Date: June 18, 2012

To: Special Joint Committee on the Redevelopment of Abandoned and Foreclosed Homes

From: Art Dahlberg, Commissioner

Re: Milwaukee Deconstruction Initiative

This report is in response to the committee's request for an update on the department's deconstruction efforts.

**Past Deconstruction Efforts**

Our initial deconstruction project was developed as a request for proposal intended to challenge the local demolition industry to break ranks with past demolition practices and explore the possibilities of using deconstruction methods to achieve greater returns on salvaged and recycled materials while reducing landfill input. We intentionally left the scope of response from proposers as unguided and open to self-interpretation as much as possible in hopes that the contractors would take the initiative and develop new approaches and practices for the removal of buildings. To that end, the project was very successful with the proposals showing high levels of creativeness and resourcefulness.

Overall, however, we only saw marginal success with the 2009/2010 deconstruction project. This was directly attributed to the conditions imposed on the project through the NSP funding source as well as the constraints of local, state and federal regulations relating to the razing/deconstruction and removal of buildings. Local prevailing wage requirements caused costs to climb as the contractors attempted to meet the funding agreement's job creation mandates. Additionally, there were only 2 local organizations at the time that were able to supply workers who met the specific requirements of being *disadvantaged* or *marginalized* per the funding source's agreement. Marginal deconstruction candidate properties and ill-defined markets to receive salvaged materials also contributed to weaken the bottom line for the project.

The first observation from the 2009/2010 project was the high cost relating to deconstruction. While the cost to demolish an average single family dwelling using traditional demolition methods is $10,000-12,000, the deconstruction costs on this project were $49,680 per building. The second observation is that this project yielded a relatively low amount of salvaged and recycled material.

For our 2009/2010 deconstruction project, the total combined weight of materials from both buildings was 309.53 tons. Total weight of salvaged materials was .2 ton (400lb). Total weight of materials recycled equaled 158.66 tons. This left nearly half - 149.67 tons - of the building materials to go to the landfill. This was a little more than twice what we had projected.

The major factor contributing to our low salvage and high landfill yields is the fact that the properties we had available to use for the 2009/2010 deconstruction project were long-time vacant blighted properties that were open to the elements, subject to vandalism and well picked over by scavengers prior to our project commencing. What was salvaged, recycled, and landfilled is listed below.

**SALVAGED MATERIALS**

3843 N 5th Street: Miscellaneous doors and door hardware with a maximum consumer value of $160.00
Miscellaneous wood trim with a maximum consumer value of $50.00

2236 N 44th Street: Miscellaneous doors and door hardware with a maximum consumer value of $120.00
Miscellaneous wood trim and pedestals with a maximum consumer value of $100.00.

**RECYCLED MATERIALS**

3843 N 5th Street: Concrete and masonry materials, 66.41 tons, no cost as contractor can self-processes
Aluminum siding/gutters - cash value of $162.00.
Wood, 5.2 tons, no cost beyond transport costs - - sent to be used as fuel.
Mixed construction and debris materials, 1.9 tons, cost of $372 to contractor. Mixed construction and debris materials are sent for manual separation and processing. 90% of these materials are diverted from landfill. Materials sent to landfill from mixed construction and debris facilities are generally used as ground cover and/or engineered landfill management materials.

2236 N 44th Street: Concrete and masonry materials, 71.48 tons, no cost as contractor can self-processes.
Wood, 13.67 tons, no cost beyond transport costs - - sent to be used as fuel.

**LANDFILLED MATERIALS**

3843 N 5th Street: mixed waste materials, 47.26 tons, cost of $4,950 to contractor
Non-friable asbestos containing materials, 2.0 cubic yards, cost to contractor $2,595.

2236 N 44th Street: mixed waste materials, 101.11 tons, cost of $9,463 to contractor

Non-friable asbestos containing materials, 2.5 cubic yards, cost to contractor $5,255.

Beyond the high costs and apparent lower than anticipated yields, the 2009/2010 deconstruction pilot did illustrate what does work, what could be made to work and what probably will never work. We also received positive feedback from contractors willing and capable of performing deconstruction to the levels initially expected.

**What worked:**

**Contractor interest.** Some of our current pool of demolition contractors took the project seriously and began exploring alternatives to landfilling materials.

**Collaboration**. The contractor who was awarded the 2009/2010 deconstruction project realized that they could not complete the project by themselves. They pulled together a team of sub-contractors, consultants and partners to develop new strategies for managing demolition waste practices.

**What should work (better) now:**

**Cost control.** The markets for recycling have greatly expanded since our 2009/2010 project. Changes in prevailing wage requirements will allow for "training wages" to be paid to trainees and apprentices where as we were required to pay journeyman carpenter wages to all persons working on the 2009/2010 project.

**Access to a better pool of truly deconstructable properties.** At the time of the 2009/2012 deconstruction project, we had a pool of 10 properties to choose from. Some were only marginally acceptable as deconstruction candidates, most were not. Currently we have approximately 40 properties to choose from and will have an additional 30 in the near future.

**Qualified labor pool availability**. Since 2009, there has also been an increase in the number of organizations developing programs to introduce and re-introduce individuals to the work force. These programs are now able to supply subsidized trainees who possess the required environmental and safety training and certifications needed to work in the deconstruction environment.

**What probably will not work:**

Nationally, Deconstruction has created some new markets and business opportunities for smaller, start-up prime contracting businesses. Locally, this may be more difficult to achieve. The local bonding and insurance requirements for demolition and/or deconstruction activities is difficult and costly to obtain for start-up companies. This could limit these businesses to operating as subcontractors and reduce the possibility for a competitive market to grow as deconstruction will always be dependent on a small pool of established demolition contractors. Therefor it is critical to revise the City of Milwaukee bonding and insurance requirements to reflect the different nature of deconstruction from demolition.

> Without oversight, it is apparent that projects will be challenged to achieve the desired diversion rates. It is imperative to have an audit/salvage oversight component to any future deconstruction program.

Based on the above description, the apparent conclusion is deconstruction as defined in the 2009/2010 project is not feasible in Milwaukee. Staff t hen investigated the model being utilized by MMSD for their Kinnickinnic project. In their model where there are defined salvage and recycling target amounts and oversight on the salvage and recycling operations, the yield becomes higher and the costs become lower. In their project it would appear that the diverted waste stream will approach 80% by volume and that the costs will be approximately $35,000 per house. While the type and condition of the houses were different in the two projects, it is apparent that with appropriate controls the deconstruction approach can be made more efficient. That said, it was concluded that it did not make sense to do another pilot project that had deconstruction costs projected at three times of traditional demolition.

With that decision in hand DNS and DCD began to investigate other deconstruction techniques. In looking at other programs in the United States we saw some contractors and communities utilizing "hybrid deconstruction".

Hybrid deconstruction is a method of demolition that combines manual labor with the use of mechanical and heavy equipment to demolish blighted residential properties. The job creation element in the hybrid model revolves around the use of manual labor for activities that divert building materials from the waste stream. This strategy allows for the use of low-skill workers who can become productive with a modest degree of training. The use of heavy equipment for portions of the work results in significantly reduced cost and faster project completion, compared to deconstruction models that employ 100% manual labor.

Hybrid deconstruction begins with manual removal of items that have salvage value: wood flooring, architectural elements, cabinets, doors, etc. On-site labor is used to remove and prepare these items for sale. Workers also manually remove elements such as siding and windows.

Following the removal of such items, heavy equipment is used to take the house apart in a manner that allows building components to be broken down manually. Building materials such as bricks, metal and wood are processed and sorted on site in preparation for recycling or resale.

These photos were taken during a hybrid deconstruction training project on N. 12$^{th}$ St. in April 2012. The project, which demolished two vacant houses owned by Our Home, Your Home, was managed by Re-Use Consulting of Bellingham, WA, and used work crews involved in a training program operated by Wisconsin Community Services.

*Laborers have completed pre-demolition salvage activities at this property and removed asbestos siding and windows. It is nearly ready for the second stage of the process: dismantling into components.*

*Heavy equipment is used to dismantle the components of the house.*

*On-site laborers organize salvaged and demolition materials to prepare them for resale and recycling.*

While nearly any property could be demolished using hybrid deconstruction, the cost advantage to this method is realized when the following criteria are used to select properties:

1) The property contains salvageable material that can be sold.
2) The property is located on a site that allows for on-site sorting of material, off-street placement of the heavy equipment involved in demolition, and separation of the laborers from the equipment in order to maximize workplace safety.

The N. 12th Street project involved the hybrid deconstruction of two single-family houses separated by a vacant lot. This provided ideal conditions.

RE-USE Consulting of Bellingham, WA, has used hybrid deconstruction techniques to demolish about 600 houses in various parts of the US. The company recently has been retained by Wisconsin Community Services to provide training in these techniques to WCS clients. Martha Brown, Deputy Commissioner of the Dept. of City Development and I recently had the opportunity to meet Dave Bennink, the owner of Re-Use Consulting, and witness the deconstruction of two houses on N. 12th Street in Milwaukee. WCS trainees performed the manual labor for this project.

It is proposed to develop a hybrid deconstruction 2012 pilot project in Milwaukee as the next logical step in bringing feasibility to larger number of projects here as an affordable, job-creating complement to standard demolition and deconstruction techniques.

This pilot project will be designed to further evaluate and refine the use of hybrid deconstruction and will help the City of Milwaukee achieve four key goals:

1) Increase the number of jobs generated by the City's expenditures on demolition of blighted residential property.

2) Divert a significant portion of building materials generated by residential demolition from the waste stream, through re-use and recycling.

3) Encourage the formation of businesses related to demolition, salvage and waste diversion activities.

4) Minimize the City's per-unit cost of job-intensive demolition activity, in order to maximize the number of residential properties that can be demolished through such methods.

This pilot project will require a contract with RE-USE Consulting to design a "Milwaukee model" for hybrid deconstruction, and the use of hybrid deconstruction practices to demolish a small number of City-owned properties varying in size, age and site characteristics. The project involves evaluation of the following information:

1) Time and cost of the pilot demolitions using the hybrid deconstruction method, and development of criteria for selecting local residential properties for hybrid deconstruction.

2) Tracking of the training required to prepare laborers to undertake activities related to waste diversion, and tracking of direct labor hours used in these demolitions.

3) Evaluation of the feasibility of using City staff and equipment vs. private contractors to handle supervision of on-site workers and operation of mechanical and heavy equipment required for hybrid deconstruction.

4) Measurement of the types and amounts of materials that were salvaged and the revenues generated from salvage activities.

5) Measurement of the types and amounts of building materials that were diverted from the waste stream through re-use and recycling.

6) Evaluation and fostering of the local and regional markets for salvaged materials and reuse and recycling options for demolition waste, and evaluation of the local small business formation opportunities connected to such activities.

7) Evaluation of contracting options for the use of hybrid deconstruction. (The contracts between Re-Use Consulting and the cities of Seattle and Indianapolis and the Cuyahoga County Land Bank illustrate several approaches.)

**The 2012 Deconstruction Plan**

Our approach to the Deconstruction Pilot in 2012 will differ significantly from the 2009/2010 project in that:

- A substantially larger pool of tax-foreclosed properties to choose from currently exists. These properties are mostly fully intact as opposed to the blighted stock we chose from in 2009.

- This project will be advertised and let as a bid rather than a request for proposals. The Department will dictate the specific terms, conditions and goals required to be met. Contractors will be required to follow the nationally-recognized and proven "hybrid deconstruction" methods developed by Dave Bennink of RE-USE Consulting.

- The Department is proposing to contract with Dave Bennink of RE-USE Consulting to assist in program development, provide training to contractors and staff, provide developmental oversight for the program as well as market outreach to help bolster the local markets for salvaged materials.

- The Department will contract with a firm to provide candidate-property surveys to aid in the selection of the most fruitful buildings for deconstruction. This firm will provide salvage and recycling assessments and perform waste stream reduction planning and comprehensive project audits as well.

- The Department is in the process of developing partnerships with Milwaukee Jobs Initiative who is currently providing training and paths to employment for disadvantaged or marginalized individuals eager to reenter the workforce. Compared to 2009/2010, a greater number of agencies exist that provide workforce reentry training and placement.

Additionally, since 2010:

- The local markets for salvage and recycling of non-metals have expanded greatly. Traditionally land-filled materials such as non-reusable dimensional lumber materials are being recycled locally as compressed carbon biofuels or turned into ground cover. Almost 100% of shingled roofing materials can now be recycled locally.

- Recent changes in Wisconsin State Statutes now exempt 1 and 2 family dwellings form previous prevailing wage requirements. With more latitude in the wages paid

to trainees and semi-skilled workers, larger numbers of persons new to or returning to the workforce can be utilized per project.

- Private deconstruction in lieu of demolition is becoming a regular practice in Milwaukee. In 2009 there were 3 private razes that could be considered substantially deconstruction projects. In 2010 there were 5. In 2011, 8. This year we have already seen 7 private demolitions with a strong focus on the salvage and reuse of materials.

**2012 Deconstruction Pilot Proposed Budget**

Six building pilot project

Program costs

Vendor surveys properties to determine best deconstruction candidates.

| | | | |
|---|---|---|---|
| Cost/property: | $240 | | |
| # of properties: | 25 | | |
| Total: | $6,000 | | |
| | | | |
| Per property deconstruction costs | | | |
| Deconstruction Cost: | $15,000 | | |
| Audit Cost: | $1,300 | | |
| | | x 6 properties | |
| Total: | $16,300 | = | $97,800 |
| | | | |
| Consultant fee: | Unknown | | |
| | | | |
| Proposal Total: | $6,000 | | |
| | $97,800 | | |
| | | | |
| | $103,800 | | |

The funding for this initiative will come from the razing special purpose account of DNS and from a proposed $40,000 from the Milwaukee Jobs Act fund.

Please feel free to contact me at 286-2543 if you have any questions relative to this initiative.