

The Economic Impact Analysis of a California Water Board Brownfield Remediation Project:
The Great Mall in Milpitas

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Summary

This report is about the conversion of the former Ford Motor Company assembly plant in Milpitas, California into the Great Mall of California, one of the largest retail centers in California, and one which creates enormous economic, employment, and tax benefits to the community and the State. When the Ford plant was closed in 1983, the site had pollution and contaminants which might have prevented redevelopment into anything as successful as the Great Mall. It was the collaboration between the Water Board and the State Board and the property owner, Ford Land Development Corporation, which led to such an economic success story, a process which is described in this report.

The remediation and redevelopment of the former Ford Motor assembly plant in Milpitas converted an idle and contaminated industrial site which contributed nothing to the local economy into an economic powerhouse which now contributes \$481 million per year in business and government revenues as a result of the Great Mall operation.

The part which the Water Board plays in remediation projects is a small but essential one, which includes the identification and assessment of the extent of contamination, provision of expertise and information during the remediation planning and execution, and the final inspection and approval of the site as ready for redevelopment. This case study illustrates the important role which the Water Boards can play in remediation and redevelopment projects, and shows the enormous economic benefits to the California economy, its residents, and to its tax revenues which are largely invisible to the general public but which can be key components of economic stability and growth in the State. While the Water Board's activities were not the largest source of expenditures and investment in the project, it was a key and necessary activity without which the project may never have occurred.

The Water Boards are currently active in over 1200 remediation projects statewide, and many are at a scale even larger than the Great Mall. The total potential economic impacts from all these projects are in the billions of dollars of benefits to the California economy.

http://www.swrcb.ca.gov/publications_forms/publications/factsheets/docs/brownfields.pdf

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Introduction

The nine California Regional Water Quality Control Boards (Water Boards) and their parent State Water Resources Control Board (State Board) primarily have an environmental quality mission, rather than an economic one. In the environmental context, the Regional Water Boards' value to the people of California is the protection of the quality of water in its surface water bodies such as lakes, rivers, and streams; its ocean and beaches; and the subsurface ground water. Their protective activities affect our use of water resources for recreation, irrigation, drinking water, wildlife habitat, and other beneficial uses by maintaining and enhancing environmental water quality.

This report has a different view of the Water Boards' value to California: the economic benefits including the creation of business revenues, tax revenues, employment, and household income. While it may be possible to compute economic values created in recreational, irrigation, drinking water, and other beneficial water uses which benefit from Water Board activities, this report is focused on more directly measured business, employment, and tax economic benefits.

Remediation projects may provide the most visible of the economic benefits of Water Board activities. Remediation projects include Water Board participation in identifying pollution types and locations at a site; approving and evaluating cleanup programs; certifying compliance and authorizing sites for redevelopment. The expertise and guidance of the Water Boards play a large role in bringing the site back into the economic productivity of the California economy.

Many sites with significant pollution or contamination requiring remediation have historically been prevented from beneficial economic development based on the high cost and uncertainty associated with meeting cleanup and "site closure" policies. These sites are often "brownfield sites", defined as property for which the expansion, redevelopment, or reuse may be complicated by the presence or potential presence of a hazard substance, pollutant, or contaminant. In many cases, they are previously developed sites which were developed and utilized for an urban use, often industrial, but have since become obsolete and abandoned or under-utilized.

In the early 1990's the State Water Resources Control Board provided leadership in balancing California's strict water quality cleanup policies with the need for and desire for redevelopment of these brownfield sites. For petroleum contaminated sites, the State Board staff determined that for certain low risk sites, closure can be granted by the Regional Water Boards where public health is protected for the proposed reuse and where water quality would be improved over time by nature instead of by costly active remedial technologies. For sites impacted by pollutants other than petroleum, the State Board also allowed risk-based remedial approaches to sites, thus allowing additional brownfield sites to be redeveloped while long-term cleanup of groundwater continued at the property. The San Francisco Bay Water Board and its staff developed tools

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necessary to implement these remedial approaches and thus assisted with the redevelopment of numerous properties since the early 1990's.

Remediation Study: Ford Assembly Plant in Milpitas

The site to be analyzed herein is the Ford Motor Company auto assembly site in Milpitas, California. This site was identified for analysis in this report by the Water Resources Control Board of the San Francisco Bay Area. The Ford assembly plant was a major production site for Ford over decades from the 1950's to the early 1980's, when changing technology, foreign competition, and California environmental regulations combined to make the operation obsolete. The assembly process was conducted in a major facility with a total land area of about 150 acres, and included an enormous structure with nearly 2 million square feet under one roof. The operation also contained additional structures, including a paint facility where paints were mixed, prepared, and applied to autos.

Ford shifted the location of its auto assembly operation in the early 1980's, and the plant was closed in 1983. Several partial re-use projects were envisioned for the site, including an industrial condominium idea, but none of these ideas were economically feasible, especially given the suspected high costs of cleanup and the uncertainty of meeting these cleanup levels in a reasonable period of time. Thereafter the site was essentially vacant for some years before the remediation and redevelopment project began.

Assessment and identification of contamination of the site revealed a wide variety of underground storage tanks, solvent contamination in soil at the paint plant location, and hundreds of sumps and pits (many within the floor of the assembly building itself). The site contained PCB's, asbestos, and a variety of other soil and ground water contaminants, including groundwater impacts from adjacent chlorinated solvent and petroleum release sites.

Some of the parcels of the former assembly plant were determined to have not been impacted by on-site or off-site contamination but were tied to the "toxics site" by Water Board orders. These so-called "out-parcels" were later developed into commercial and residential uses, and these are not contained in this economic analysis.

The Ford Motor Company had an interest in remediating this site and redeveloping it through its subsidiary Ford Motor Land Development Corporation and to its credit took a very positive and participatory role in the reclaiming of the impacted areas of the site into The Great Mall of the Bay Area.

The redevelopment of the Great Mall was conducted by a partnership of the Ford Motor Land Development Corporation (Ford Land) and Petrie Dierman Kughn Development. Ford Land was the major owner, and the remediation and redevelopment were internally financed.

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Development of the uncontaminated out-parcels into residential and commercial reuse was accomplished by a number of local developers. The entire remediation was funded by Ford Land, with no State or Federal grants received. It is estimated that Ford Land spent approximately \$12 million directly on the remediation, and several million in addition for other site and structural cleanup projects. There were also costs associated with public transportation improvements prior to redevelopment. Finally, the conversion and renovation of the structure, parking area, and other activities cost approximately \$93 million.

As the site remediation concluded, redevelopment of the site began, with an early decision to convert and reuse the enormous structure. The structural renovation included an unexpected requirement for seismic upgrading, since the site sits on the Hayward Fault. Additional costs included the removal of out-structures, parking area renovation, street access improvements, and many other projects. The structure itself required extensive repair, and about 500,000 square feet of the structure was removed (but still leaving it the largest mall west of the Mississippi River when it opened) It is estimated that the physical redevelopment of the site, exclusive of the environmental remediation, cost about \$93 million, plus additional costs for constructing out-parcels and transportation improvements prior to their redevelopment. The actual conversion of the structure to its current economic use was conducted by Ford Land in partnership with knowledgeable development firms, including Ivanhoe Cambridge, Mills Corporation, and the current owner and operator, the Simon Property Group.

The remediation process is viewed as a very successful one which occurred with a minimum time and, according to more than one participant, at a lower cost than had been envisioned. One reason for that is that the initial evaluation and the ultimate sign-off for the remediation were conducted in a very responsive and efficient way by the Water Board. The project was conducted with the continuous participation by Water Board experts. One of those Water Board experts, Mark Johnson, was assigned to the project throughout the reclamation and redevelopment of the project, and is still involved in environmental risk management activities for the site. This continuity of Water Board involvement was a factor which Ford Land representatives say was a key factor in the timely and efficient completion of the remediation process.

A second factor in the successful outcome of this process was the responsible participation and leadership of the Ford Motor Land Development Corporation, which included not only a commitment to restore the site to profitable use as soon as practical, but also funding the remediation and reconstruction and remaining involved as a major partner in taking the Great Mall project through to its final retail use.

A third, and key factor, was the ability of the Water Board to separate the out-parcels from the burdens of the cleanup requirements for the former assembly plant work areas, and the granting of a “low risk closure” to the former assembly plant areas where groundwater remained impacted by on-site sources of petroleum hydrocarbons. The Water Board thus allowed for nature to complete the facility cleanup without lingering financial burdens to the property owners for future groundwater cleanup activities.

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A major contribution to the success of the project was its completion of redevelopment and re-entry into the economy in a timely manner. The redevelopment process from end of demolition to reopening with retail tenants occurred within 15 months, timed to be ready for the 1994 holiday shopping season. Participants in the project cited the positive participation of the City of Milpitas in that process, in which planning and construction approvals played a key role.

The Great Mall of the Bay Area

The resulting economic activity at the site is the enormous Great Mall of the Bay Area, locally called the Great Mall. Its 1.3 million square feet of leasable retail space under one roof makes it one of the largest malls in California. In addition to the mall itself, additional development on the site now includes additional retail including Home Depot and others. The Great Mall has become an important retail, social, and economic asset to its community and surrounding areas.

Great Mall Quick Facts

- Opened in 1994
- 1.3 million square feet of leasable space
- 211 retail tenants
- Nearly \$300 million in annual retail sales
- Anchors include Century Theatres, Kohl's, Sports Authority, Dave & Buster's, Burlington Coat Factory, Nieman Marcus, Marshalls

Economic Impact Analysis

The full economic value of this remediation site can only be shown using economic analysis which shows the generation of business revenues, employment, household income, and tax revenues which are generated directly and indirectly by the Mall. This analysis will be presented below, using data provided by the current Mall management, Ford Motor Land Development Corporation, the San Francisco Bay Area Water Board, retail data from the California State Board of Equalization and the Urban Land Institute retail data bases and publications. The analysis is performed using an econometric model called IMPLAN, which is discussed further in Appendix 1.

This analysis shows the value which was in fact generated as a result of the specific remediation and redevelopment activities which actually occurred on the site. It is possible that alternative remediation and redevelopment, or some partial reuse of uncontaminated portions of the site, may have occurred without the Great Mall project, but the value of such partial reuse would certainly have been small compared to that which actually occurred.

There are two different types of economic impacts generated by the Great Mall project. The first impacts were created through the remediation and redevelopment activities, and resulted from the cleanup at the site (investigation and remediation such as slurry wall construction, pumping

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and extraction of contaminants, and removal of underground tanks) as well as the structural repair, seismic upgrading, and conversion to retail uses of the structure and parking areas. This was a one-time economic activity totaling about \$140 million over several years.

One-Time Remediation and Redevelopment Impacts

Table 1 shows the full economic impact measure of this one-time remediation and retail mall development activity. The economic benefit to the region generated by the remediation and redevelopment exceeds \$203 million in revenues, as detailed below:

Table 1. Great Mall Remediation and Redevelopment Impacts					
<i>Economic Activity</i> →	Direct Expenditures	Indirect Impacts	Induced Impacts	Total Economic Impact	Multiplier
↓ Measure of Economic Activity					
Total Expenditures	\$ 140,835,000	\$ 28,889,012	\$ 34,153,017	\$ 203,877,025	1.45
Value Added (GRP)	\$ 74,100,202	\$ 17,317,673	\$ 22,355,993	\$ 113,773,867	1.54
Employment	938	208	245	1392	1.48
Employee Compensation	\$ 52,130,746	\$ 10,093,426	\$ 10,344,925	\$ 72,569,097	1.39
State & Local Tax Revenues Generated	na	na	na	\$ 9,448,616	na
Tax generation is an estimate of generation, not allocation. The actual amount allocated to local government depends on current State allocation processes.					
na=not available at this level of disaggregation.					

- **Direct Impacts:** \$140.85 million of direct expenditures were incurred by Ford Land, the Water Board, and the retail developer in remediation and redevelopment of the site.
- **Indirect Impacts:** An additional \$28.9 million in local business revenues was generated for local firms who provided goods and services including construction materials and services, technical services, transportation and construction equipment, and many other categories.
- **Induced Impacts:** The employees of the site remediation and redevelopment firms as well as those of the indirect supplier firms spent their wages, benefits, and profits in the community for housing, food, retail, entertainment, transportation, education, and many other items, creating additional revenue of \$34.15 million in the local economy.

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- Total Impacts: The total economic activity adds up to \$203.88 million, which is the original direct expenditure of \$140.8 million times the 1.45 economic multiplier for this type of activity in Santa Clara County.

The rest of Table 1 gives other measures of economic activity, which are part of the \$203.88 million in total business revenues.

- The \$113.7 million in Value Added is an economic measure of the net value created in the project, net of the cost of inputs used in the process, and is part of the Gross Regional Product, Gross State Product, and Gross National Product.
- The 1392 jobs created are annual equivalent jobs, not an actual count of individuals employed which might contain many more part-time employees or fewer employees who work multiple years on the project.
- The Employee Compensation of \$72.6 million is not just wages but also includes the cost of medical and vacation benefits, sick leave, and employer contribution to social security and other taxes.
- The estimate of \$9.45 million for State & Local Tax Generation includes the state and local taxes paid by both individuals and companies, and include income, sales, property, business license, and other taxes. The table does not imply that this amount is actually paid to local governments, as the formula for redistributing taxes collected by the State of California to its local governments is temporary and volatile, and cannot be indirectly estimated by economic models.

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Ongoing Economic Impacts from Great Mall Operations

While the one-time remediation and redevelopment economic impacts were very large, they will ultimately be exceeded by far by the annual economic benefits from the operation of the Great Mall. This is shown in Table 2. This represents an ongoing annual benefit which will continue as long as the Mall is economically viable, so the total for all years will be very large.

Table 2. Annual Economic Impacts of Great Mall Operations					
<i>Economic Activity</i> →	Direct Expenditures	Indirect Impacts	Induced Impacts	Total Economic Impact	Multiplier
↓ Measure of Economic Activity					
Total Business Revenues	\$340,834,999	\$ 70,820,181	\$69,440,492	\$481,095,670	1.41
Value Added (GRP)	\$213,831,925	\$ 43,631,620	\$45,454,487	\$302,918,036	1.42
Employment	4,653	444	499	5,596	1.20
Employee Compensation	\$121,980,933	\$ 21,323,504	\$21,033,577	\$164,338,013	1.35
State & Local Tax Revenues Generated	na	na	na	53,203,627	na

Tax generation is an estimate of generation, not allocation. The actual amount allocated to local government depends on current State allocation processes.

na=not available at this level of disaggregation.

This table shows a recurring annual economic impact which will continue for the economic life of the Great Mall. While this is an estimate for the calendar year 2006, and the amounts will vary from year to year, the Great Mall is already fully absorbed into the regional economy and will likely be renovated and expanded to extend its economic life for many years.

- **Direct Impact:** The total business revenue for the Great Mall is now about \$340.8 million per year, which is mostly the retail sales of the businesses located on the site.
- **Indirect Impact:** Suppliers of goods and services to these retail firms create another \$70.8 million per year.
- **Induced Impact:** Employees of the Great Mall and the firms which supply them with goods and services spend about \$69.4 million for housing, health care, transportation, entertainment, and other consumption items in the local economy (some of it at the Great Mall).
- **Total Impact:** The total business revenues add up to about \$481.1 million per year spent in the local economy as a result of the Great Mall operation.

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Other measures of economic activity from the ongoing operation of the Great Mall include:

- Value added contribution to Gross Regional Product of \$302.9 million per year.
- Employment of 5,596 annual equivalents.
- Employee compensation of \$164.3 million per year.
- State & Local tax revenue generation (but not allocation) of \$53.2 million per year.

Conclusions.

The remediation and redevelopment of the former Ford Motor assembly plant in Milpitas converted an idle and contaminated industrial site which contributed nothing to the local economy into an economic powerhouse which contributed \$203.8 million in business revenues during the remediation and redevelopment, and continues to contribute \$481 million per year as a result of the Great Mall operation. The separation of the clean out-parcels from the regulated site by the Water Board further induced additional residential and commercial development adjacent to the Great Mall.

The part which the Water Board plays in remediation projects is a small but essential one, which includes the identification and assessment of the extent of contamination, provision of expertise and information during the remediation planning and execution, and the final inspection and approval of the site as ready for redevelopment. The Water Board also provides continuing oversight of any lingering contamination potential including impacts from off-site sources now and in the future. While this may not be the largest source of expenditures and investment in the project, it is a key and necessary activity without which the project may never have occurred.

Interviews with Ford Motor Land Development Corporation personnel which were involved in the project stated that the expertise and responsiveness of the Water Board was a major element in the efficient and timely remediation and redevelopment of the site. They also commented on the cooperative relationship with the City of Milpitas, which was the ultimate approval authority for the redevelopment planning and construction. The positive and responsible response of the Ford Motor Land Development Corporation in carrying through the remediation of the project was certainly a key in the successful outcome of the remediation and conversion of this site.

This case study illustrates the important role which the Water Boards can play in remediation and redevelopment projects, and shows the enormous economic benefits to the California economy, its residents, and to its tax revenues which are largely invisible to the general public but which can be key components of economic stability and growth in the State. While the Water Board's activities were not the largest source of expenditures and investment in the project, it was a key and necessary activity without which the project may never have occurred.

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The Water Boards are currently active in over 1200 remediation projects statewide, and many are at a scale even larger than the Great Mall. The total potential economic impacts from all these projects are in the billions of dollars of benefits to the California economy.

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Appendix 1. The IMPLAN model and its nomenclature

In this study, the computations will be made using the IMPLAN model, an input-output model which can show the full range of the inter-relationships in the regional economy which are affected by direct economic impacts of the Great Mall. The USDA and the Forest Service in the mid-1970s developed IMPLAN with University of Minnesota economists for community impact analysis of Federally-funded projects. The Natural Resources Inventory and Analysis (NRIAI) and Social Sciences (SSI) Institutes are supporting usage of IMPLAN throughout NRCS. The model is currently specified as the methodology required for analysis on many Federal and State public works and natural resources projects, and is widely used in California for CEQA environmental impact assessments.

The IMPLAN model must be calibrated for each local economy in which impacts are to be measured, in this case, Santa Clara County. The calibration creates a model for the local economy which shows all of the productive sectors, and measures the interconnections between them. The calibration is made using a data base created by the US Bureau of Labor Statistics called the ES-202 data, which is based on a survey of all businesses which is updated every two years. The latest data is based on the ES-202 survey completed in 2006.

Model Terminology and Outputs. The model describes the economic structure and the economic impacts in several ways. One description is by the sequence of events which result in the multiplied total effect:

The Direct Impact, the event which triggers the sequence, or in this case, expenditures by customers at the Great Mall businesses or expenditures by the Mall management on construction or other improvements.

The Indirect Impact, which identifies the second-order effects on the economy when the Great Mall retailers purchase goods for sale or services such as advertising, accounting, or others.

The Induced Impact, when the employees of the Mall and the providers of goods and services spend their wages and profits on household consumption, including housing, groceries and other retail goods, medical care, entertainment, education, transportation, taxes and other items.

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The Total Impact is the sum of the Direct, Indirect, and Induced impacts derived by the econometric model. This is the desired all-inclusive view of the economic benefits created by the Great Mall on the economy.

A second description provided by the IMPLAN model is based on the specific measurement of the economic benefits. These range from the total revenues or sales of all businesses and government agencies, to the final impact on employment and tax revenues. The measures are described below:

Total Output is the total business and government sales or revenues generated by firms, government entities, and households involved in the economic activity, and is widely used because it is the measure most business and government entities use to measure their level of activity. It includes all types of income including profits, return of capital, return on investment, employee compensation, and taxes.

The additional measures below are all part of the Total Output, and are therefore smaller than the Total Output.

Value Added is a net estimate which identifies the actual creation of new value in the economy. It excludes the costs of purchased materials and services, but includes profits, capital costs, worker compensation, and other aspects of the productive activity. The sum of all Value Added activities in the region equals the Gross Regional Product (GRP for the region, or GNP for the nation.) It is a better measure of the real economic contribution of an activity, but is a concept which individual business firms and government agencies cannot readily compute.

Employee Compensation measures the part of Value Added which goes to the employees of the firm or government agency. It is not just salary, but includes all costs of benefits, bonuses, vacation, sick leave, and all other compensation.

Employment is the count of annual equivalent employment generated by the project on an annual basis. It does not necessarily represent a count of employees active at a given time; a large number of temporary or part-time employees would be reduced to a full time equivalent number which would be lower in terms of actual numbers of employed persons.

State and Local Tax Generation is a model estimate of the corporate, personal, property, and sales taxes generated, as well as in-lieu charges for services. The measure is one of generation, not allocation. It is very difficult to estimate how much of this is retained by or returned to cities or counties, as the California fiscal structure and allocation processes by the State are complex and change rapidly.

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The Great Mall management and regional managers of the Simon Property Group, Inc., current owners and operators of the Great Mall.

Genson Wright, “Auto Plant Remodeled into a Retail Mecca,” Building Design & Construction, September 1995.

About the Author:

Dr. Robert Fountain is a highly qualified and experienced researcher in all aspects of regional economic analysis. His qualifications include a PhD in Urban Land Economics, Finance, and Urban Planning from UCLA and extensive research and publications experience for academic, corporate, and public agency applications.

He has taught urban economics and development courses at UCLA and California State University, Sacramento, where he is a *Faculty Emeritus*. He has an extensive list of research and academic publications, and has founded a number of research institutions for academic and applied research. His expertise includes economics, land use, financial analysis, modeling, and forecasting.