazard posed by the contaminants at the EKPML site. DHHL plans to invest over $450 million in planning, site improvements, infrastructure development, and housing construction for the East Kapolei II Project. The East Kapolei II Project will provide road infrastructure that will increase road connectivity and ease traffic within the Ewe-Kapolei region. The East Kapolei II Pesticide Plant Site Remediation Project was one of seven projects from EPA Region 9 featured at the April 2011 National Brownfields Conference in Philadelphia (see brochure in **Appendix C** prepared for the conference.)

The establishment of the BCRLF Program contributed to fostering networking and strengthening interagency and cross-sector support for brownfields redevelopment in Hawai‘i. DOH-HEER has now assumed a strong leadership role in supporting this network of relationships and fostering collaboration among the different brownfields players. Cleanup of the EKPML site aligns with the program objective of transforming land values and increasing the revenue bases of the State and County through the creation of new live/work neighborhoods. Finally, green building and sustainable design are an integral part of how the BCRLF Program is marketed and are incorporated in discussions of site cleanup and redevelopment strategies for prospective and recipient sites.

In addition, DHHL's primary contractor and its sub-contractors are locally-based and -owned small businesses, and several are women- and minority-owned businesses.

Delays and obstacles encountered. Program development was delayed by a number of factors early in the grant. Key issues related to program structure needed to be addressed. The first was whether the pilot grant should be transitioned to new brownfields funding under CERCLA Section 104(k), which imposed match requirements and stricter interpretations as to eligibility of prospective loan recipients. A change in State administration also led to legislation to transfer OP out of DBEDT, which put grant implementation in jeopardy. A third element was difficulty in obtaining State agency support for the technical assistance and loan origination and servicing functions of the BCRLF Program. OP was prepared to contract out for these services, but felt that with limited grant resources, the use of State programs with program capacity was the preferred option for providing these services.

Fiscal constraints dictated that the grant remain a pilot grant and not transition. Legislation to eliminate OP died. By 2004, with changes in sister agency staffing and the availability of

other grant funds, the barriers to partnering with DOH-HEER and DBEDT staff with loan program experience had been resolved and a viable program structure was in place upon which to build the BCRLF Program. Key to bringing DOH-HEER on board was the availability of EPA State and Tribal Response Fund grants, which allowed DOH to expand the capacity of their program to support brownfields activities in Hawai‘i. EPA clarification that technical assistance provided by DOH-HEER to potential loan recipients was an eligible expense of loan funds also helped tremendously in resolving to use the DOH-HEER's VRP program as the primary vehicle for cleanups conducted with BCRLF loans.

OP consulted closely with EPA Project Officers on matters related to eligibility of prospective loan applicants and sites. EPA assistance in clarifying eligibility issues was critical to moving forward on the two loan applications received. EPA Project Officers were also very responsive in assisting the BCRLF Program in obtaining grant extensions when delays were encountered in executing agreements among Coalition partners, loan applications stalled, and there were lags in site cleanup activities.

The private sector response to the BCRLF Program has been lackluster, in part due to Hawai‘i's unique land market where high land values create little incentive to remediate blighted properties, landowners' ability to self-finance or secure conventional financing, maturation of insurance products for brownfields redevelopment, and limited marketing due to staffing constraints. Program staff anticipates that with continued record low interest rates, private sector interest in BCRLF loans will be strongest where there are special circumstances where the combined efforts of DOH-HEER and DBEDT are needed to move a potential brownfields project forward.

Cost savings. The BCRLF Program actually resulted in cost savings from the original grant budget proposal, due to the agreement of sister agencies to perform the Program's brownfields site manager and loan officer functions. As mentioned earlier, $508,000 in grant funds were reallocated from contracts for these services to direct loans, thus increasing the corpus of the revolving loan fund.

6. POST-CLOSEOUT ACTIVITIES & PROGRAM MAINTENANCE

After the grant period ended, Program staff participated in the DOH-sponsored Annual Brownfields Forum, which was held in conjunction with a DBEDT-sponsored Build Green, Buy Green Conference on May 24, 2011. Staff assisted the EPA Brownfields Project Officer in scheduling meetings with potential Brownfields grant applicants for outreach on the fall 2011 EPA Brownfields grant cycle.

Completion of EKPML Cleanup and Loan Repayment. Program staff collaborated with DBEDT's Strategic Industries Division staff to plan and conduct an ecocharrette brainstorming session with DHHL and DOH staff to determine the viability and parameters for an ecocharrette for EKPML site redevelopment. DHHL ultimately determined that they could not pursue an ecocharrette at this time since actual development of the site is a year or more out. **Appendix D** provides summary notes on ideas and principles to be considered should an ecocharrette be considered at a later date. Program staff will continue to monitor cleanup activities at the EKPML site and ensure that the loan funds are repaid in accordance with the executed loan agreement.

Maintenance of BCRLF Program. The BCLRF Program will operate for the near future in accordance with the EPA Grant Closeout Agreement and the Program's Implementation Plan, Coalition Memorandum of Agreement, and the State and County agency relationships built over the course of the grant.

Given the current State and national economic climate, the BCRLF Program will continue to be challenged in terms of sufficient staff support, a low interest rate environment that decreases the attractiveness of the loan fund, and Hawai'i's unique land market. A State reduction-in-force in 2009 also resulted in the loss of the BCRLF Program's loan officer.

To generate new loans, the Program will need to market the loan fund to potential loan applicants as the EKPML cleanup activities wind down. Priority will be placed on identifying eligible loan applicants among those expressing interest in or enrolling in the State Voluntary Response Program. Support services for the loan origination and loan underwriting will be needed for future loans, and discussions with sister State agencies will be initiated toward this end. Program staff will also explore with its partners other financial products and administrative options for the BCRLF program to ensure effective use of the loan funds for cleanup of eligible properties.

APPENDICES

A. Hawaii Brownfields Cleanup Revolving Loan Fund Flowchart

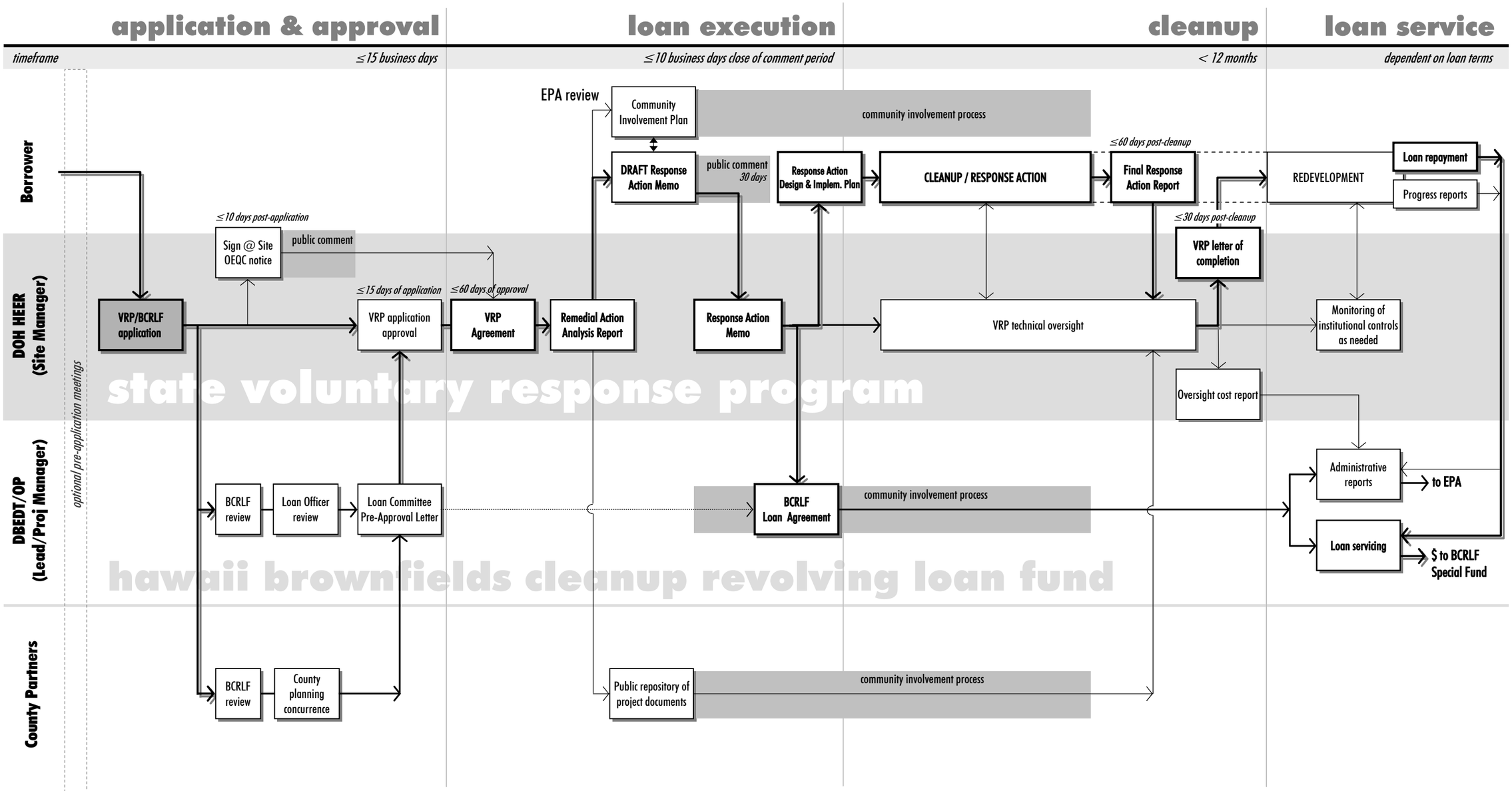
B. East Kapolei Project Information

C. Project Factsheet

D. DHHL Brownfield Development Site Meeting, May 25, 2011: Ecocharrette Brainstorming

APPENDIX A.
HAWAII BROWNFIELDS CLEANUP REVOLVING LOAN FUND FLOWCHART

Hawaii
Brownfields Cleanup Revolving Loan Fund (BCRLF) Flowchart



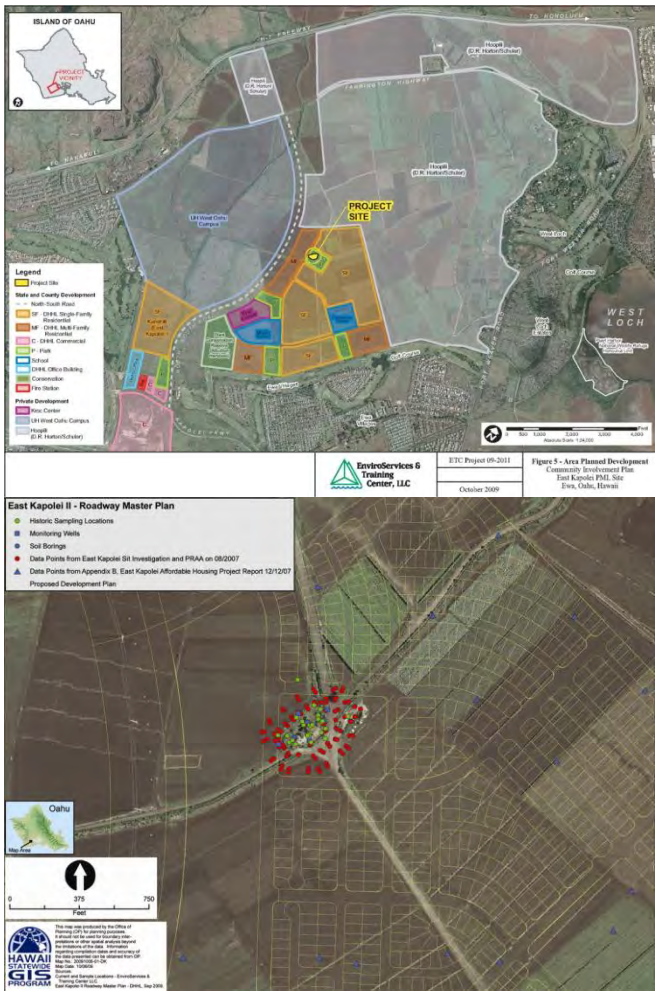
APPENDIX B.
EAST KAPOLEI PESTICIDE MIXING AND LOADING FACILITY: PROJECT DESCRIPTION AND PROPOSED SITE REMEDIATION

EAST KAPOLEI PESTICIDE MIXING AND LOADING FACILITY: PROJECT DESCRIPTION AND PROPOSED SITE REMEDIATION



Project Description

The State Department of Hawaiian Home Lands (DHHL) is remediating a 0.634-acre contaminated site—the former Oahu Sugar Company pesticide mixing and loading (PML) site—located on the ʻEwa Plain on the island of Oʻahu, Hawaiʻi. DHHL is a State agency governed by the Hawaiian Homes Commission Act of 1920, which was enacted by the U.S. Congress to protect and improve the lives of native Hawaiians, a group whose socioeconomic and health status tends to be poorer than the population of Oʻahu and the State as a whole. The Department manages a land trust of over 200,000 acres, providing homes and land to native Hawaiians.

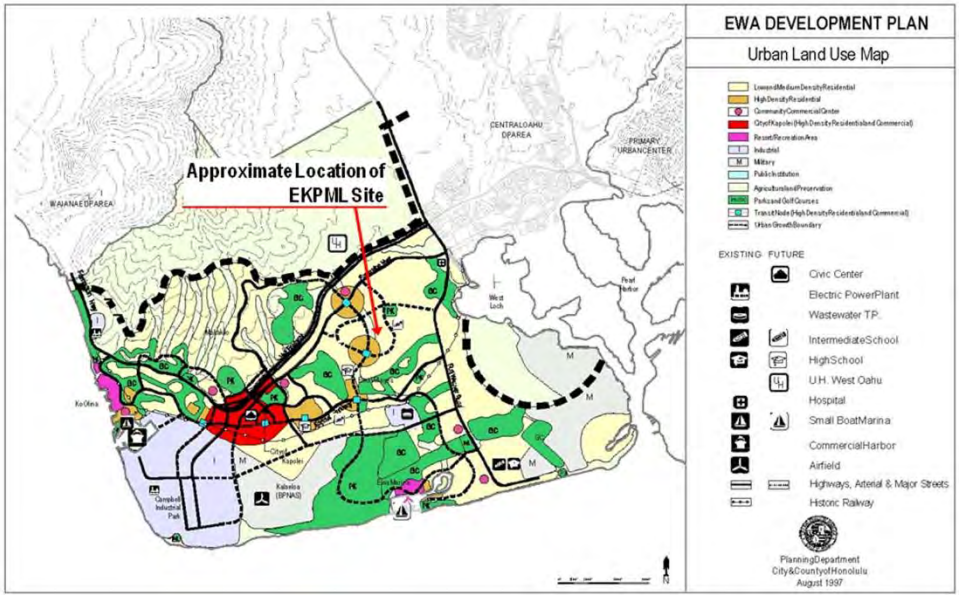


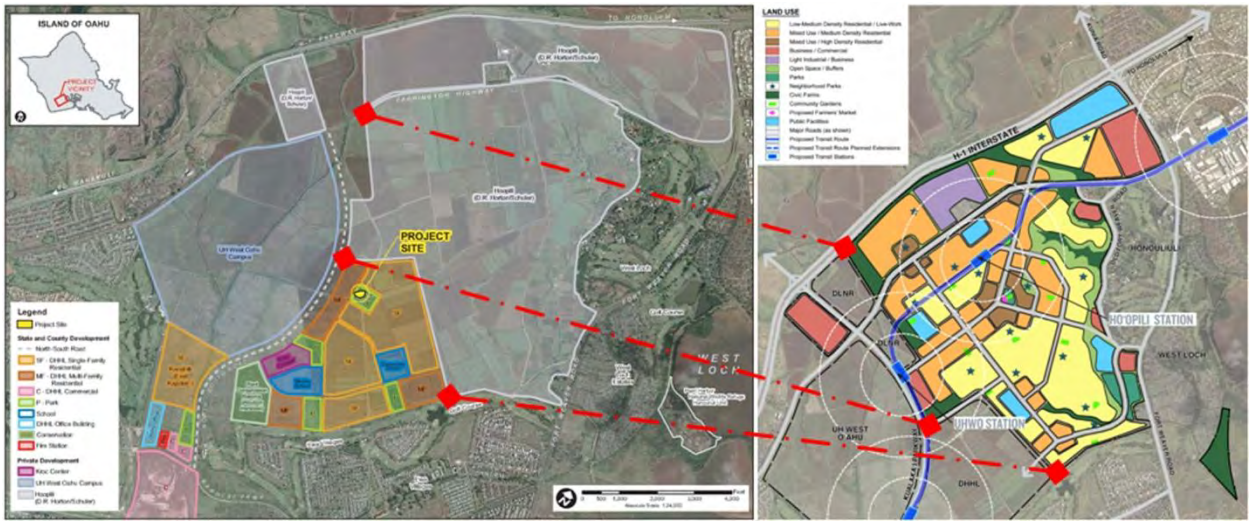
The PML site is part of a larger 375-acre proposed master planned community, *East Kapolei II,* which DHHL is developing to provide much needed affordable homes for its target population of native Hawaiian families, many of whom have been waiting decades for an opportunity to purchase a home through DHHL's homestead program. The *East Kapolei II* Project includes 1,000 for-sale affordable homes and 1,000 affordable rental units, schools, parks, and a major new community center being built by the Salvation Army, funded in large part by an $80 million contribution from Joan Kroc, the widow of the McDonald's founder.

The presence of elevated levels of dioxins/furans and other contaminants from agricultural use of the PML facility and its environs poses a major health risk for any use of the property, particularly residential use. The environmental liability and cost of cleaning up dioxin contamination is a substantial impediment

to private and public sector development in the area.

Remediation of the site will remove a significant health threat to the growing population of the ‘Ewa region and the Second City of Kapolei—projected to grow to 177,000 people by the year 2030—and remove a serious hurdle to County and State plans to transform the ‘Ewa Plain from agricultural use to the City of Kapolei, which has long been designated by the City and County of Honolulu as the secondary urban center for the island of O‘ahu. Plans for the region include the construction of a West O‘ahu campus of the University of Hawai‘i, a 100,000 square-foot regional community center, a regional shopping center, and up to 21,600 residential units on the surrounding 2,500 acres, including DR Horton-Schuler Homes’ proposed Ho‘opili Project. Development in the ‘Ewa region will result in a significant increase in affordable housing, business development, jobs, educational institutions, community and social services, as well as increasing State tax revenues and City real property tax revenues as the region builds out. The City and County is also proceeding with plans to build a fixed rail transit system that would link Kapolei with downtown Honolulu and Waikiki, providing Oahu residents with a transportation alternative to cars and buses.





Ho‘opili Conceptual Land Use Plan.
DR Horton-Schuler Homes, Ho‘opili Sustainability Plan

The development of Kapolei and the ‘Ewa region is also critical to the State’s effort to protect prime agricultural lands on O‘ahu and promote food and energy security for the State. The State made a strategic decision in the 1990s to allow the redevelopment of former sugar lands for urban growth in the ‘Ewa region in order to direct growth away from the more fertile, productive agricultural lands of Central Oahu. Thus, the development of the ‘Ewa plain is essential to avoiding further development of Central O‘ahu agricultural lands, which have access to irrigation and overlie the groundwater aquifer that is the major drinking water source for the City and County of Honolulu.

The PML site has been an impediment to the healthful reuse of a large swath of lands in the heart of the ‘Ewa plain. Remediation of the site plays a crucial role in the realization of long-range land use policies for the development of a mixed use urban center that will reduce job-related trips to urban Honolulu, provide a range of housing options, improve the regional transportation system in ‘Ewa, and protect finite prime agricultural lands, open space, and other natural resources on O‘ahu.

Proposed Site Remediation[1]

Remedy Description

The geomembrane liner cover system (GLCS) alternative would utilize engineering controls and institutional controls to address the environmental hazards identified at the East Kapolei PML site. Engineering controls would include subgrade preparation, a geotextile protection layer, a 60-mil HDPE (or equivalent) geomembrane layer, a compacted soil cover layer, and a top soil layer with vegetation.

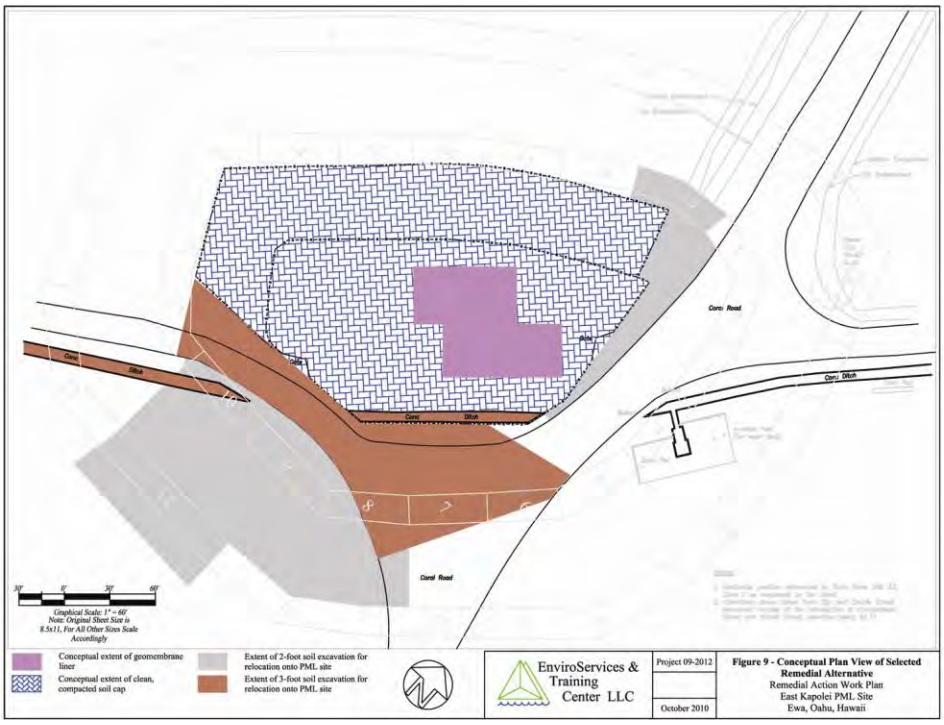
Institutional controls would include:

- Placement of a visual indicator barrier (such as orange construction fencing) over contaminated soil to warn against further excavation into contaminated soils.
- Placement of a metallic barrier tape grid that would be evident to electromagnetic or ground penetrating radar instrumentation typically used prior to excavation activities to identify subsurface anomalies (e.g., underground utility lines).
- Limitations on the future land use maintained in perpetuity (such as a Uniform Environmental Covenant that gets filed with the property deed) to avoid activities that may compromise the integrity of the engineering controls (e.g., excavation or drilling through the soil cap and geomembrane liner).
- Preparation and implementation of an Environmental Hazard Management Plan to describe, at a minimum, appropriate cap maintenance/reporting requirements, prohibited activities that may compromise the integrity of the engineering controls, appropriate soil handling and worker/area protection requirements should disturbance

[1] Excerpted from EnviroServices & Training Center, LLC, *Final Response Action Memorandum, East Kapolei PML Site,* August 2010, pages 32-36.

of the contaminated soils be unavoidable, and appropriate mitigation measures if a portion of the soil cap and/or geomembrane liner is breached.

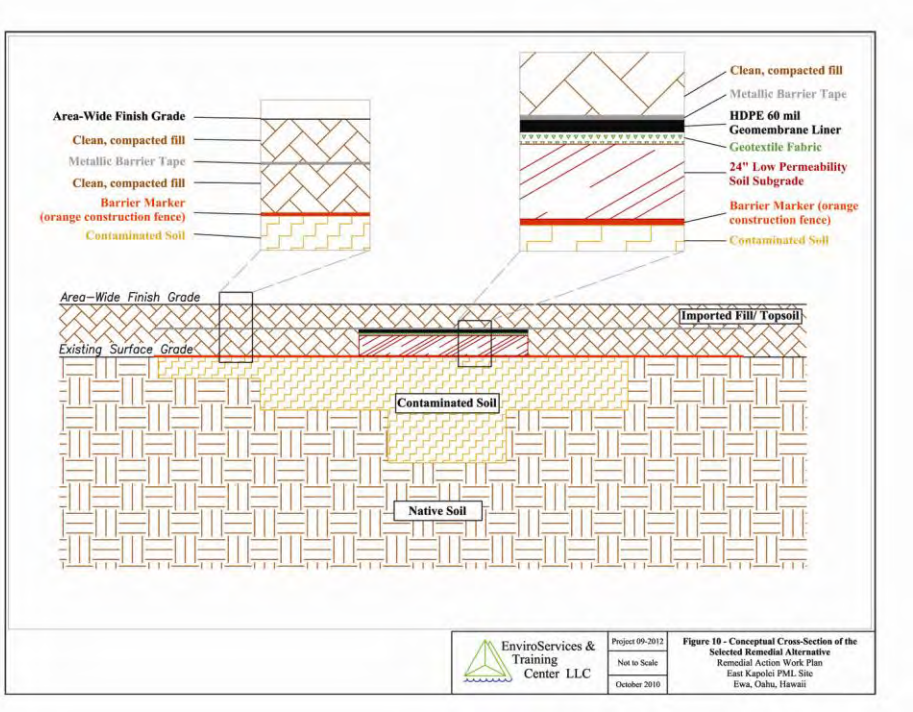
Prior to system installation, off-site areas of contamination (i.e., areas located outside of the East Kapolei PML site fence line as shown in Appendix I, Figure 10) would be excavated and transported to the site. Residual contaminant levels would be verified in these excavations by way of multi increment confirmation samples. Clean fill material would then be utilized to replace the excavated off-site material.



The COC-impacted soils relocated onto the site would then be graded and compacted to provide a relatively firm and even surface. Thereafter, the visual barrier would be placed over the contaminated soil. Clean, low permeability soil would then be imported onto the site; placed on top of the visual barrier and over the Spill Areas (areas where leaching to groundwater environmental hazards were identified), and compacted to form an approximate 24-inch thick layer. This layer would provide the uniformly firm and smooth surface needed to minimize/prevent differential settlement and potential damage to the HDPE liner. A layer of non-woven geotextile fabric would then be installed immediately above the subgrade. The 60-mil geomembrane liner would then be placed above the geotextile fabric. Liner seams will need to be welded by personnel with experience in these types of installation and the contractor installing the liner will need to perform its own quality control. To ensure proper installation, independent quality assurance checks should be performed by experienced and knowledgeable personnel. Care should be taken to minimize the liner's solar exposure to minimize material degradation.

Following installation of the liner, similar low-permeability soil would be placed and compacted in the remaining areas of the site (i.e., Investigation Areas) to match the elevation of the area covered with the liner. A metallic barrier tape grid would then be placed across the filled areas of the East Kapolei PML site. The grid of metallic tape can be detected using geophysical

means (i.e., when toning to identify underground utility lines prior to excavation) and will serve as a mechanism to warn of the contaminated soil. Upon completion of the barrier tape grid layout, a low-permeability soil cover layer would be placed and compacted to an approximate 24-inch thickness. It is suggested that this layer be constructed of the same material as the subgrade. A 6-inch layer of top soil would be placed above the 24-inch soil cover layer. The top soil should be seeded or vegetated following placement, but the final ground cover would be dependent upon future land use plans. This cap system will isolate soils with contaminant concentrations that exceed field area background levels due to historic pesticide mixing/loading operations from potential human receptors.



The layering system described above would create multiple barriers between contaminated soils and potential receptors, therefore mitigating the direct exposure hazard associated with contaminant concentrations in site soils. The 60-mil HDPE (or equivalent) liner would provide the primary barrier against storm water infiltration through the contaminated soil, therefore preventing migration of contaminants via soil leaching. The visual barrier and the metallic barrier tape grid would provide a warning system to minimize the potential for future disturbance of the contaminated soils. A conceptual cross section drawing of the liner system is presented in Appendix I, Figure 12 and a conceptual plan view drawing of the geomembrane liner cover system is presented in Appendix I, Figure 13.

Various geomembrane industry sources have suggested that, with good periodic maintenance practices, the life expectancy of a HDPE geomembrane liner in buried applications can be up to 200 years. After completion, the GLCS and soil cap should be inspected on a quarterly basis to detect damage, stress, or any other detrimental conditions. Some routine operation and maintenance (O&M) work would include the following:

- Removal of large vegetation or trees that may penetrate the soil cover;

- Correction of water-ponding conditions;
- Repair of cracks on soil cover to prevent potential solar exposure of the geomembrane layer; and
- Repair of any eroded areas after storm events.

Benefits and Drawbacks

The primary benefits of the GLCS alternative include the following:

- Adequately addresses the two environmental hazards identified at the site – human direct exposure and contaminant leaching from soil – through use of engineering controls and institutional controls.
- Provides reliable, long-term protection of overall human health by isolating soils with contaminant concentrations that exceed field area background levels due to historic pesticide mixing/loading operations from human contact.
- The 60-mil HDPE (or equivalent) liner will prevent infiltration of surface water through the pesticide-contaminated soil, therefore minimizing and/or eliminating the potential generation of contaminated leachate that may migrate to the underlying groundwater.
- Minimal potential for migration of contaminants during implementation (e.g., no vapors generated, minimal soil handling, no transportation of wastes off-site).
- The visual indicator barrier and the metallic barrier tape grid will provide a physical warning system to minimize the potential for disturbance of contaminated soil through future excavation work.
- Implementation of the remedy is well understood since this type of installation has been performed for other sites within the State for various purposes, including the encapsulation and isolation of waste.
- Cost of implementation is anticipated to be relatively low, therefore the remedy would have a lesser effect on DHHL's operations and other projects/programs funded using the Hawaiian Home Lands trust funds as compared to other remedial alternatives.
- Cost savings during site development may be realized since less soil would need to be imported to fill the site (e.g., no soil removal planned as part of the remedy).

The primary drawbacks of this remedial alternative include the following:

- This alternative will not reduce the toxicity or volume of the contaminants, it will only isolate and immobilize the contaminated media. Natural degradation of certain contaminants may occur over time, however arsenic and dioxins/furans concentrations are anticipated to remain constant.
- Specialized equipment, material, and personnel will be needed to implement this remedy.
- Institutional controls will need to be put into place to avoid damage to the geomembrane liner cover system and prevent disturbance of the underlying contaminated soil.

- There will be limitations on future land development (e.g., construction activities that require excavation for the installation of underground utilities, structural foundations, etc.) directly atop the geomembrane liner and in a surrounding setback no less than 50 feet.
- Regular monitoring of the surface soil layers and the vegetation will be needed, as well as maintenance of the soil and vegetation to avoid compromising the geomembrane liner.

Environmental Hazard Evaluation – Post Implementation

The data obtained from historic investigation activities and the more recent site investigation identified direct exposure and leaching as the two significant environmental hazards associated with existing conditions at the site. An appropriate remedial alternative would need to address both these existing hazards in order to be considered an effective and viable solution to protect human health and the environment. The remaining three hazards (vapor intrusion, gross contamination, and terrestrial ecotoxicity) were considered to be insignificant in comparison and/or would be mitigated if direct exposure and leaching hazards were addressed.

The preferred GLCS remedial alternative would address both direct exposure and leaching hazards through the use of engineering and institutional controls. Placement of the compacted soil sub-base, 60-mil HDPE (or equivalent) geomembrane liner, the compacted soil layer above the liner, and vegetated topsoil layer (or other type of groundcover, which may include asphalt or concrete pavement, etc.) would provide an effective mechanism to break exposure pathways between anticipated receptors of concern (future site users, future residents in surrounding areas, future site construction workers, and aquatic ecological receptors) and the COC-impacted soil. The physical presence of the soil layers and the geomembrane liner will prevent direct exposure to human receptors and the presence of the impermeable geomembrane liner will mitigate concerns associated with surface water infiltration through the COC-impacted soil and the creation of contaminated leachate that may migrate to the underlying groundwater.

The presence of the visual indicator barrier and the metallic barrier tape grid would provide a physical warning system to indicate the presence of the contaminated soil and to minimize/prevent the occurrence of contaminated soil disturbance through future excavation activities.

In order to maintain the integrity of the engineering controls, institutional controls would need to be implemented to avoid re-establishment of exposure pathways. Therefore, institutional controls would need to include, at a minimum:

- Limitations on the future land use maintained in perpetuity (such as a Uniform Environmental Covenant that gets filed with the property deed) to avoid activities that may compromise the integrity of the engineering controls (e.g., excavation or drilling through the soil cap and geomembrane liner).
- Placement of a metallic barrier tape grid that would be evident to electromagnetic or ground penetrating radar instrumentation typically used prior to excavation activities to identify subsurface anomalies (e.g., underground utility lines).
- Placement of a visual indicator barrier to warn against further excavation into contaminated soils.

- Preparation and implementation of an Environmental Hazard Management Plan to describe, at a minimum, appropriate cap maintenance/reporting requirements, prohibited activities that may compromise the integrity of the engineering controls, appropriate soil handling and worker/area protection requirements should disturbance of the contaminated soils be unavoidable, and appropriate mitigation measures if a portion of the soil cap and/or geomembrane liner is breached.

APPENDIX C.

2011 BROWNFIELDS CONFERENCE EPA REGION 9 SUCCESS STORY: PROJECT FACTSHEET

EPA Region 9 Brownfields Program Success Stories

East Kapolei II · Oahu, HI

Kapolei Project Brings Affordable Housing to Second City

Project Description

Property Address:	Off Palehua Road, Honouliuli, Ewa, Oahu, 96706
Property Size:	404 acres (Brownfields portion: 0.634 acres)
Former Uses:	Agriculture; pesticide mixing and loading facility
Contaminants Found:	Dioxins/furans, agricultural pesticides
Current Use:	Agricultural; vacant land; construction for residential complex
Planned Use:	Affordable homes and rental units, two schools, three parks, 100,000-square foot community center facility
Current Owner:	State of Hawaii, Department Hawaiian Home Lands

Project Partners

- U.S. EPA
- State of Hawaii, Department of Hawaiian Home Lands
- State of Hawaii, Department of Business, Economic Development & Tourism
- State of Hawaii, Department of Health
- EnviroServices & Training Center LLC
- The Limtiaco Group

Property History

From approximately 1890 to 1994, the property was used to cultivate sugarcane, first by the Ewa Plantation, and then from 1970, by the Oahu Sugar Company, Ltd. Pesticide mixing and loading operations are believed to have begun at the site in 1953, and ended in 1994 when Oahu Sugar ceased operation and closed. Soils at the site became contaminated by periodic chemical spills over the years. While the 404-acre site is considered a brownfield, only a small portion is contaminated by hazardous substances associated with agricultural pesticides. The State of Hawaii acquired the entire 404-acre site in 1994 and in 2009 it was conveyed to the Department Hawaiian Home Lands (DHHL).

Former agricultural pesticide mixing and loading facility (above)
Construction of East-West Road, the primary arterial for East Kapolei II (below)

Highlights

- All buyers and many renters of East Kapolei II units will be native Hawaiian people, many of whom have been waiting decades for an opportunity to purchase a home through DHHL's Homestead Program
- Site is centrally located in a region that has been designated as Oahu's Second City in the City and County of Honolulu's adopted General Plan and regional Ewa Sustainable Communities Plan. Cleanup of the brownfield site was central to allowing development to proceed as planned. The East Kapolei II project plays a large role in the transformation of former agricultural lands to the regional urban center envisioned in these plans. The new community will have all the facilities needed for the residents to work, play, go to school, and shop

From 1990 to 2000, subsurface soil sampling, well water sampling and analysis, and preliminary assessment and site investigation studies discovered contamination by many chemicals associated with the agricultural pesticides. A Phase I Environmental Site Assessment (ESA) was completed in 2004 by the State Department of Health (DOH) with EPA Assessment Grant funds, followed by a Phase II ESA with funding from the Department of

Business, Economic Development & Tourism's (DBEDT), EPA Brownfields Assessment grant and DOH. The brownfield site is the only portion that requires cleanup and received $200,000 in EPA Cleanup grant funds in 2009. The larger portion of the site was assessed at the same time the last Phase II was being conducted on the brownfield site, but it was determined not to have contamination above actionable levels. Currently, portions of the property are being used for diversified agriculture or are fallow while other portions are under construction for future residential and community service uses. The brownfield site is fenced-off and currently unused.

Drivers for Redevelopment

The DHHL East Kapolei II Master Planned Community development is a vitally important part of the larger regional transformation of the Ewa Plain and City of Kapolei, which has long been designated by the City and County of Honolulu as the secondary urban center, or "Second City," for the island of Oahu. The population of the Ewa District, estimated to be approximately 60,000 people in 2010, is projected to reach 177,000 by the year 2030. The goal for both the Second City and DHHL's East Kapolei developments is to provide residents with alternate facilities where they can work, play, go to school, and shop without the need to drive into the urban core. For some this could eliminate a daily commute of up to two hours.

Project Results

The 404-acre East Kapolei II project is a planned community that will include approximately 1,000 for-sale affordable homes, 1,000 affordable rental units, two schools, three parks, and a 100,000-square foot community center facility. The end use of the brownfield site has not yet been determined; however, decisions on future use will involve community and future resident input. DHHL received a loan from the Hawaii Brownfields Cleanup Revolving Loan Fund (HBCRLF), which was established with EPA Revolving Loan Fund grant monies. The loan is being used to pay for the development of remedial work plans, community involvement activities, and site remediation work. Site remediation is scheduled to be complete in December 2011. An ecocharrette is being considered to gather ideas from future residents on reuse and redevelopment options for the site. Currently single-family and multi-family homes are planned for the lands immediately surrounding the site, thus it is important that the final reuse relates well to these communities, and remains protective of environmental and human health. Specifically, DHHL's East Kapolei II development will consist of:

- Approximately 1,000 single-family homes for native Hawaiian beneficiaries of the federal Hawaiian Homes Commission Act (HHCA) of 1920. DHHL is currently constructing "backbone" infrastructure and mass grading. Occupancy of the first houses is expected in 2013.
- Approximately 1,000 units of multi-family affordable housing for native Hawaiians and the general public.
- An elementary school and middle school to be developed by the State Department of Education.
- The Salvation Army Kroc Community Center, a 120,000-square-foot regional community center will be the largest of its kind in Hawaii. Facilities will include conference and banquet rooms; a 150-student preschool; a 500-seat worship and performing arts center; an athletic center with an NCAA-regulation gymnasium; a state-of-the-art health and wellness center; an aquatics center featuring a competition pool and a recreation pool with giant water slides; and a 3-acre multipurpose field for outdoor programs. Construction started in March 2010, and opening is expected in late 2011.

Funding Information

$200,000	EPA's Brownfields Cleanup Grant
$1,970,000	EPA's Brownfields Revolving Loan Fund
$109,100	Hawaiian Home Lands Trust Fund, covering required activities not authorized under the Cleanup Grant or RLF

Project Timeline

1994	Oahu Sugar Company, Ltd. ceased all operations and closed down; site acquired by State
09/2004	Phase I ESA completed
08/2007	Phase II ESA completed
02/2009	Site conveyed to DHHL
05/2009	EPA Brownfields Cleanup grant ($200,000) and EPA Brownfields Revolving Loan Fund loan (up to $1.97 million) awarded to DHHL
11/2010	Remedial Action Work Plan approved
05/2011	Anticipated start of remedial action
12/2011	Anticipated completion of remedial action

For additional information, please contact:

Darrell Ing · Real Estate Development Specialist / Project Manager · State of Hawaii,
Department Hawaiian Home Lands (DHHL) · (808) 620-9276 · Darrell.H.Ing@hawaii.gov

APPENDIX D.
DHHL BROWNFIELD DEVELOPMENT SITE MEETING, MAY 25, 2011: ECOCHARRETTE BRAINSTORMING

DHHL Brownfield Development Site Meeting

Kapolei, Oahu, HI

Meeting Notes
May 25th, 2011

Prepared for
State of Hawaii
DBEDT and DHHL

simple, smart, sustaining solutions | 421 SW 6th Avenue, Ste 200 | Portland, OR | T 866 743 4277 | F 503 467 4711 | www.greenbuildingservices.com

Table of Contents

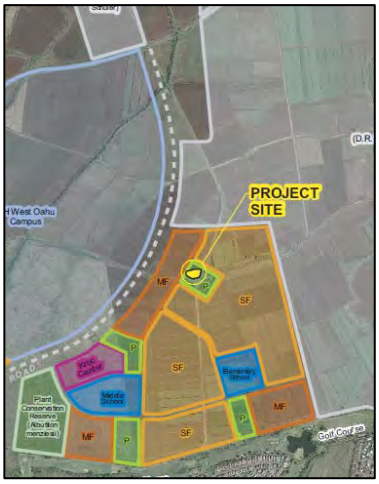
Discussion

The goal of the meeting was to gather a small group of stakeholders together to discuss the possibility of future development of the East Kapolei pesticide and mixing site to address sustainability features such as:

- Sustainable Urban Development
- Brownfield Development
- Green Infrastructure
- Low Impact Development

In addition, GBS provided an overview of facilitating an eco-charrette for a large group of stakeholders for a future meeting. GBS provided a PowerPoint presentation to provide a structure for education and discussion for the team.

Site/Project Overview



The project site consists of a total of 5 acres with approximately 1 acre being highly contaminated and an additional acre determined to have low-level contamination. The previous use for the site was as a pesticide mixing plant for sugar plantation operations. Deconstruction of existing infrastructure occurred about a year ago. The surrounding neighborhood to be developed by Department of Hawaiian Homelands (DHHL) includes an approximately 400-acre development, for which construction has not yet begun. As with all DHHL residences, to purchase homes in the neighborhood residents must have at least 50% Hawaiian heritage. Based on the determination of the site remediation consultant, the site is not expected to be available for use as "unrestricted" for residential uses. DHHL is not required to meet local code requirement for design and construction, but they intend to meet current code requirements.

The site remediation work will begin on the ground by June or July 2011. The site area map is currently calling the site a "Park." Changing the use to a use other than a Park might confuse or anger potential residents. The State requires that all state funded development meet the LEED Silver requirement (Hawaii Revised Statutes: Chapter 196, Section 9a and b(1)). The project team may also want to consider using LEED for Neighborhood Development (LEED-ND) as a framework for project design. (See the following link for more information on LEED-ND: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=148)

Under EPA grant guidelines, brownfields cleanup funds can be used for improvements that are part of the redevelopment of a site, as long as the improvements are part of the cleanup. So if capping a site is the cleanup, then the cap of the contaminated area could be in the form of a parking lot, basketball court, foundation to a building, or other types of landscape or structural cap. Capping of the contaminated area may incorporate a parking lot, basketball court, foundation to a building or other approaches. It is anticipated that site development will be at least 5 years out based on the current phasing of development of the entire East Kapolei II project. Overall, the discussion led to a question of "how can cleanup of this site be a catalyst for incorporating sustainable site design and green practices into/for the planned community?"

Brownfield Stormwater Discussion

The overall 400-acre development has two stormwater detention facilities at the south/low end of the site. Stormwater overflow (after filtration) is directed to the nearby golf course and then to the sea. There are alternative strategies to address stormwater than what is currently shown. Redevelopment of this site provides a great opportunity to educate the community about the sustainable development practices and incorporating cultural values into greening this community and protecting the environment.

Urban Agriculture

EPA is exploring ways to promote urban agriculture on appropriate brownfields sites. If urban agriculture would to be pursued here, the project will need a plan along with champions of the project. Urban agriculture offers an opportunity for households to produce healthful and low cost food items in their own backyards, increasing their self-sufficiency.
http://www.whitehouse.gov/photos-and-video/video/2011/03/16/first-lady-michelle-obama-hosts-white-house-garden-spring-planting

Group Discussion Overview

Site Development Brainstorm:
There are many opportunities associated with this Brownfield site that could be used for the benefit for the community and to develop a Sense of Place and Community for native Hawaiian residents.

Some of these ideas include the following strategies:

- Develop an Urban Agriculture Teaching Center with Community Gardens. Provide classes and training on home gardening and how to maintain community gardens. Put a tool shed on the site area that needs to be capped.
- Develop connection with urban agriculture approaches being proposed for the Hoopili project adjacent to DHHL's East Kapolei project.
- Develop a Farmers market @ contaminated site with paved surface, put a light colored pavement with a high reflectance index (SRI).
- Define opportunities to develop an educational component on green building and sustainable practices for residents as part of the redevelopment process.
- Develop a community center on the site that serves the interests of the local community.
- How can the team utilize best practices around stormwater management practices as opposed to just a filtration pond at one end of the East Kapolei project site?
- If a small building is put on site, look at ways to create and utilize net-zero approaches for energy, water and materials? https://ilbi.org/
- Is there a way that the DHHL development team can combine strategies that can include a playground and a park while addressing stormwater management issues?
- Address issues surrounding stormwater/H_2O amenity = liability & management issues to be addressed
- Research successful case studies of how best to manage this type of development and how is it paid for.
- Consider if residents have the ability to help subsidize amenities, since it is not clear what level of funding will be available for future redevelopment of the cleanup site.
- Whatever is designed, budgeting for ongoing of operations and maintenance is a must.

- Funding and conflicting priorities = challenge
- Consider making this a boat parking lot but will this best service the community interests for all residents.
- Developing a safe transportation infrastructure for biking and pedestrian traffic is critical.
- Consider making this an active park such as a basketball court, etc. ties into the active/healthy communities campaign. http://www.letsmove.gov/
- Confirm whether the site has to pay for itself or not.
- Design on-site stormwater management at parcels to reduce size of detention basins?

Guidelines for Charrette Process and Planning

In planning for a charrette, the following should be considered:

- Determine the best time and approach for a community charrette to happen.
- Develop scaled templates of possible amenities so that a team could actually lay out for possible redevelopment solutions.
- Provide a sheet that addresses all technical facts regarding Brownfield site. What has been completed to date, what is plan and budget for within the remediation process? Reduce the fear factor.
- Hire a consultant to address potential site plan layouts so that several options could be provided to the group.
- Address any process issues internally and have resolution before meeting with the community group in a formal setting.
- Determine the best approach and timing to have the public charrette process.
- Share site plan options with the community group prior to the meeting so that everyone can come prepared for a good discussion.
- Implement selected design; be sure that sustainability issues are addressed.
- Establish schedule and timeline for the project, engage community group with the schedule.
- Balance financial realities with the project and community expectations.

Adjacent Residential Lots

A few notes about current neighborhood plan:

- Re-look at current lot planning to see if there are opportunities to improved layout and design to incorporate more sustainable planning methodologies.
- Bring in an urban sustainable planner to address new ways to design lots while meeting the budget, schedule and lot requirements.
- Re-engage community to provide an update to the plans, process and progress.
- The way the site is currently planned it does not include safe pedestrian walking paths nor bike paths. The other commercial development planned is across a hwy which makes it difficult for safe non vehicular travel.
- The current layout does not consider solar orientation for roof top hot water solar or PV's.
- If park location becomes focal point, then the street design will need to be reconsidered so that there isn't a lot of traffic on small residential streets.
- The current neighborhood plan does not have any commercial services or any consideration for walkability or public amenities.
- Processing stormwater as it falls could minimize the footprint of the storm basin which might allow for more homes
- It is important for the team to consider ways to plan this site so as to frame with human perspective and native Hawaiian values in mind. The current layout does not encourage community engagement.
- Consider applying LEED for Homes certification towards these new homes. http://www.usgbc.org/DisplayPage.aspx?CMSPageID=147#affordable_housing
- Review attached case study on Top 10 Green Housing Developments. http://www.naturalhomeandgarden.com/Inspiration/2008-01-01/Top_10.aspx

Define Success for Project

The group discussed how they as individuals would define success for this project if they were to look into the future. Some ideas that were shared included:

- Community garden/ urban agriculture
- Small structure to support garden/education
- Farmers market on paved cap
- Subsistence farming – w/ educational program
- Net zero water/energy/waste
- Living Building
- Intergenerational
- Regional
- Rain garden/passive park
- Sustaining & maintained common space

Appendix A – Agenda

Brownfield Brainstorm Agenda
DHHL Meeting

Location: DHHL Kapolei

| May 25th, 2011 |

Goals & Objectives

To define a vision and specific sustainable design goals for the project
To brainstorm potential green building technologies and strategies
To develop a roadmap for rehabilitation that achieves increasing levels of sustainability
To foster teamwork and an integrated design process

Green Building Work Session

1:00 PM	~	1:15 PM	0:15	Introductions & Overview of Agenda	DHHL
1:15 PM	~	1:25 PM	0:10	Best Practices in Conducting Effective Charrettes	GBS
1:25 PM	~	2:15 PM	0:50	Best Practices/Case Studies of Green Reuse of Remediated Sites & Green Infrastructure	GBS
2:15 PM	~	2:30 PM	0:15	Overview of Brownfield Program and Issues Related to Reuse of Brownfield	DHHL
2:30 PM	~	2:45 PM	0:15	Break	All
2:45 PM	~	4:15 PM	1:30	Group Discussion of Brownfield Reuse and Charrette Planning	All
4:15 PM	~	4:45 PM	0:30	Summary & Outline of Next Steps	GBS
				Adjourn	All

Green Building Services Facilitators

Elaine Aye | Principal | 503.467.4715| elaine@greenbuildingservices.com
Jeff Caudill | Consultant | 503.546.3774 | jeff@greenbuildingservices.com

Appendix B – Attendee List

DHHL Brownfield Meeting Attendees
5.25.11

Name	Agency	Email	Phone
Gail Suzuki-Jones	DBEDT	gsuzuki@dbedt.hawaii.gov	808.587.3802
Damon Hamura	Enviroservices	damon@gotoetc.com	808.839.7222
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Steven Mow	DOH-HEER	steven.mow@doh.hawaii.gov	808.586.4251
Ruby Edwards	OP	redwards@dbedt.hawaii.gov	808.587.2817
Sand Pfund	DHHL	sandra.s.pfund@hawaii.gov	
Wally Woo	US EPA	woo.wallace@epa.gov	
Kaleo Manuel	DHHL	kaleo.l.manuel@hawaii.gov	808.620.9485
Darrell Ing	DHHL	darrell.h.ing@hawaii.gov	808.620.9276
Jeffrey Fujimoto	DHHL	jeffrey.y.fujimoto@hawaii.gov	808.620.9274
Elaine Aye	GBS	elaine@greenbuildingservices.com	503.467.4715
Jeff Caudill	GBS	jeff@greenbuildingservices.com	503.546.3774
Crystal Benson	GBS	crystal@greenbuildingservices.com	503.546.6367

Appendix C – Powerpoint

Redeveloping Brownfield Sites
DHHL, OP & DBEDT

State of, Hawaii
May 25th, 2011

Elaine Aye, IIDA, LEED AP

Qualifications

- LEED® AP (NC, CI, EB)
- Former USGBC Faculty Member
- Certified Interior Designer
- B.A., Interior Design, California State University, Sacramento

Professional Memberships

- IIDA, Member Oregon Chapter
- IIDA National Sustainability Committee
- International Facility Managers Assn (IFMA)
- Commercial Real Estate Women
- Building Owners and Managers Assn, Program Committee

Green Building Services

We provide services and tools to design, construct, and operate buildings and communities that are responsible, enduring, and healthy. With our collective expertise and open exchange, we help clients integrate sustainable practices that benefit their business, their community and the environment.

Jeff Caudill, AIPC, LEED AP

Qualifications

- AICP
- LEED AP BD+C
- M.A., Urban and Regional Planning, Portland State University, 2006
- B.S., Environmental Studies and Biology, University of California, Santa Cruz

Professional Memberships

- American Institute of Certified Planners (AICP)
- American Planning Association
- Cascadia Region Green Building Council

Green Building Services

We provide services and tools to design, construct, and operate buildings and communities that are responsible, enduring, and healthy. With our collective expertise and open exchange, we help clients integrate sustainable practices that benefit their business, their community and the environment.

What is a Charrette?

Integrated Design
Eco-charrette

Benefits

- Sets green building goals
- Identifies strategies
- Fosters integrated design process
- Develops working relationships
- Creates “stakeholders”

Integrated Design
Eco-charrette

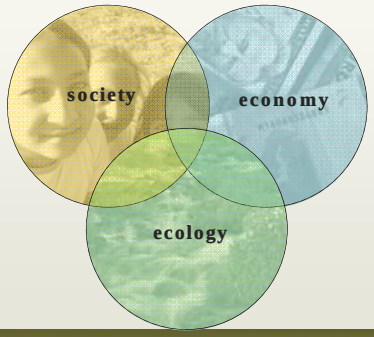
Keys to a successful charrette:

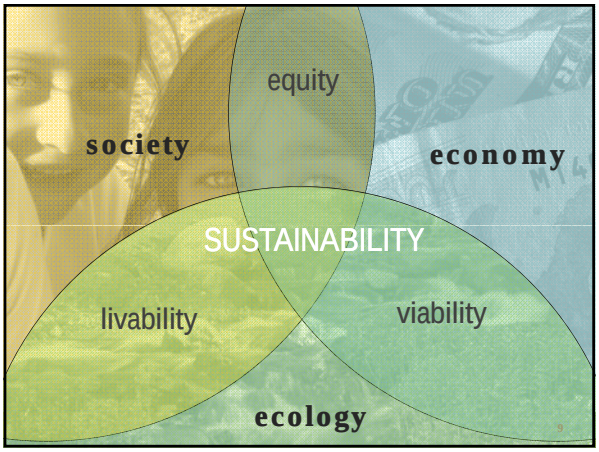
- Clearly define desired outcomes
- Match agenda/activities to expected participants and outcomes
- Facilitate interaction & inclusion
- Foster creative thinking
- Allow for course corrections
- Summarize outcomes & opportunities for reengagement

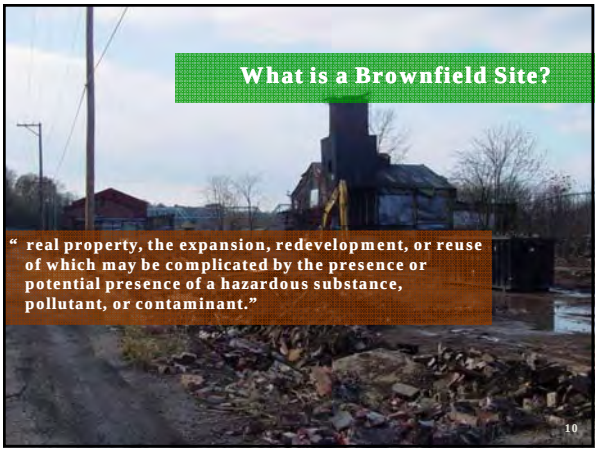
Integrated Design
Eco-charrette

Create project stakeholders and engaging the community.

The "Triple Bottom Line"







Why is Brownfield Redevelopment Important?

Cleaning up contaminated properties for reuse can:

- Protect human health and the environment
- Catalyze the assessment and cleanup process;
- Result in more protective cleanups;
- Reinvigorate neighborhoods and whole communities;
- Preserve greenspace and prevent sprawl;
- Return unproductive land to tax rolls;
- Create public parks or restore natural habitat;
- Spur economic development by retaining or establishing new businesses and creating or retaining jobs.
- Protect clean land - one of our nation's most valuable resources

11

Why is Stormwater Management on Brownfields Important?

Cleaning up contaminated properties for reuse can:

- Restoration of hydrology in urban areas/industrial areas
- Vacant land available
- Can be blended into redevelopment projects
- Environmental performance of sites after redevelopment can be better than before, providing a net benefit to the community on multiple levels

12

Managing Stormwater

Many brownfields have residual contamination left in place, so stormwater management planning needs to take into account the need to prevent the mobilization of contaminants and their migration to groundwater and surface waters

14

Green Infrastructure on Brownfield Sites
Guideline

Keep clean stormwater separate from contaminated soils to prevent leaching, spread of contaminants

- Careful placement of buildings and other impervious surfaces to act as caps
- Modified LID: *detention/ filtration* without *infiltration*

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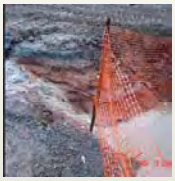
Green Infrastructure on Brownfield Sites
Guideline

Vegetative practices

- » Choose appropriate plants
- » Protect existing vegetation
- » Plan new plantings to catch potential sediments

Structural practices

- » Use swales to direct stormwater
- » Use sediment basins to collect sediment-laden stormwater



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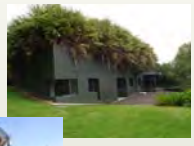
Green Infrastructure on Brownfield Sites
Guideline

All new development on and off the brownfield site should include measures to minimize runoff

- » Green roofs
- » Green walls
- » Large tree retention/installation
- » Rooftop garden terraces
- » Rainwater cisterns



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Green Roofs

If buildings have been placed over contamination so that they can act as caps, a green roof can be placed on the building to mitigate the footprint of the building

The Ford Motor Company assembly plant in Dearborn, MI The green roof covers 10.4 acres

18

South Water Front Park- Before

19

South Water Front Park- After

20

Mirabella | LEED Platinum

Highlights:

- 42.0% energy savings
- 35% Green power
- 89% of construction waste was recycled
- 94% daylight and views in 93% of space

Mezzanine level outdoor patio

23

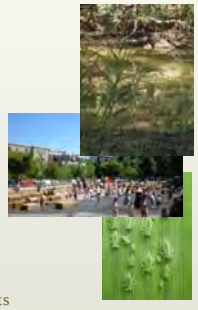
Sustainable Site Development
Best Practices

Triple bottom line benefits

Environmental
- » Reduced resource use
- » Reduced pollution & habitat impacts

Social
- » Outdoor open space
- » Reduced exposure to toxins
- » Create Hawaiian Cultural experience

Economic
- » Reduced infrastructure costs
- » Reduced maintenance & operating costs



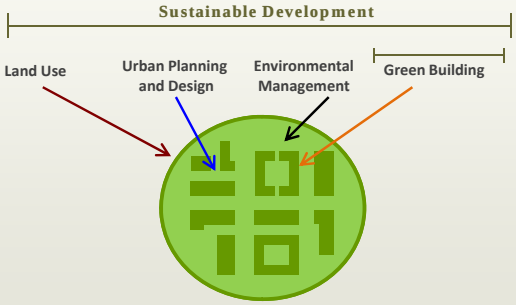
Green Infrastructure-Low Impact Development

The goal is to try to make this...

...function like this

25

Best Practices
Sustainable Development



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Best Practices
Sustainable Development

Core Topics:
- Smart Growth
- Alternative Transportation
- Neighborhood Design/Urbanism/Mixed-use
- Green building

These strategies can be applied to all types of projects.



28

The way it is....

Columbia Pike in Arlington, VA

usgbc.org

29

The way it could be....

usgbc.org

30

Best Practices
Sustainable Development

Focus on Location

Desired Conditions
- Avoid ecologically-sensitive areas and high-value agricultural land
- Build on previously-developed, infill, or adjacent sites
- Reduce the role of and dependence on the automobile
- Encourage walking, biking and transit to jobs, schools and services

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Best Practices
Sustainable Development

Neighborhood Design & Accessibility

Desired Conditions
- Build dense and diverse housing
- Make it accessible ($, community, ability)
- Incorporate schools and services
- Ensure a pedestrian-oriented environment
- Provide open and active spaces
- Encourage local food production

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Best Practices
Sustainable Development

Neighborhood Design & Accessibility

Example: Street network

Benefits: Increased connectivity, land conservation, improved pedestrian environment and public health

33

Best Practices
Sustainable Development

Green Infrastructure and Buildings

Desired Conditions

- » Ensure energy & water efficiency
- » Effectively manage stormwater on-site
- » Emphasize solar orientation
- » Utilize the efficiencies of District-scale systems, when possible
- » Maximize passive & active solar strategies, operational energy cost reduction, decreased dependence on grid

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Best Practices
Site Design

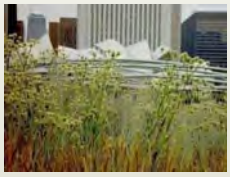
Primary Strategies:

- » Build small
- » Minimize water usage
- » Reduce heat island
- » Minimize light pollution
- » Develop sustainable management plan

Best Practices
Site Design

Minimize water usage:

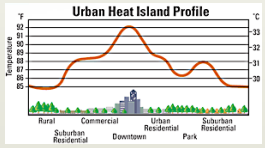
- » Native and adapted plants
- » Xeriscape with drought tolerant plants



Best Practices
Site Design

Reduce heat island:

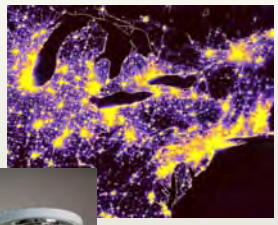
- » Reflective paving & roof materials w/ higher Solar Reflectance Index (SRI)
- » Shade trees
- » Vegetated green roofs
- » Reduce surface parking



Best Practices
Site Design

Light pollution reduction:

- » Protect night sky & reduce "spillage" of light
  - Skyglow
  - Light Trespass
  - Glare



Best Practices
Site Design

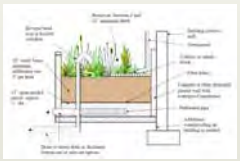
Sustainable Management Plan

- » Green operations policy
- » Site & building maintenance
- » Buildings & hardscapes
- » Landscaping, composting, fertilizer use
- » Integrated pest management

Best Practices
Stormwater Management

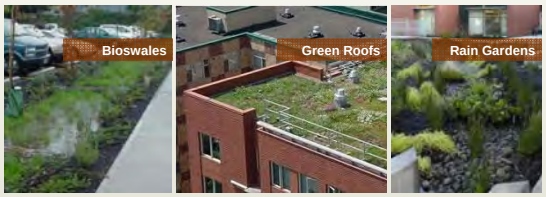
Strategies: The three C's:

- **Curtail** Impervious areas
- **Control** Stormwater
- **Collect** Rainwater



Best Practices
Stormwater Management

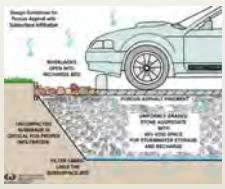
Low-Impact Development (LID)



Best Practices
Stormwater Management

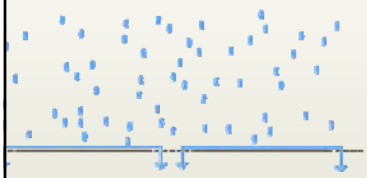
Curtail: Minimize impervious hardscape

- Pervious paving
- Open grid paving



Low-Impact Development

Infiltrate



Best Practices
Stormwater Management

Collect: Vegetated roof

Low-Impact Development

Detain

Best Practices
Stormwater Management

Control: stormwater

- » Filter Strips
- » Bioswales
- » Detention/Retention Areas

Low-Impact Development

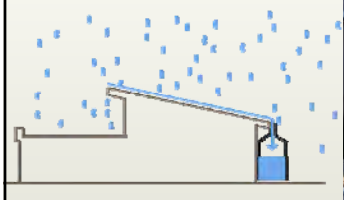
Evaporate

Low-Impact Development

Filter

Low-Impact Development

Store



Definition-Urban Agriculture

Reduce the negative environmental effects of large-scale industrialized agriculture, and support local economic development that increases the economic value and production of farmlands and community gardens.

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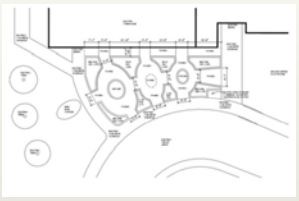
Belinder Elementary Garden



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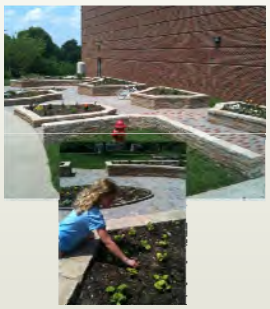
Belinder Elementary Garden



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Belinder Elementary Garden

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51st and Main-Kansas City

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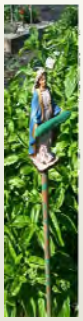
51st and Main



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51st and Main

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Urban Agriculture: Case Studies

18th and Broadway-Kansas City

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18th and Broadway-Before

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18th and Broadway-After

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18th and Broadway

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18th and Broadway

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Thank you.

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