APPENDIX F

RETURN ON INVESTMENT

ECONorthwest
ECONOMICS • FINANCE • PLANNING

Phone • (503) 222-6060
FAX • (503) 222-1504
info@econw.com

Suite 1600
222 SW Columbia
Portland, Oregon 97201-6616

Other Offices
Eugene • (541) 687-0051
Seattle • (206) 622-2403

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Project #: 20870

TO: **Seth Otto**
FROM: **Lorelei Juntunen, Abe Farkas, Anne Fifield**
SUBJECT: **"RETURN ON INVESTMENT" FOR VARIOUS POLICY OPTIONS: METHODS, ASSUMPTIONS, AND RESULTS SUMMARY**

ECONorthwest (ECO) is teamed with Maul, Foster, Alongi (MFA) and Redevelopment Economics on Metro's Brownfield Scoping Project, which: (1) estimates the total number of brownfields (contaminated redevelopment sites) in the Portland Metro area, and (2) evaluates various policy approaches to addressing the challenge of redeveloping brownfields. This memorandum documents a portion of the analysis that ECO completed with Redevelopment Economics. It provides details on the methods, assumptions, and results of an analysis of the potential redevelopment and other outcomes that a set of policy options might achieve, if implemented. The Portland area's regional government, Metro, funded the study.

The analysis provides some context for comparing the various policy approaches, given certain desired outcomes (tax revenues, redeveloped square feet, etc.) that can be quantified and measured. These results are just one input into Metro's discussion as it determines which policies are most worthy of further evaluation and development. There are many other important considerations that will influence implementation that are not evaluated in this memorandum (though some are addressed in other parts of the larger project): legal or political barriers, administrative costs or program development hurdles, stakeholder opposition, etc. However, the findings of this analysis are a critical piece of the overall conversation, which may lead to the implementation of one or more of the policies evaluated here.

This memorandum is organized into six sections:

1. The research question: policies and metrics evaluated
2. Methods and limitations
3. Current market feasibility findings
4. Evaluation of financial incentives
5. Evaluation of non-financial incentives
6. Summary and key findings

1 THE RESEARCH QUESTION: POLICIES AND METRICS EVALUATED

Fundamentally, Metro is interested in an evaluation of the Return on Investment for various policy approaches that might be used to incent the remediation of brownfield contamination, so that contaminated properties are more likely to be redeveloped in support of Metro's growth management goals. Metro wants to know which policy tools provide the biggest "bang for the buck," or monetary return, relative to the investment in the program or policy itself.

Through a process that involved stakeholder, staff, and Council feedback as well as analysis of the results of implementation in other states and regions, the project's Technical Review Team prioritized a set of policies that would potentially be viable for implementation in the region, and for which more detailed analysis of likely outcomes was desired. These policies are described in detail in the Policy Options report, included as Appendix D of the final report. All of the policies are intended to support brownfield remediation and result in redevelopment of the contaminated properties. In summary, the policies selected for evaluation in this memorandum are:

1. **Brownfield Remediation Tax Credit:** Provide an income tax credit for the costs of conducting site investigation and environmental cleanup.
2. **Property Tax Abatement:** Abate property taxes for redeveloped brownfield sites, to improve the financial viability of reinvesting in the property.
3. **Dedicated Cleanup Fund (for integrated planning, site assessment, and clean up):** Oregon State or local governments could establish a publically funded grant to conduct environmental site assessments and fund site-specific redevelopment strategies (market assessment, architectural drawings, site planning, etc).
4. **Public Land Bank:** Establish a regional or statewide land bank to acquire brownfield properties and position them for redevelopment.
5. **Regulatory Flexibility:** Provide increased flexibility in allowing broader land uses for underutilized sites. This might involve waiving or reducing set back requirements, providing a density bonus, or allowing a change in use for a site so that it may be developed in a more financially viable way.
6. **One Stop Shop**: Create a system for inter-agency coordination for permitting and funding brownfields projects to reduce the complexity and time associated with navigation of the regulatory process.
7. **Tax Assessment Reform**: Statutes currently allow for property taxes on contaminated properties to be reduced to reflect their lower fair market value. Some feel that this creates a disincentive to investing in cleaning up contamination. Reforming the assessment methodology could remove that disincentive.

Metro is interested in evaluating these policies against a series of metrics in a Return on Investment Analysis (ROI) analysis.[1] The concept of ROI does not always transfer well to a public policy context, primarily because the public sector typically invests in policies and programs that are intended to achieve multiple desired outcomes, some of which are not easily monetized without complex modeling (environmental justice and equity; improved quality of life), and amongst which profit, in the business sense, is not typically prominently featured. To address this challenge, these policies are evaluated based on rough estimates of their potential cost for implementation, relative to their potential performance against a series of metrics that the project team has identified and is interested in maximizing with potential policy interventions in the area of brownfields:

- Acres of brownfields redeveloped and square footage of new development in various uses
- Amount of space for new jobs that could be created
- Incremental property and personal income tax generation
- Potential for new housing units

2 METHODS AND LIMITATIONS

Because the policies are so different from each other in their approach to addressing the brownfields problem, a single methodology could not be applied to an evaluation of all of them. In this memorandum, we have grouped them into the categories based roughly on the degree to which we could reasonably connect program costs to measures of the metrics.

2.1 FINANCIAL INCENTIVE POLICIES

This group of policies incents brownfield remediation and / or property redevelopment directly with additional dollars in some form or another. The following policies comprise this category: brownfield remediation tax credit; property tax abatement; dedicated cleanup fund; and public land bank.

The methodology for evaluating these policies builds from ECO's analysis of the redevelopment capacity and typologies, described in a separate memorandum (see Appendix B of the full report). The redevelopment capacity analysis resulted in an

[1] Return on Investment (ROI) is a concept most often used in the private sector to evaluate the performance of some business venture or operation. The objective of the venture is to make money (return); running the operation requires money (investment). Thus, ROI is fundamentally an efficiency ratio. Embedded in the ROI calculation is a *cash-flow analysis* that shows income and expenses year by year, typically for a 10- or 20-year period. Of importance to this project are the facts that ROI (1) has a clear, measurable, and singular measure of benefits, i.e., profit; (2) has clear methods of accounting for monetary costs; and (3) assumes that only monetary costs matter.

estimate of the *total amount of redevelopment* that might occur on all potential brownfields in the Portland metropolitan area, *the jobs* that could be supported in that new space, and the *property and personal income taxes* that could be generated there. This analysis of the return on investment relies on the same assumptions for square footage of redeveloped structures, new assessed value, property taxes, and personal income taxes. Please refer to that analysis for a description of assumptions.

To evaluate these policies, we began with those total figures, and used the following method to consider how the various policies might affect these totals:

1. ECO categorized the individual parcels in the sample of suspect sites based on the likelihood of the property to redevelop based on indicators of market feasibility, as follows:
   - Upside down: addressing brownfield costs will not make a difference in project feasibility
   - Close to tipping point: projects that are within 15% of feasibility once brownfield costs are addressed
   - Already feasible: properties that do not require assistance/incentives to achieve feasibility. This is a de facto indicator of development that may occur if no new policy is implemented

   This step provides a snapshot of current (pre-policy investment) conditions.

2. Redevelopment Economics conducted national research on similar policies to create assumptions regarding "penetration rate", or the upper bound on the portion of properties that are likely to be both eligible for and interested in participating in a particular financial incentive program, and roughly estimated the costs of each program based on available financial data, national best practices, and estimates of administration costs expected. These penetration rate assumptions are described in more detail in later sections of this memorandum.

3. ECO applied the penetration rate to each of the parcels in the sample of suspect sites and then we sorted the parcels into the categories of redevelopment likelihood, as follows:
   - Upside down: Policy will not result in redevelopment feasibility, 0% of properties in this category are redeveloped.
   - Close to tipping point: Remediation of brownfields will incent a portion of eligible properties to redevelop. For each typology, a specified portion of the properties deemed eligible based on the penetration rate are assumed to redevelop.
   - Already feasible: These properties redevelop without incentives because of favorable market and other conditions. These properties are not assumed to

require or be eligible for assistance from new policy initiatives, and, as such, if they redevelop, it is not because of policy intervention. 0% of these redeveloped properties are counted.

Using parcel-specific data in the sample of suspect sites, ECO determined the portion of acres of each typology[2] in the sample that could potentially redevelop (that is, those that are close to the tipping point or where remediation equals feasibility). We then extrapolated that portion to the full universe of suspect sites and known DEQ sites.

The outcome of these calculations are the upper bound amounts of acreage redeveloped, jobs resulting, and tax benefits that might be attributed to each policy's implementation. The results will provide a basis for comparison among the policies under consideration, and will help to identify those policies that rise to the top as having lowest costs relative to outcomes achieved.

2.2 NON-FINANCIAL INCENTIVES

This group of policies incents brownfield remediation and / or property redevelopment *without* a direct investment of dollars into a redevelopment or cleanup action. As such, it is much more difficult to quantify the outcome of these policy interventions relative to their costs. This category includes the following policies: regulatory flexibility, one stop shop, and reform contaminated property tax assessment.

Each of these policies was evaluated using a slightly different approach, as described in the remainder of this memorandum. In most cases, it was not possible to evaluate them directly against the metrics that Metro defined for this analysis.

2.3 LIMITATIONS

The purpose of the analysis is to inform policy discussions with some information about how certain policies might incent redevelopment and create financial outcomes that are of concern to policy makers. As is appropriate to this purpose, the analysis is intentionally order of magnitude, with results averaged across the entire region, rather than precise and site specific. Further, policies have not been fully developed for implementation; questions around eligibility, funding, timing of implementation, and

[2] **Type 1—Small Commercial Sites**. Common historical uses were gas stations, repair shops, and dry cleaners, characterized by small parcel size and located along highways, arterials, and commercial centers.

Type 2—Industrial Conversion Sites. These properties range in size and historically housed various uses in areas that have transitioned from industrial to office, retail, and mixed use centers.

Type 3—Ongoing Industrial. These properties are located in areas with an industrial past that continues today.

Type 4—Rural Industry Sites. Properties associated with rural natural resource extraction industries and agriculture. These properties are typically large and located on the edge of urban growth boundary, especially within urban and rural reserves.

other policy objectives have not yet been addressed. This has led to the following limitations of analysis:

- Because the policies have not been fully developed and vetted through a political process, ECO has made assumptions about how the programs might function to complete this analysis. These assumptions are described in this memorandum, but may not accurately reflect the way programs would be implemented if Metro chose to move forward.

- ECO's analysis of the feasibility of redevelopment considered a number of different development scenarios that reflect the range of costs and revenues that normally affect any development project. To complete the analysis in this memorandum, however, it was necessary to narrow to just one scenario that most closely reflects the average market across the whole region. In essence, the mid-point scenario that underlies the analysis in this memorandum smoothes the real world variation in feasibility from site to site that results from market differences associated with locational advantages and disadvantages and costs of remediation. While this provides a good proxy for average conditions, this approach cannot be considered accurate for any specific single site.

- The analysis assumes the same penetration rate for all typologies, and provides an upper bound on return.

- The analysis does not show the potential cumulative effect of implementing multiple policy tools. All tools were analyzed in isolation and their benefits should not be considered additive.

- In many cases, the individual policy tools are most effective only when a particular development project is already close to the tipping point. In these situations, the policy investment may be a very important contributing factor in achieving feasibility, but other variables (achievable rents, development costs, etc.) were responsible for the bringing the project close to feasibility. This analysis shows that all of the positive impacts are a result of the program or policy, but in truth, a host of factors are involved in creating the conditions for success.

These limitations mean that results of the analysis are not a precise measure of ROI resulting from site remediation, but rather a means by which to compare policies to each other given certain measurable outcomes desired.

3 CURRENT MARKET FEASIBILITY FINDINGS

The feasibility of development under current conditions provides the foundation for the evaluation of financial incentive policies. (See the ECONorthwest memorandum

"Fiscal and financial feasibility study: Methods, assumptions, and results summary" dated September 20, 2012).

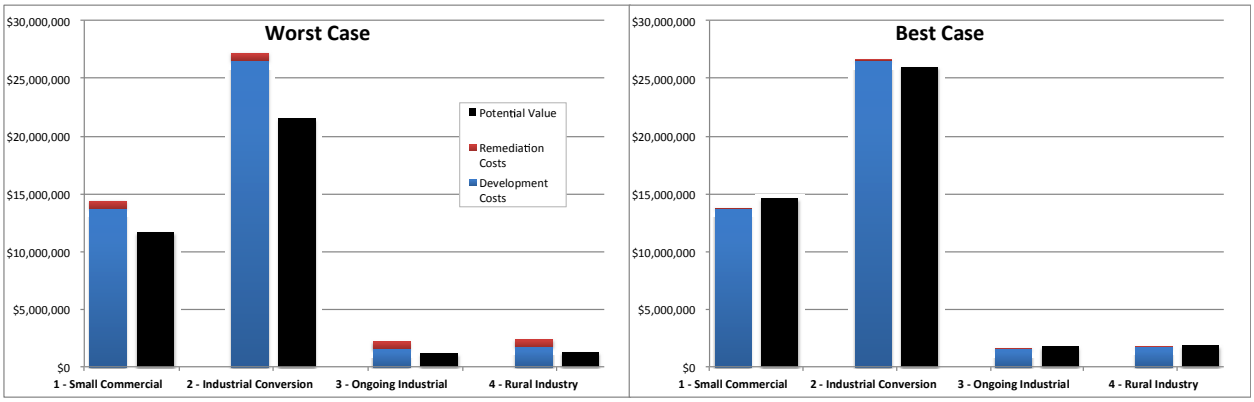
The analysis of financial feasibility found that, overall and on average, the majority of sites cost more to develop *even if remediation costs are not included* than the estimated market value, an indicator that the sites are not likely to redevelop without market intervention. Those development types with the highest per-acre development costs (mid-rise mixed use, neighborhood mixed use) are the most strongly affected by overall market conditions.

Figure 1 shows the per-acre development costs, remediation costs, and the potential market value. The left chart shows the worst-case scenario and the right chart shows the best-case scenario.

The blue bar shows the development costs, with the red portion representing remediation costs. The black bar shows the potential market value. The two charts highlight some factors that affect how important remediation costs are to development and how those costs can vary.

- In Types 1 and 2, remediation costs make up a small portion of total development costs, even if the remediation costs are at the high end of the cost spectrum (worst case). Dense building prototypes dominate Types 1 and 2, leading to high per-acre development costs. If remediation costs are at the low end of the cost spectrum, the account for a very small portion of overall costs.
- In Types 3 and 4, remediation costs can make up a large portion of overall costs. If the remediation costs are high and market rents are low, the cost of remediation equals about one-third of all development costs. If, however, remediation costs fall at the low end of the cost spectrum and market rents are high, remediation costs are a small portion of total development costs.

Figure 1. Per-acre costs and potential development value, suspect brownfield sites, by brownfield typology, Portland Metro Area



Source: ECONorthwest, 2012.

For this analysis, we narrowed the range of 'best case' and 'worst case' financial gaps to a single scenario. The single mid-range scenario is based on a middle estimate of brownfield remediation costs[3] and the mid-point for each potential development's fair market value.

Table 1 shows the percent of sites in each typology and the market-feasibility category. The data show that about a third of the sample is upside down. A large portion, 40%, is close to the tipping point (project costs are within 15% of final market value) and about a third are feasible even if remediation costs are included in the development costs. Under this set of assumptions, no parcels turned from being infeasible to feasible if remediation costs were covered.

Table 1. Percent of sample in categories of market feasibility, Portland Metro Area

Typology	Upside down	Close to tipping point	Already feasible	Sum by Typology
1	3%	54%	44%	100%
2	0%	100%	0%	100%
3	33%	67%	0%	100%
4	100%	0%	0%	100%
Total	**24%**	**47%**	**29%**	**100%**

Source: ECONorthwest, 2012.

The data show that Type 1-Small Commercial was the only typology that has parcels that are feasible even if the cost of remediation is included. Within that typology, the "Low Density Commercial" prototype was the only one in the 'already feasible' category. All parcels with that building prototype were Type 1-Small Commercial. Type 4 performs poorly for a variety of reasons. These parcels are all outside of the UGB, and even if they redevelop at some future date when policy more clearly supports it, because of their location on the urban fringe, they are likely to develop at lower densities that have lower price points.

4 EVALUATION OF FINANCIAL INCENTIVES

4.1 BROWNFIELD REMEDIATION TAX CREDIT

Program Description

The State of Oregon could provide an income tax credit connected to the costs of conducting site investigation and environmental cleanup. This program would directly reduce the financial impacts of remediation and improve the balance sheet for brownfield projects.

[3] As measured by Maul, Foster and Alongi.

A brownfield remediation tax credit for Oregon could be modeled off the existing programs operating in 13 other states. Based on the experience of those states, the key features that make the tax credit program effective are:

1. Minimize administrative burden. Some states make the incentive fully automatic, so that participants simply document and claim the credit when they prepare their taxes.
2. Make credits transferable. Allow participants, including tax-exempt non-profits to generate upfront cash to support cleanup by selling the credits to a third party.
3. No project limit. Allow the tax credit to apply to the full cost of remediation, without setting a ceiling (such as $500,000 per project).

For the purposes of conducting the return on investment analysis, ECO made the following assumptions regarding the structure of the brownfield remediation tax credit:

- The tax credit amount was set as 50% of remediation costs;
- There was no cap for individual projects or the entire program;
- There was no needs testing—fully automatic based on qualifying expenditures; and
- The credits can be transferable, enabling it to work for projects led by non-profits.

We calculated the new financial gap after reducing remediation costs by 50%—the amount of the tax credit. We then identified those parcels that became close to the tipping point or where remediation equals feasibility. However, no parcels flipped from infeasible to feasible after the tax credit, so our analysis focused on the parcels close to the tipping point. We did not apply the tax credit to upside-down parcels or those that are feasible even if remediation costs are included in the development costs.

The cost of the program is the tax revenue that is foregone as a result of allowing the tax credit.

Penetration rate

To estimate potential impacts, we made the following assumptions, which are based on a model remediation tax credit program that has been successfully employed in Massachusetts:

- Isolate projects that become feasible or nearly feasible as a result of the credit.
- Assume that 50% of those sites proceed.
- Assume that 50% of those proceeding will claim the credit (a total of 25%).

Although this program could take a while to start making an impact, especially if credits are not initially transferable, we estimate the total potential impacts associated with all sites meeting the described criteria. Participation of smaller sites would be impacted by legal and other costs associated with selling and transferring the credits. Thus this analysis identifies an upper bound of participating properties.

Outcome

Table 2 shows the estimated outcomes for total acres, square feet of redeveloped buildings, new jobs, property tax and personal income tax for the suspect and known DEQ sites in the Portland region. The analysis estimates that the tax credit would support about 450 acres of new development. The redeveloped sites could provide workspace for about 9,200 jobs and 35,000 new dwelling units.

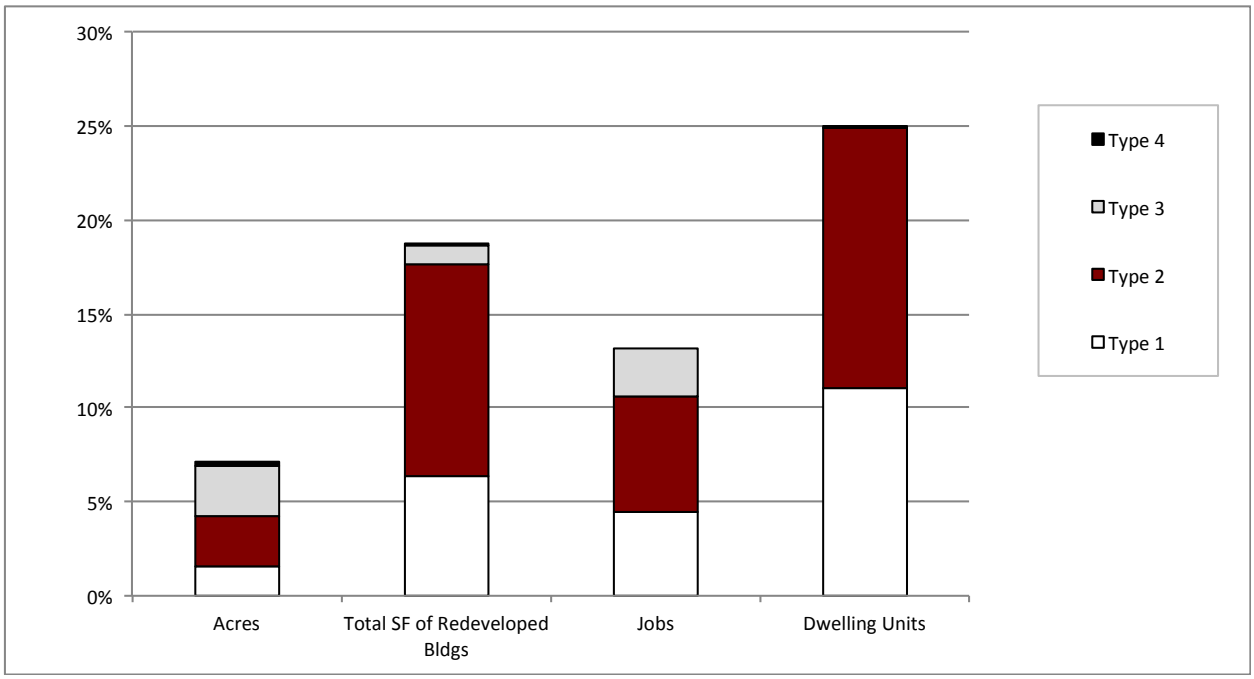
Table 2. Estimated outcomes incented by tax credit within suspect and known sites, Portland Metro Area

					Annual Tax Revenue ($)	
Typology	Acres	Total SF of Redeveloped Bldgs	Jobs	Dwelling Units	Property Tax	Personal Income Tax
1	96	14,852,000	3,100	15,300	25,849,000	6,170,000
2	173	26,364,000	4,200	19,200	39,657,000	5,522,000
3	163	2,308,000	1,800	0	3,807,000	7,061,000
4	17	315,000	0	100	653,000	0
Total	449	43,839,000	9,200	34,600	69,966,000	18,753,000

Source: ECONorthwest, 2012.

For each measured outcome, ECO estimated the total that could be developed if 100% of the suspect and known DEQ sites in the region were redeveloped. Figure 2 shows the portion of that total that the tax credit could incent towards development. The chart shows that most of the incented redevelopment occurs in Types 1 and 2. Because those types are dominated by a mixed use and residential development, the tax credit is more likely to incent residential uses than employment-only uses. The chart shows that we estimate the tax credit could incent about 12% of all brownfield acres to redevelopment.

Figure 2. Portion of potential development outcomes for all suspect and known DEQ sites incented by tax credit, by brownfield typology, Portland Metro Area



Source: ECONorthwest, 2012.

Table 3 shows the estimated total cost of implementing the tax credit for the portion of combined suspect and known DEQ sites, taking advantage of the tax credit, by typology. The total cost for all sites would be about $57 million. The data show that the potential annual revenue for property and personal income taxes is roughly equal to one and half times the total cost of the credit.

Table 3. Estimated total cost of tax credit and return on investment from annual tax revenues, suspect and known DEQ sites, Portland Metro Area

Typology	Cost of Tax Credit	Property Tax Revenue/Cost	Income Tax/Cost	Total Tax Revenue/Cost
1	$12,297,000	2.1	0.5	2.6
2	$22,123,000	1.8	0.2	2.0
3	$20,807,000	0.2	0.3	0.5
4	$2,194,000	-	-	-
Total	**$57,420,000**	**1.2**	**0.3**	**1.5**

Source: ECONorthwest, 2012.

4.2 PROPERTY TAX ABATEMENT

Program description

This program would utilize some of the key criteria for the rural enterprise zone (EZ) tax abatement and apply these to brownfields throughout Oregon. The length of the tax

abatement would be based on criteria that have yet to be identified (e.g., amount of investment, job creation and/or retention, etc.). Localities may authorize a brownfield property tax abatement in or outside of enterprise zones if the remediation costs exceed 10% of the pre-development assessed value and the site cleanup is certified by the State.

- The abatement would be three years for any use outside of an EZ
- Within EZ's, the re-use categories that are eligible would expand and the time period would extend if the site meets the brownfields qualifications

For the purposes of conducting the return on investment analysis, ECO made the following assumptions regarding the structure of the property tax abatement, which was based on a review of a range of tax abatement programs used across the country:

- Properties are eligible for the abatement if the remediation costs are greater than 10% of the property's current assessed value
- The tax abatement applies to new assessed value generated by the capital improvements to the property
- The tax abatement continues for the three years
- The cost of the abatement is equal to the net present value of the abatement over three years
- Individual projects are capped at the cost of remediation, otherwise there is no cap for individual projects or the entire program
- There is no needs testing—it is fully automatic based on qualifying expenditures

We calculated the new financial gap after reducing remediation costs by the net present value of the tax abatement.[4] We then identified those parcels that became close to the tipping point or where remediation equals feasibility. However, no parcels flipped from infeasible to feasible after the tax credit, so our analysis focused on the parcels close to the tipping point. We did not apply the tax credit to upside-down parcels or those that are feasible even if remediation costs are included in the development costs.

Penetration Rate

To estimate potential impacts, we made the following assumptions:

- Isolate projects that become feasible or nearly feasible as a result of the credit;
- 50% of those sites proceed;
- Assume that 90% of those proceeding will claim the credit.[5]

[4] the net present value assumed a 3% discount rate, equal to the allowed rate of growth for assessed value.

[5] The take-up rate for abatement was assumed to be higher than for the remediation tax credit because experience in other areas show a higher participation rate for that tool.

Outcome

Table 4 shows the estimated outcomes for total acres, square feet of redeveloped buildings, new jobs, property tax and personal income tax for the suspect and known DEQ sites in the Portland region. The analysis estimates that the tax credit would support about 810 acres of new development. The redeveloped sites could provide workspace for about 16,500 jobs and 62,000 new dwelling units.

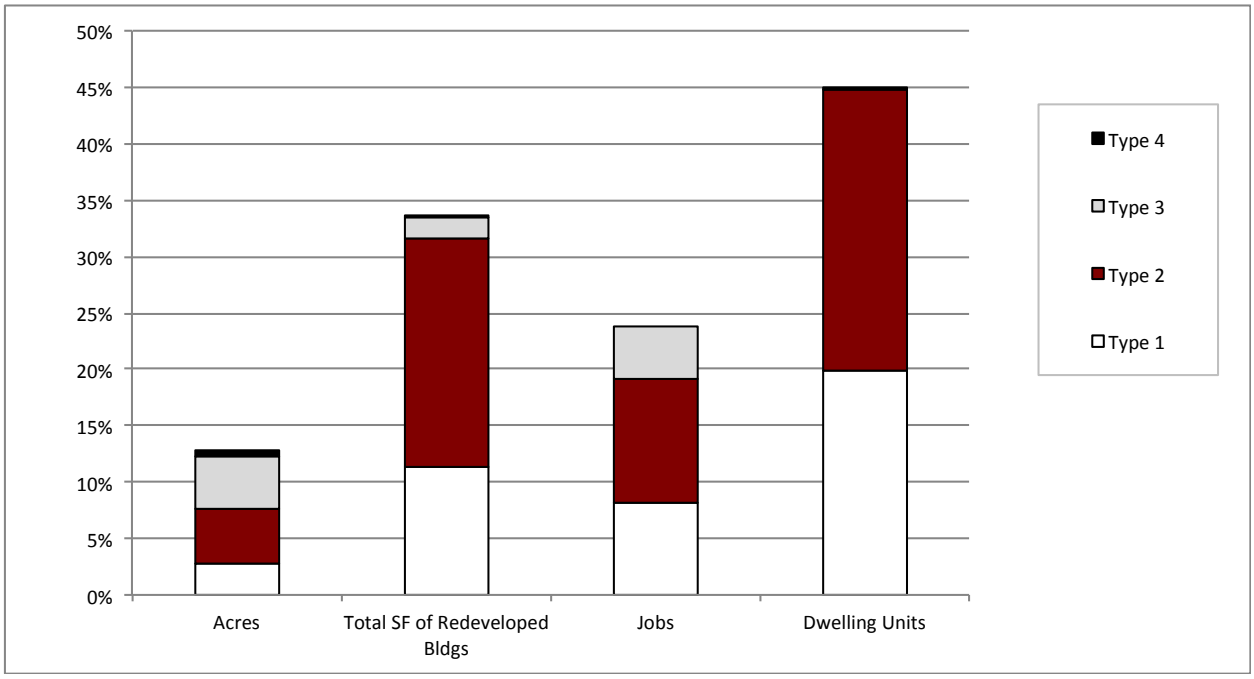
Table 4. Estimated outcomes incented by tax abatement within suspect and known DEQ sites, Portland Metro Area

					Annual Tax Revenue ($)	
Typology	Acres	Total SF of Redeveloped Bldgs	Jobs	Dwelling Units	Property Tax	Personal Income Tax
1	173	26,734,000	5,600	27,600	46,528,000	11,106,000
2	311	47,454,000	7,600	34,500	71,382,000	9,939,000
3	293	4,155,000	3,300	0	6,853,000	12,709,000
4	31	567,000	0	200	1,176,000	0
Total	**808**	**78,909,000**	**16,500**	**62,300**	**125,940,000**	**33,755,000**

Source: ECONorthwest, 2012.

For each measured outcome, ECO estimated the total that could be developed if 100% of the suspect and known DEQ sites in the region were redeveloped. Figure 3 shows the portion of that total that the tax abatement could incent towards development.

Figure 3. Portion of potential development outcomes for all suspect and known DEQ sites incented by property tax abatement, by brownfield typology, Portland Metro Area



Source: ECONorthwest, 2012.

Table 5 shows the estimated cost of implementing the property tax abatement for suspect sites and combined suspect and known DEQ sites, by typology. The net present value of the total cost for all eligible sites would be about $145 million. The data show that the total annual tax revenue is roughly equal to 110% of the net present value cost of the credit. The bulk of the tax revenue comes from property tax revenue.

Table 5. Estimated cost of tax abatement and return of investment from tax revenues, suspect and known DEQ sites, Portland Metro Area

Typology	Cost of Incentive	Property Tax Revenue/Cost	Income Tax/Cost	Total Tax Revenue/Cost
1	$41,202,000	1.13	0.27	1.40
2	$79,642,000	0.90	0.12	1.02
3	$20,559,000	-	-	-
4	$3,529,000	-	-	-
Total	**$144,932,000**	**0.87**	**0.23**	**1.10**

Source: ECONorthwest, 2012.

4.3 DEDICATED FUND FOR PLANNING, ASSESSMENT, AND CLEANUP / INTEGRATED PLANNING AND ASSESSMENT GRANTS

Program description

Oregon could establish a dedicated state fund for cleanup of contaminated sites where local governments are liable parties. The revenues should be generated from a source that has both a nexus with contamination and the potential to generate a substantial revenue stream. Large cleanup funds are typically approved and managed at the state level. The dedicated fund should produce a revenue stream sufficient to capitalize a revolving loan fund of $50 million and create a grant program of $25 million in annual outlays. Private, non-profit, and public entities would be eligible for the loans. Jurisdictions may pledge TIF revenues as re-payment, which would turn the loan into a grant for the developer. The state would decide public benefit criteria such as job creation, affordable housing, sustainable development, transit-oriented development, or investment in distressed areas.

For the purposes of conducting the return on investment analysis, ECO made the following assumptions regarding the structure of the dedicated fund, based on a review of similar programs in other states (Michigan, New York, Washington, and Minnesota):

- All properties are eligible for the funds
- Eligible costs are limited to remediation costs[6]

[6] It is possible that a more fully-developed grant program could cover more than just remediation costs, which could be beneficial for projects where market variables, together with brownfield costs, are also affecting feasibility.

- There is no cap for individual projects or the entire program
- There is no needs testing—it is fully automatic based on qualifying expenditures
- The impacts are projected over a 10-year time period

The revolving loan fund activities are assumed to generate a revenue stream equivalent to $25 million per year. The net present value of that figure, over a 10-year period is $213 million.[7] This level of cash flow would be sufficient to support an ongoing investment in brownfields around the region.

Based on these assumptions, the potential funds available for each parcel would be the cost of remediation. We calculated the new financial gap after reducing total remediation costs. We then identified those parcels that became close to the tipping point or where remediation equals feasibility. No parcels flipped from infeasible to feasible after the fund is employed, so our analysis focused on the parcels close to the tipping point. We did not apply the fund to upside-down parcels or those that are feasible even if remediation costs are included in the development costs.

Penetration rate

Based on the work of Redevelopment Economics, we assumed that a fund would be established with the purpose of maximizing the outcomes measured in this analysis, rather than to target particular types of properties or to achieve other potential goals. To estimate potential impacts of such a program, we made the following assumptions regarding penetration, based on the successes of the similar programs that we reviewed:

- Isolate projects that become feasible or nearly feasible as a result of the fund
- 50% of those sites proceed
- Assume that 50% of those proceeding will use the dedicated fund

After narrowing the potential total acres and remediation costs, total demand from suspect and known DEQ sites equaled $370 million, well in excess of the available $213 million. We assigned the funds to the typologies based on the financial gap ratio (the financial gap divided by the potential market value) for whole typology. The ratios for the four typologies are:

- Type 1-Small Commercial: 8.1%
- Type 2-Industrial Conversion: 12.0%
- Type 3-Ongoing Industrial: 10.9%
- Type 4-Rural Industry: 12.3%

[7] Assuming a 3% discount rate.

Based on the financial gap ratio, we assigned dedicated cleanup fund dollars first to Type 1-Small Commercial, second to Type 3-Ongoing Industrial, third to Type 2-Industrial Conversion, and last to Type 4-Rural Industry. The $213 million from the dedicated fund was sufficient funds to support all the Type 1-Small Commercial and about three-quarters of the Type 3-Ongoing Industrial acres that proceeded to redevelopment based on the assumptions and penetration described above.

Outcome

Table 6 shows the estimated outcomes for total acres, square feet of redeveloped buildings, new jobs, property tax and personal income tax for the suspect and known DEQ sites in the Portland region. The analysis estimates that the cleanup fund would support about 830 acres of new development. The redeveloped sites could provide workspace for about 9,000 jobs and 20,000 new dwelling units.

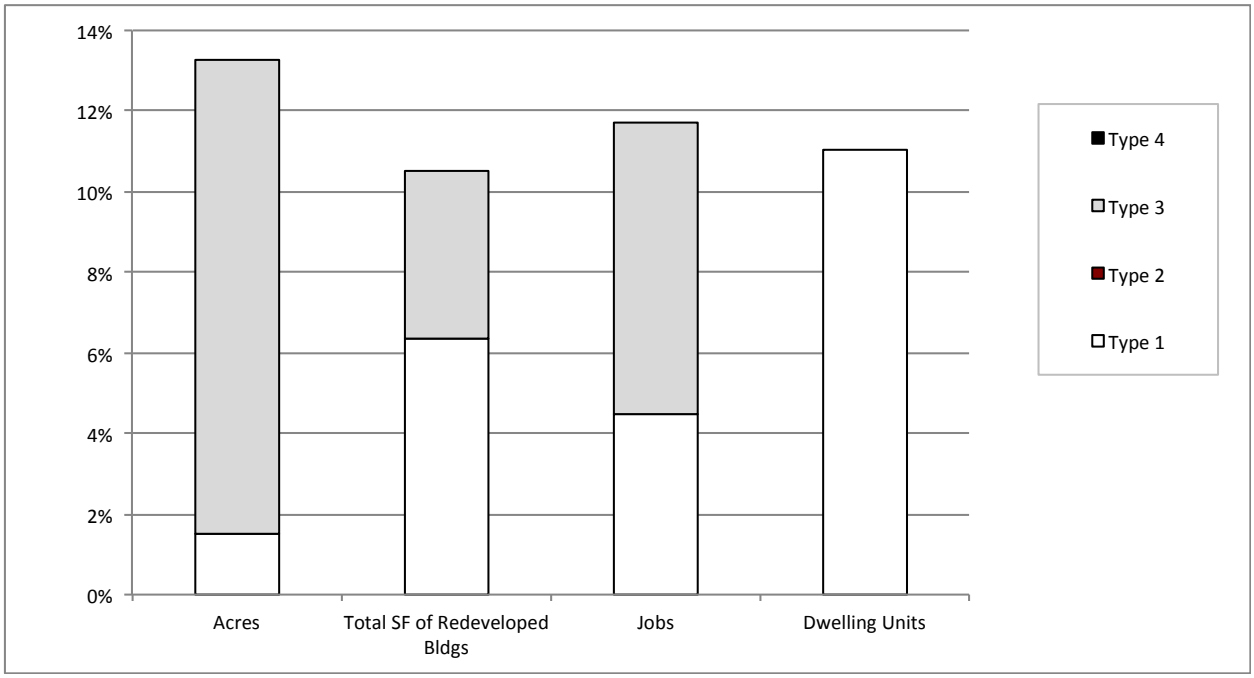
Table 6. Estimated outcomes incented by dedicated cleanup fund within suspect and known DEQ sites, Portland Metro Area

					Annual Tax Revenue ($)	
Typology	Acres	Total SF of Redeveloped Bldgs	Jobs	Dwelling Units	Property Tax	Personal Income Tax
1	96	14,852,000	3,100	15,300	25,849,000	6,170,000
2	0	0	0	0	0	0
3	737	9,727,000	5,000	0	15,448,000	19,514,000
4	0	0	0	0	0	0
Total	**833**	**32,728,000**	**8,700**	**19,900**	**51,945,000**	**24,169,000**

Source: ECONorthwest, 2012.

For each measured outcome, ECO estimated the total that could be developed if 100% of the suspect and known DEQ sites in the region were redeveloped. Figure 4 shows the portion of that total that the cleanup fund could incent towards development. The chart shows that all of the incented redevelopment occurs in Types 1 and 3. Type 3 is all employment-only development types, so the incentive incents a relatively high portion of total potential jobs.

Figure 4. Portion of potential development outcomes for all suspect and known DEQ sites incented by dedicated cleanup fund, by brownfield typology, Portland Metro Area



Source: ECONorthwest, 2012.

Table 7 shows the estimated cost of implementing the dedicated cleanup fund for the combined suspect and known DEQ sites taking advantage of the grant program, by typology. The total cost for all eligible sites would be about $213 million. The data show that the total annual tax revenue is roughly three times the net present value of the total cost of the grant program and the bulk of the tax revenue comes from property tax revenue.

Table 7. Estimated cost of dedicated cleanup fund and return of investment from tax revenues. suspect and known DEQ sites, Portland Metro Area

Typology	Cost of Incentive	Property Tax Revenue/Cost	Income Tax/Cost	Total Tax Revenue/Cost
1	$24,594,000	1.05	0.25	1.30
2	$0	-	-	-
3	$188,661,000	0.08	0.10	0.19
4	$0	-	-	-
Total	**$213,255,000**	**0.24**	**0.11**	**0.36**

Source: ECONorthwest, 2012.

Type 1-Small Commercial has a higher return on investment as that typology generates large property tax revenue relative to the cost of the tax credit.

4.4 PUBLIC LAND BANK

Program description

A public land bank creates an entity with the resources and long-term perspective to acquire and reposition brownfield properties without putting additional liabilities on the jurisdictional balance sheet. The land bank would operate with a clear mission and long-term plan for community revitalization. To be effective in repositioning contaminated lands, it should have special powers, such as protection from environmental liability, authority to clear title, ability to issue bonds and use tax increment financing. The land bank would require initial capitalization to acquire a portfolio of properties and financial support for the initial years, but should achieve financial self-sufficiency in a period of 5 to 10 years through sale of properties to the private market.

Key assumptions for this analysis about how a land bank could operate in the Metro area include:

- Initial capitalization of a $25 million acquisition-redevelopment fund (assumed funds put directly into acquisition and redevelopment without administrative costs)
- Declining annual appropriated for the first five years of operation (such as $10 million for year one declining to $2 million through year 5)
- The land bank would rely on other revenue sources to fund 50% of remediation costs. Other sources could include federal grants or tax increment financing.

A land bank would focus acquisition in challenging areas, where achievable rents are low and market feasibility is more difficult to achieve. To model broad impacts, we applied the revenue to average land values across the sample of suspect and DEQ sites.

Estimate cost of program

The assumptions provide a high level of initial investment targeted at properties with relatively low land value. The initial investment through the first five years would total $55 million of public funds that could potentially support acquisition and cleanup of 195 acres of property. These are subject to wide changes based on the portfolio of properties that could be acquired, the ability to purchase property at a discount and sell at a premium, and to obtain outside sources such as EPA grants to support cleanup. The land bank would likely operate like a private developer and focus on properties with the smallest financial gap and greatest redevelopment potential first. This approach could allow the land bank to use proceeds from early successes to subsidize investment in more challenging properties in the future.

Outcome

Table 8 shows the estimated outcomes for total acres, square feet of redeveloped buildings, new jobs, property tax and personal income tax for the suspect and known DEQ sites in the Portland region. The table only shows the total results, not by typology. Actual impacts would vary based on the type of land purchased and sold. Typologies with higher residential densities would yield more dwelling units, and typologies with more employment-based developments would yield more jobs.

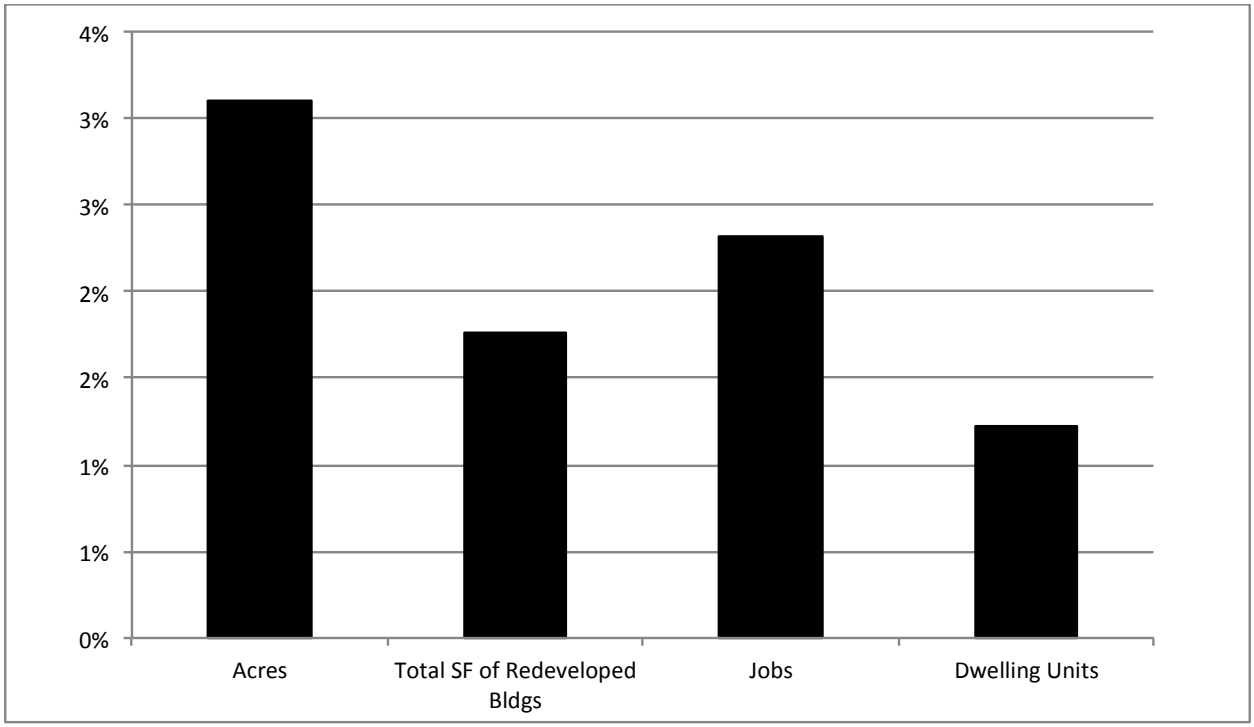
Table 8. Estimated outcomes incented by a land bank within suspect and known DEQ sites, Portland Metro Area

					Annual Tax Revenue ($)	
	Acres	Total SF of Redeveloped Bldgs	Jobs	Dwelling Units	Property Tax	Personal Income Tax
Total	**195**	**4,116,000**	**1,600**	**1,700**	**6,809,000**	**5,195,000**

Source: ECONorthwest, 2012.

For each measured outcome, ECO estimated the total that could be developed if 100% of the suspect and known DEQ sites in the region were redeveloped. Figure 5 shows the portion of that total that the Land Bank could incent towards development.

Figure 5. Portion of potential development outcomes for all suspect and known DEQ sites incented by land bank, by brownfield typology, Portland Metro Area



Source: ECONorthwest, 2012.

Table 9 shows the estimated cost of implementing the land bank for suspect sites and combined suspect and known DEQ sites, by typology. The total cost for all sites would be about $55 million—the value of the initial capitalization of the bank. The data show that the cost of the land bank is roughly four times the annual revenue generated by the sites.

Table 9. Estimated cost of land bank and return on investment from tax revenues, suspect and known DEQ sites, Portland Metro Area

	Cost of Incentive	Property Tax Revenue/Cost	Income Tax/Cost	Total Tax Revenue/Cost
Total	**$55,000,000**	**0.12**	**0.09**	**0.22**

Source: ECONorthwest, 2012.

The outcomes of a land bank, however, would be directly tied to how the land bank was managed. A land bank manager can make decisions to target specific types of land. The land bank could focus on large industrial sites, small industrial sites, or some other type of land that met policy goals. The targeted land type determines what kind of outcomes the land bank yields, and the target is a policy choice.

5 EVALUATION OF NON-FINANCIAL INCENTIVES

5.1 REGULATORY FLEXIBILITY

Program description

Existing zoning and land use regulations and entitlement processes may discourage redevelopment on brownfields. These may include strict development standards and lower density requirements that would reduce a potential project's financial feasibility. The Oregon Cleanup Law (Oregon Revised Statute 465) is the primary law regulating remediation of brownfields in the state. It establishes the procedural and technical requirements for remediation of contaminated properties. The Cleanup Law incorporates several fundamental policies designed to promote

For context, some examples of approaches to regulatory flexibility might include some of these examples from other cities:

Parking requirements. By reducing parking requirements for brownfield projects when practical, communities can make it easier and less expensive for developers to redevelop brownfield parcels. This also gives developers greater flexibility in project design and can support redevelopment that meets community goals. For example, the 80-unit Buckman Heights Apartments and Buckman Terrace is an affordable housing and retail development located in a walkable area of Portland. The project took advantage of the City's low minimum parking requirement (0.5 spaces per unit) to realize additional affordable housing on the parcel. Because of the low parking requirement, developer costs were reduced by $875,000.

Waiving development fees. Waiving development fees in special cases can make developers more comfortable taking on a higher risk brownfield project. This tool can be used to direct development toward target areas and to support specific development types, such as compact, mixed use development. As discussed in Heberle (2006). "The City of Austin, TX waives development fees (zoning, subdivision, and site plan application fees and water and wastewater capital recovery fees) for projects that occur within the Desired Development Zone (DDZ) and meets criteria under the city's Smart Growth Matrix. Fees are reduced on a sliding scale depending on where a project is located within the DDZ. Desired Development Zone's include downtown, transit centers and corridors, and neighborhoods within the urban core. By waiving development fees, the City of Austin is able to reduce development costs and further support redevelopment of brownfield properties within the DDZ."

Allowing land use flexibility. Redevelopment on industrial land is usually lower value than its higher-density counterparts on land zoned for mixed uses or commercial redevelopment. In some cases, allowing for a change in use or density can create higher value redevelopment outcomes that increase the feasibility of a project with higher costs due to site contamination.

cleanup and redevelopment of brownfields. The most important of these are a risk-based approach to cleanup, the VCP, and Prospective Purchaser Agreements. Continuing challenges include:

- **Perception of Cleanup Process.** There is a perception in the private sector that agency decisions are too often unpredictable and slow. Owners of contaminated sites are commonly reluctant to discuss environmental issues with regulatory staff for fear of triggering legal obligations, fines, or liability

- **Duration of the Cleanup Process.** Analysis of the DEQ database of contaminated sites indicates that many sites complete the cleanup process in less than 2 years, but that the average cleanup process in the Northwest region lasts approximately 4.5 years. Across the state, the average time for a site to go through the VCP is slightly under 4 years. These timeframes align with the median duration of 5.5 years for the case study projects. It is challenging for developers to meet the timing demands of market opportunities when cleanups take so long to complete.

- **Incentive to Delay.** There is a perception that there may be a benefit to waiting to cleanup and redevelop a property. Tax structures can create a disincentive to take cleanup actions, and some owners hope that the process may be modified in the future to be easier or less costly. Despite this perception, environmental regulations are continually becoming more rigid.

Estimate cost of program

The cost of the program equals the cost of implementing the various tools. Costs include staff time at various agencies, loss of development fee revenue, and efforts to restructure rules and requirements. Any estimate of the cost of the incentive would be based on conjecture. Therefore, ECO did not attempt to estimate the costs of implementing the program.

Penetration rate

For this analysis, we applied similar penetration rates as used in the remediation tax credit. We assume that 25% of the projects that become feasible or nearly feasible as a result of the decreased remediation cost proceed to redevelopment. To estimate potential impacts, we made the following assumptions:

- Isolate projects that become feasible or nearly feasible as a result of the credit
- Assume that 50% of those sites proceed
- Assume that 50% of those proceeding will claim the credit

Thus this analysis identifies an upper bound of participating properties

Outcome

One major effect of programs that aim to increase regulatory flexibility on development outcomes is in the reduction of the time required to get entitlements and complete development. The pro forma analyses in the feasibility analysis were broad and region-wide, and as such, did not include site-specific cash flow analyses that could account for the time required to address brownfield remediation and entitlements. However, another study that evaluated the redevelopment potential of a limited number of sites[8] and did complete full cash flow analyses found that carrying costs during site investigation are a significant impediment to remediation. Reducing those costs, especially on sites that have otherwise strong market fundamentals, can increase development feasibility.

It is difficult to estimate exactly the outcome of implementing this program or set of programs given the number of program variables that have not yet been determined, but even if it were successful in decreasing the soft costs of development by only 5%, the results are noteworthy. To estimate the effect of a potential 5% reduction, we calculated the new financial gap after reducing development soft costs by 5%. We then identified those parcels that became close to the tipping point or where remediation equals feasibility. We did not apply the cost reduction to upside-down parcels or those that are feasible even if remediation costs are included in the development costs.

Table 10 shows the estimated outcomes for total acres, square feet of redeveloped buildings, new jobs, property tax and personal income tax for the suspect and known DEQ sites in the Portland region.

Table 10. Estimated outcomes incented by regulatory flexibility within suspect and known DEQ sites, Portland Metro Area

					Annual Tax Revenue ($)	
Typology	Acres	Total SF of Redeveloped Bldgs	Jobs	Dwelling Units	Property Tax	Personal Income Tax
1	86	14,662,000	3,100	15,200	25,523,000	6,170,000
2	173	26,364,000	4,200	19,200	39,657,000	5,522,000
3	139	1,975,000	1,600	0	3,250,000	6,047,000
4	0	0	0	0	0	0
Total	397	43,001,000	8,900	34,400	68,430,000	17,738,000

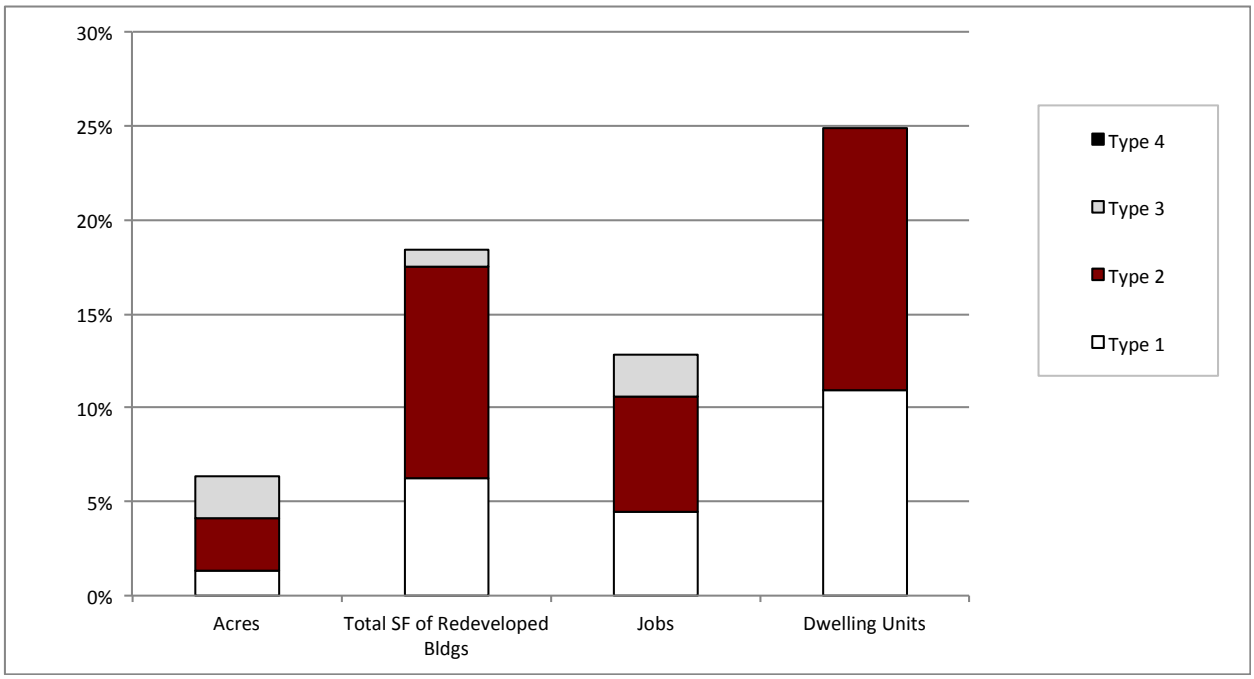
Source: ECONorthwest, 2012.

For each measured outcome, ECO estimated the total that could be developed if 100% of the suspect and known DEQ sites in the region were redeveloped. Figure 6 shows the portion of that total that regulatory flexibility could incent towards development. The chart shows that most of the incented redevelopment occurs in Types 1 and 2. Because

[8] Brownfield / Greenfield Development Cost Comparison Study, December 2004, Group Mackenzie.

those types are dominated by a mixed use and residential development, the regulatory flexibility affects non-remediation development costs, which make up the overwhelming majority of total development costs for those typologies. The incentive tool is more likely to incent residential uses than employment-only uses.

Figure 6. Portion of potential development outcomes for all suspect and known DEQ sites incented by regulatory flexibility, by brownfield typology, Portland Metro Area



Source: ECONorthwest, 2012.

The analysis shows that the results are very similar to the remediation tax credit discussed above. Under the assumptions used in the model, many sites fall into the 'close to tipping point' category—they are within 15% of becoming feasible if their remediation costs are eliminated. Any reduction in their costs narrows their financial gap, bringing them slightly closer to feasibility.

ECO did not quantify the estimated costs to government to implement the incentive, and did not calculate a return on investment. However, the monetary costs are not likely to be high, in comparison to the estimated tax returns, and would mostly include staff time.

5.2 ONE STOP SHOP

Program description

Successful redevelopment of brownfields requires navigation of state regulatory processes for cleanup along with permitting processes for construction. The multiple regulatory agencies involved may have different or competing interests. All of these regulatory processes occur within a time sensitive financing framework. A one-stop

shop creates a system for interagency coordination for permitting and funding brownfield projects. It can provide technical assistance to property owners to help them navigate state and federal standards guiding the cleanup of brownfield sites. Key features are a lead project manager to serve as a single point of contact for the client, simplified process steps on most projects, and much faster approvals.

This proposal is an internal policy change and does not involve changes to laws or regulations. Create a Brownfield "team" with representatives from Metro, Cities, DEQ, and Business Oregon that coordinates permitting and funding activities for eligible projects. Pennsylvania's Brownfield Action Team program provides a useful model. The team would meet with the project proponent at an early stage of the process to outline the permit requirements, potential financial incentives, and a schedule for a project. The team would then meet periodically through the planning and permitting process to resolve any conflicting requirements and expedite review of the project. These types of meetings currently do occur opportunistically. This policy would formalize and advertise this system to make it a common practice.

Estimate cost of program and outcomes

The program would incent redevelopment of brownfield sites by decreasing the costs of remediation by reducing the soft costs related to redevelopment. The effect of the program would be very similar to the regulatory flexibility program described above. ECO assumed this program would have a similar effect on the cost of remediation—reducing development soft costs by 5%. This figure is a rough estimate of the potential reduction in total costs. Actual impacts of the policy will vary based on individual situations.

Because the program's effect on development costs would be identical to that described in the flexibility program section, the outcomes would also be identical.

5.3 REFORM OF CONTAMINATED PROPERTY TAX ASSESSMENT

Program description

Property tax assessment policy in Oregon is currently considered by some to be a disincentive to cleanup. The state administrative rule regulating assessment for property taxes establishes a method to reduce the value of contaminated land by the cost of the environmental liability. This policy can result in substantial decrease in property tax payments on a brownfield property. While the market value of property is certainly impaired by contamination, a modest reform of this policy could be to include a time limit to encourage owners to address the problem.

While there is some anecdotal information about the impacts of the current policy on individual properties, County records regarding the use of this program were unavailable for this research. ECO suggests that research be undertaken to: 1) ascertain actual fiscal impact of the tax assessment on local governments, 2) clarify the process for

amending the OAR governing this program, and 3) better understand the impacts that changes to the assessment process for brownfields might have on operating businesses, which may need the credit to continue to function and create jobs and income taxes.

6 SUMMARY AND KEY FINDINGS

Table 11 summarizes the outcomes for the analyzed policies. The table shows the total acres, square feet of built space, net new jobs, dwelling units, and new annual tax revenue. Table 12 shows the same data on a per-acre basis.

Table 11. Outcomes incented by policies within suspect and known DEQ sites, Portland Metro Area

					Annual Tax Revenue ($)	
	Acres	Total SF of Redeveloped Bldgs	Net New Jobs	Dwelling Units	Property Tax	Personal Income Tax
Remediation Tax Credit	449	43,839,000	9,200	34,600	69,966,000	18,753,000
Property Tax Abatement	808	78,909,000	16,500	62,300	125,940,000	33,755,000
Cleanup Fund	833	32,728,000	8,700	19,900	51,945,000	24,169,000
Land Bank	195	4,116,000	1,600	1,700	6,809,000	5,195,000
Reg. Flex./One Stop Shop	397	43,001,000	8,900	34,400	68,430,000	17,738,000

Source: ECONorthwest, 2012.

Table 12. Per-acre outcomes incented by policies within suspect and known DEQ sites, Portland Metro Area

				Annual Tax Revenue ($)	
	Total SF of Redeveloped Bldgs	Net New Jobs	Dwelling Units	Property Tax	Personal Income Tax
Remediation Tax Credit	98,000	20	80	156,000	42,000
Property Tax Abatement	98,000	20	80	156,000	42,000
Cleanup Fund	39,000	10	20	62,000	29,000
Land Bank	21,000	10	10	35,000	27,000
Reg. Flex./One Stop Shop	108,000	20	90	172,000	45,000

Source: ECONorthwest, 2012.

The data show that the property tax abatement yields the most new square feet of built space, jobs, dwelling units, and tax revenue. However, on a per-acre basis it is equivalent to the remediation tax credit. Both policies affect the outcomes in a similar manner—they reduce the costs of development that are based on the acres of the parcel, they are directly correlated to the amount of land in a property.

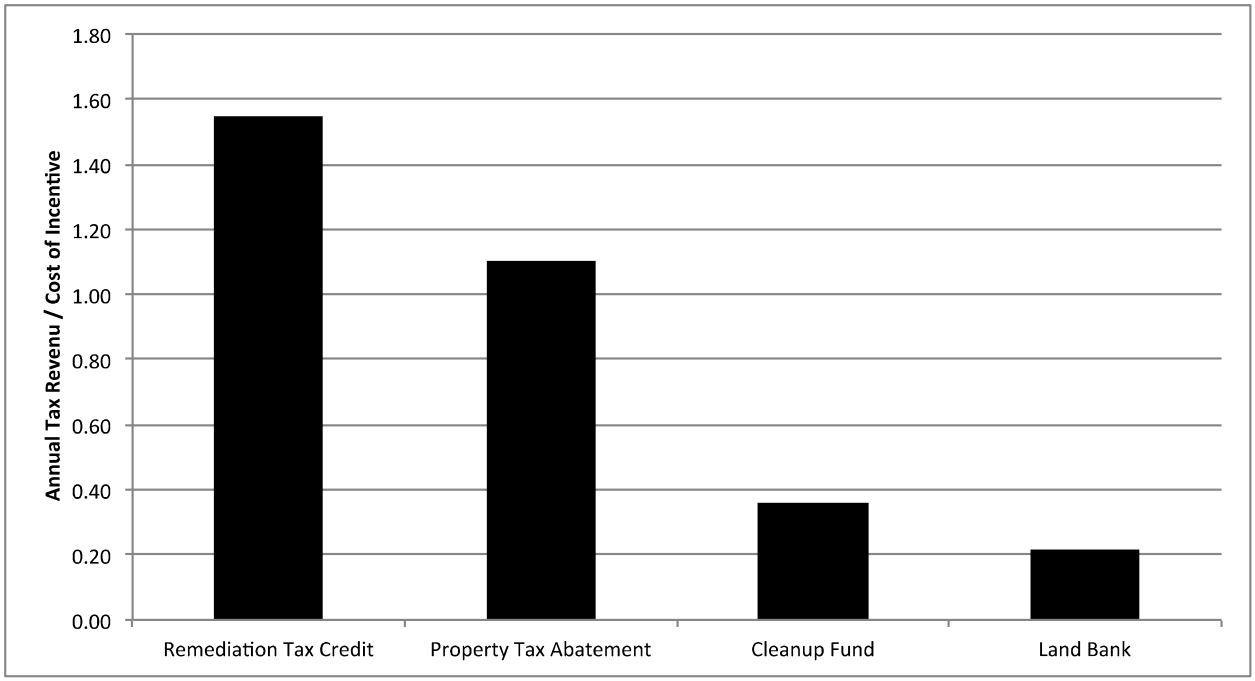
One reason is methodological. This analysis' purpose is to consider the impacts of various policy tools, relative to each other, on average across the entire region; this

purpose requires a mid-point or average scenario that smoothes out the market and cost variables that affect redevelopment feasibility at the site level. In that average scenario, many parcels were close to being within 15% of costs equaling market value, "close to tipping". A small change to the costs of development shifted the parcels into that category. The same set of parcels were close to being in that category before we applied the cost reduction from each policy and they shifted to "close to tipping" with most policies. The model is very sensitive to small changes in assumptions. For example, increasing the cost of remediation by $100,000 shifted all Type 4-Rural Industry parcels to infeasibility.

In the real world, this would not be the case: some parcels would be well located enough to command a strong price, or would have contamination that could be cost-effectively remediated, and redevelopment would occur.

Figure 7 shows the ratio of the annual tax revenue to the estimated costs for the four policies that had cost estimates. The tax credit appears to be the most cost effective. It incented about half as much new development as did the property tax abatement, but for lower costs. The two policies moved a similar set of parcels to feasibility because those parcels were close to feasibility. The property tax abatement is more advantageous for developers of denser developments as it lowers the tax burden associated with new improvements on the site. The tax credit will have a greater impact on parcels where site preparation costs make up a higher portion of total development costs.

Figure 7. Ratio of annual property tax and personal Income to cost of incentive, Portland Metro Area



Source: ECONorthwest, 2012.

The key findings from the analysis are:

- The sites more likely to respond to any policy incentive are those closest to feasibility. This underscores the difficulty of addressing properties that will not or cannot convert. If market conditions limit the financial feasibility, regardless of remediation costs, policies to incent remediation will not be effective.
- The typologies with denser development will yield higher tax returns. The dense building developments generate high levels of property tax revenue on a per-acre basis. Per acre, tall structures generate more property tax revenue than shorter structures. Dense development types, however, should be less sensitive to remediation costs. Costs associated with site preparation (e.g., remediation) make up a smaller portion of total development costs than a single-story building types.
- Certain incentive tools can target certain typologies. For example, a land bank can be structured to target specific land use types.
- Both the tax credit and the property tax abatement achieve similar goals—they reduce development costs and can move individual properties from infeasible to feasible. However, the tax credit is the most direct method to reduce costs and incent development. The cost of the credit is directly associated with the actual cost of remediation. The property tax abatement is tied to the value of the new capital improvements. It is entirely possible that the abatement exceeds what the developer would need to move the parcel from infeasible to feasible—the tool has the potential to provide more incentive than is necessary.
- The different tools have different impacts and revenue outcomes for the different typologies. This is because the different typologies have a different mix of development types. The development mix is a primary driver of differences in revenue impacts:
  - Type 1 and Type 2 include more high-density developments that typically include housing, offices, and retail. Because they are dense, they yield more property tax revenue per acre than the development typical in Type 3 and Type 4.
  - Type 3 and Type 4 include development types intended to offer employment space for industrial activity. Because industrial jobs tend to be relatively high paying, those development types yield more income tax revenue.
- Policies such as regulatory flexibility and one stop shop can be cost effective. The cost of the policies are associated with staff time and efforts to develop systems to implement the policies. But they can reduce the length of time it takes to navigate the remediation process, which reduces a developer's holding costs. Reducing these "soft costs" can tip parcels into feasibility.

- At this time, we do not fully understand the implications of reforming the contaminated property tax assessment. It would useful if research were undertaken to: 1) ascertain actual fiscal impact of the tax assessment on local governments, 2) clarify the process for amending the OAR governing this program, and 3) better understand the impacts that changes to the assessment process for brownfields might have on operating businesses, which may need the credit to continue to function and create jobs and income taxes.