

**CITY OF OAKLAND
COUNCIL AGENDA REPORT**

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OFFICE OF THE CITY CLERK
OAKLAND

2003 APR 17 PM 1:17

TO: Office of the City Manager
ATTN: Robert C. Bobb
FROM: Public Works Agency
DATE: April 29, 2003

Council District: City-Wide

RE: REPORT AND RECOMMENDATIONS ON IMPROVEMENTS TO THE CITY'S SIDEWALK PROGRAM AND REQUEST FOR COUNCIL TO APPROVE EXPENDITURE OF FISCAL YEAR 2002-2003 ADA TRANSITION PLAN FUNDS, TOTALING NO MORE THAN \$250,000, TO CONDUCT A LIMITED ADA SIDEWALK SURVEY AND REPAIR PROJECT

SUMMARY

At the request of Council, this report provides a status of the Public Works Agency (PWA) Sidewalk Program, particularly with respect to sidewalk inspections and repairs and staffing. This report also recommends improvements to the Sidewalk Program. This report further requests Council approval to spend \$250,000 to perform a sidewalk survey and initiate sidewalk repairs necessary to bring the City's Sidewalk Program into compliance with state and federal requirements under the American with Disabilities Act and the Public Liability Act.

BACKGROUND


The City of Oakland has approximately 30 million square feet¹ of sidewalk area. Approximately one third (about 10 million square feet) of the total sidewalks are damaged, at an estimated repair cost of \$133 million. Of that one third, approximately seventy-five percent (\$100 million) of the damage is caused by the root expansion of city trees and the remaining twenty-five percent (\$33 million) is caused by private trees, cars parking on sidewalk and deteriorating sidewalk.

Over the years the City's Sidewalk Program has gone through a number of staffing and funding changes, which have adversely impacted the City's ability to conduct adequate inspections, repairs and maintenance of City sidewalks. As a consequence, the City's liability for dangerous conditions of public property under the Public Liability Act continues unabated and, due to recent decisions holdings under the (ADA), this liability would most likely continue to grow in the future should the sidewalk program remain unchanged.

FISCAL IMPACTS

The following summarizes funding for the City's Sidewalk Program:

¹ 1,162 miles or 24,541 city blocks

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Current Funding: In fiscal years 2001-2003, the City’s Sidewalk Program received \$7.52 million, as shown on Table 1. At this time, the total \$7.52 million of available funding is being used almost exclusively to reduce the current backlog of sidewalk repairs.

TABLE 1

FUNDING SOURCE	FUND	2001-02	2002-03	TOTAL
MEASURE B (ACTA)	2210	760,000		760,000
MEASURE B (ACTIA)	2211		760,000	760,000
DEPT. OF TRANSPORTATION	2116	2,000,000	2,000,000	4,000,000
MUNICIPAL IMPROVEMENT CAPITAL	5500	1,000,000	1,000,000	2,000,000
	SUBTOTAL	3,760,000	3,760,000	7,520,000

- \$4.248 million in contracts will be used for city tree related sidewalk repairs on Federal Aid Urban (FAU) and non-FAU streets (Project No. G212710, G212720 & C78020).
- \$2.261 million contract will be used for non-tree related repairs on Federal Aid Urban (FAU) streets having a backlog of \$8 million (Project G212730 & G212740).
- \$1,011 million has been allocated to repair damaged sidewalks and curb & gutters on streets listed on the annual CIP Street Resurfacing contracts for FY 2001-2002 and 2002-2003 in accordance with the City Manager’s direction of implementing a “holistic” approach on CIP projects (Project No. C78041).

Necessary Funding: To repair the estimated 10 million square feet of damaged sidewalk (City and private related damage), the cost would be in the range of \$133 million. To repair the amount of backlogged damaged sidewalk that has been inspected to date, the cost would be approximately \$17 million. (See Attachments A & B).

Approximately 450,000 square feet of sidewalk damage is reported to the City each year, at an estimated total repair cost of \$6 million.

Sidewalk Repair Cycle: Assuming \$100 million (75% of \$133 million) in City tree related damage and funding of \$2 million per year, it will take approximately 50 years to repair all City tree related sidewalk damage, thereby creating a 50-year repair cycle.

In addition, staff has identified an additional \$250,000 in ADA Transition Plan Capital Improvements Projects funds to augment the Sidewalk Program. The City Council allocated 2002-2003 Municipal Improvement Capital (MIC) funds in the amount of \$500,000 for ADA Transition Plan Capital Improvement Projects, of which approximately \$250,000 remains unspent. Expenditures under the ADA Transition Plan program are typically approved by the MCPD. On March 10, 2003, the MCPD approved expenditure of up to \$250,000 in fiscal year 2002-2003 ADA Transition Plan funds for Phase I of a citywide sidewalk condition (GIS) survey and database project.

KEY ISSUES AND IMPACTS

1. Staffing and Administrative Resources: Currently, the Sidewalk Program staff consists of one Senior Construction Inspector, two Construction Inspectors (one Construction Inspector position is vacant) and one Tree Trimmer. Table 2 compares staffing from the mid 1970’s to the present. Over the last 30 years there has been a 20% increase in sidewalks added to the City’s infrastructure and a reduction of 50% in the number of City Inspectors charged with the responsibilities to inspect and repair sidewalks.

Period	Sr. Construction Inspector	Construction Inspector	Office Assistant II	Tree Inspector	Tree Trimmer	Summer Hires	Park & Recreation Referrals	Comment
mid 1970's	4					4	yes	
early 1980's	1	4	1			0	some	
late 1980's	1	3	1			0	some	
early 1990's	1	3	1			0	some	
1997-2000	1	2	1	1		0	yes	One Construction Inspector eliminated and one vacancy retained.
2000-2002	1	2	1		1	0	none	One Construction Inspector vacancy retained and one Tree Trimmer position added.

Due to limited staff, there is no program for scheduled inspections and the only inspections performed are complaint driven. Additional staffing is required in order to initiate an inspection program that would provide a more proactive sidewalk inspection system to identify sidewalk hazards before they escalate to greater proportions. The establishment of an ongoing sidewalk condition re-inspection system is critical to monitoring effectiveness, performance and recurrence of sidewalk hazards at previously repaired locations.

In fiscal year 2001-2003 the Sidewalk Program had an operating budget of \$588,233.00 for inspection staff. This budget allows the Sidewalk Program to operate with 5.0 FTE as shown in Table 3. Accordingly, the unit is only able to respond to call-in complaints and permit inspections. At the present time, an aggressive proactive inspection and abatement program is not being implemented because of limited budgeted positions and unfilled vacancies.

TABLE 3

CITIES	POP.	SIDEWALK MAINTAINED (SQUARE FEET)	ESTIMATED DAMAGED SIDEWALK (SQUARE FEET)	FTE ADMIN.	FTE INSPECTORS	FTE INSPECTOR VACANCIES	ANNUAL REPAIR CONTRACTS
OAKLAND	409,300	30,000,000	10,000,000	2	2	1	\$ 3,760,000.00
SAN JOSE	917,971		2,000,000	4	5		
SAN FRANCISCO	730,000		1,100,000	1	6	1	\$ 630,000.00
CONCORD	120,000	4,000,000	1,000,000	2	5		\$ 300,000.00
HAYWARD	150,000	10,000,000	850,000	1	0.5		\$ 1,500,000.00
ALAMEDA	74,259			13	5	1	\$ 250,000.00

To implement a successful Sidewalk Program, the following staffing and administrative resources would need to be allocated:

- a. Fill current vacant Construction Inspector position.
- b. Budget three additional Construction Inspector positions, for a total of five Construction Inspector positions.

2. Tree Issues and Impacts: Many sidewalk repairs can be attributed to tree species that are no longer planted (i.e. Liquidambar, Evergreen Ash, Chinese Elm and Camphor). In January 1998, the Oakland City Council approved a Street Tree Plan that included an Official Tree List. This list designates minimum-sized planting locations and species that will be planted or approved by the City. These standards should eventually reduce the problem of tree-related sidewalk damage.

Currently, official street trees are only removed when they become unstable as a result of root pruning. Many large trees are able to withstand severe root pruning. If space permits, the opening in the sidewalk, and around the tree is enlarged at the time of repair. This gives the tree more room to grow before the sidewalk is lifted again.

The City recognizes the value of mature street trees and attempts are made to preserve them at the time damaged concrete is repaired. Most urban trees reach their mature size in approximately 25 years, yet must continue to grow for their entire life. Few trees exist beyond 50 years old, so the urban forest is in a perpetual state of being planted, growing old and being removed. Root barriers have not been proven to be an effective control for preventing root-caused sidewalk damage when installed at the time of planting. The practice of installing root barriers on mature trees has not been attempted in Oakland and is scientifically questionable due to a mature tree's need for large buttressing roots in order to support itself.

The Protected Trees Ordinance (PTO) allows the removal of hazardous trees without a permit as an exemption under Section 12.36.040(A). The applicable criterion in the Hazardous Trees Ordinance is the likelihood of the tree causing personal injury or damage to property in the reasonably near future, Section 12.040.030(A)(9).

To minimize impact to the tree, Life Enrichment Agency (LEA) – Tree Division has recommended that one side of the tree at a time be root pruned to prevent permanent tree

damage. Other alternatives that have been considered are removing a tree after three repairs, and thinning out unsuitable species and replanting these with “sidewalk friendly” trees. A third option to consider is to transfer ownership and maintenance of new or replanted trees to private owners.

3. ADA Issues and Impacts: City sidewalk construction and repair is covered under the ADA Accessibility Guidelines and sidewalks are essential to pedestrian access for persons with disabilities. The ADA Title II, Section 35.133, provides that a public entity shall maintain, in operable working condition, those features that are required to be readily accessible to and usable by persons with disabilities. In a 2002 decision of the United States Court of Appeals for the Ninth Circuit, the court broadened the scope of the with Disabilities Act of 1990 (ADA) program access requirements for public sidewalks, essentially requiring public entities to invest significant resources to repair public sidewalks and maintain them free of barriers, physical defects and other conditions that may deny pedestrians with disabilities access to sidewalks.

The City should draft an ADA sidewalk and curb ramp transition plan to effectively plan and implement disability-related sidewalk improvements and to demonstrate its intent to comply with the ADA. The Plan would catalog, prioritize and document repairs necessary to ensure access to city sidewalks for pedestrians with disabilities. The most effective way to draft and implement an ADA sidewalk transition plan is with a Geographic Information System (GIS)-based survey of all public sidewalks. It is estimated that a citywide GIS sidewalk survey and database would cost \$500,000.

In order to avoid sidewalk survey and database costs, the City may instead rely on public input via the Mayor’s Commission on Persons with Disabilities (MCPD) Transportation and Mobility Committee to select and prioritize city streets for ADA sidewalk repairs. The City relied upon a similar process to select street intersections for curb ramp installation until completion of the citywide curb ramp survey and database in 2003.

The City Council allocated 2002-2003 Municipal Improvement Capital (MIC) funds in the amount of \$500,000 for ADA Transition Plan Capital Improvement Projects, of which approximately \$250,000 remains unspent. Expenditures under the ADA Transition Plan program are typically approved by the MCPD. On March 10, 2003, the MCPD approved expenditure of up to \$250,000 in fiscal year 2002-2003 ADA Transition Plan funds for Phase I of a citywide sidewalk condition (GIS) survey and database project.

The MCPD motion was based upon the notion that this survey would be a joint effort between the ADA Programs Division and the Public Works Agency (PWA). It is unclear, however, if the PWA would be able to complete the survey and database project in fiscal years 2003-2005 due to budget constraints. Moreover, the initial recommendation assumed that the GIS database would be of immediate use in activating a program to enforce regulations requiring private property owners to repair sidewalk damage (except damage caused by City street trees). Such a program would be of great benefit to pedestrians with disabilities and the repairs made by property owners would well exceed the initial investment for the GIS survey and database. Again, budget limitations may prevent the PWA from initiating such a program in fiscal years 2003-2005.

Therefore, the MCPD is now recommending expenditure of up to \$250,000 in fiscal year 2002-2003 ADA Transition Plan MIC funds (Project C88810) for a limited ADA Sidewalk Survey and Repair Project. The Project would identify and repair a number of inaccessible sidewalks in high pedestrian use areas of the city and along essential accessible routes. The ADA Programs Division would complete the Project in cooperation with the TMC, PWA and the Oakland Pedestrian Safety Project. Staff expects to issue a request for proposals in June 2003. The ADA Sidewalk Survey and Repair Project would then come back to Council in the form of a resolution awarding the contract for the project to the lowest qualified bidder. ADA sidewalk surveys and repairs would begin in the Fall 2003.

4. The Public Liability Act – issues & impacts: In addition to the legal requirements of the ADA, the California Public Liability Act, Government Code § 830 et seq., requires municipalities to take reasonable steps to protect the public from sidewalk defects which create a substantial risk of harm to those using the sidewalks with due care. This legal obligation includes the requirement that public entities establish an adequate sidewalk inspection, repair/warning and maintenance system.

State law does not particularly specify the kind of sidewalk maintenance program that would be considered reasonably adequate to pass legal muster. However, the law does provide certain guidelines by which public entities can measure whether their system for inspection, repair and warnings and maintenance of sidewalks is reasonably adequate and, therefore, legally defensible.

Inspections: Public entities are required to exercise due care in attempting to discover dangerous conditions of sidewalks. Gov. Code Section 835.2. To establish due care, a city must show that its inspection system is reasonably adequate considering the practicability and cost of inspection weighed against the likelihood and magnitude of the potential danger to which failure to inspect would give rise. The inspection system must be shown to be capable of informing the public entity whether the property is safe for the use intended. The public entity must also show that it maintains and operates the inspection system with due care and that, given its inspection system, it did not discover any purported dangerous condition. Gov. Code Sections 835.2.

Based on this statutory language and case law interpretation, in order to establish an adequate inspection system, a public entity must assess and make appropriate findings of the cost and practicability of the inspection system it proposes to adopt and weigh these considerations against the risk of the potential danger of its sidewalk properties. Once adopted, a public entity must be able to show that it maintains and operates the system with reasonable adequacy. Since the inspection system must be shown to be capable of informing the public entity of the condition of its sidewalk property, the inspection system must be to some extent, proactive and not rely solely on complaints to respond to dangerous conditions. This would require at a minimum that the inspection system include a reasonable number of inspectors considering the miles of sidewalks in existence and enough repair crews and/or qualified contractors retained to repair sidewalk defects timely once they are discovered.

Repairs/Warnings: The law also requires that cities respond to hazardous conditions of sidewalks within a reasonable period of time, depending on the peril presented by those

conditions. Thus, the more serious hazards in the most traveled areas must be prioritized and responded to immediately. Serious hazards must be repaired within a reasonable period of time, in order to protect the public from dangerous conditions. Generally, a public entity must repair sidewalk hazards within one to six months of learning about them, and sometimes sooner depending on the circumstances of each case and the danger presented by those conditions. Short of an immediate or timely repair of sidewalk hazards, the City must be prepared to show that it acted reasonably and promptly to protect the public by instituting appropriate warning measures at these locations, through warning signs, sidewalk markings, or by installing appropriate barriers to prevent the public from the risk of accidents presented by sidewalk hazards.

SUSTAINABLE OPPORTUNITIES

Economic: Improvements to the Sidewalk Program will reduce the City's municipal liability resulting from dangerous conditions that result in trip and fall accidents and injuries. Improvements to City sidewalks enhance and protect the City's infrastructure. Sidewalk repair contracts create job opportunities to local and qualified contractors.

Environmental: The concrete and asphalt removed under the Sidewalk Program will be recycled. Tree roots that are pruned and trees that are removed due to instability or are an inappropriate species/location will be taken to a green waste-recycling center. Trees failing the "stress test" will be replaced at the request of the property owner if adequate space exists.

The availability of rubber sidewalk panels presents another tire recycling opportunity for the City of Oakland. Rubber sidewalk panels are made from ground tire crumbs and will facilitate future tree maintenance, since rubber panels can be easily removed and put back in place for preventive root pruning maintenance (*see Attachment C*).

Social Equity: Improvements to the Sidewalk Program will enhance and preserve infrastructure, enhance ADA public access and protect the public from hazardous conditions.

DISABILITY AND SENIOR CITIZEN ACCESS

Improvements to the City's sidewalk maintenance program will greatly benefit seniors and people with disabilities because they are a large pedestrian group and are among the most vulnerable to accident or injury. For many people with disabilities, a cracked sidewalk is not only a potential trip and fall hazard but also an access barrier. For wheelchair users, many of whom rely on public transportation, a system of accessible sidewalks is necessary for travel to and from work, school, medical appointments, etc. As discussed under Key Issues and Impacts, the Barden decision would require the City to make its entire sidewalk program accessible to people with disabilities.

RECOMMENDATIONS AND RATIONALE

1. Citywide Condition Sidewalk Survey and ADA Sidewalk Repair:

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Public Works Committee
April 29, 2003

RECOMMENDATIONS AND RATIONALE

1. Citywide Condition Sidewalk Survey and ADA Sidewalk Repair:

The ADA Programs Division and MCPD recommend that the Council approve expenditure of up to \$250,000 in fiscal year 2002-2003 ADA Transition Plan MIC funds (Project C88810) for a limited ADA Sidewalk Survey and Repair Project. The Project would identify and repair a number of inaccessible sidewalks in high pedestrian use areas of the city and along essential accessible routes. The ADA Programs Division would complete the Project in cooperation with the TMC, PWA and the Oakland Pedestrian Safety Project.

2. Rubber Sidewalk Pilot Program: PWA recommends that Council approve the implementation of a pilot project using rubber sidewalk panels at official tree locations. Cost benefit of using rubber sidewalk panels will result in savings of maintenance and repair costs after 5 years compared to performing removal and replacement of concrete sidewalk. A \$50,000 pilot program will be funded from the Recycle Product Procurement Fund.

Rubber sidewalk panels can also be removed to allow for periodic pruning of tree roots before uplift poses a tripping hazard to the public.

3. Tree Removal and/or Replacement: PWA and LEA – Tree Division recommends that a set of criteria be developed to determine specific trees to be removed at the time of the sidewalk repair. The Tree Trimmer could verify these tree removals and the cost could be funded within the Sidewalk Program. Criteria would include:

- a. trees whose trunks are currently growing over the curb line, or
- b. trees that are of a known inappropriate species, or
- c. trees that are in a location where future damage is highly likely.

Property owners would be notified and given the option of preserving the tree and accepting all future repair expenses, or having the tree replaced with a more appropriate tree if adequate space exists.

4. Revolving Repair Fund and Lien Process: PWA recommends that Council approve funding for a sidewalk repair revolving fund to cover the cost of work performed at locations that are the private property owner's responsibility. Under the current lien process the City first issues a Notice to Repair to the property owner. In the event a private owner fails make repairs, the City will place a Preliminary Notice of Lien on the property and either make a preliminary repair and/or a permanent repair, based on available funding. After the repair is completed the City will place a lien on the property for the cost of repairs, administrative costs and accrued interest. The property owner may pay in full or agree to repay over a five year term (with 10% interest, plus administrative fees).

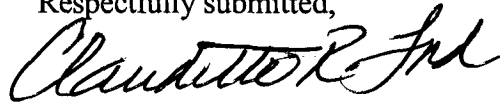
5. Sidewalk Damage Included in CEDA's Inspection Process: Require CEDA inspectors to check for sidewalk damage when performing inspections on building permits and notify PWA of locations needing repairs.

6. Sidewalk Repair Ordinance: Issue an ordinance that requires sidewalk to be inspected and repairs completed as a condition of sale or property transfer.

ACTION REQUESTED OF THE CITY COUNCIL

Staff recommends that Council approve this report and the recommendations for improvements to the City's Sidewalk Program. Staff further requests that Council approve the expenditure of \$250,000 to perform an ADA Sidewalk Survey and initiate sidewalk repairs to bring the City into compliance with the law.

Respectfully submitted,



CLAUDETTE R. FORD

Director, Public Works Agency

Prepared by:

BERRY A. WEILAND, JR.

Assistant Director, Public Works Agency
Maintenance Services Department

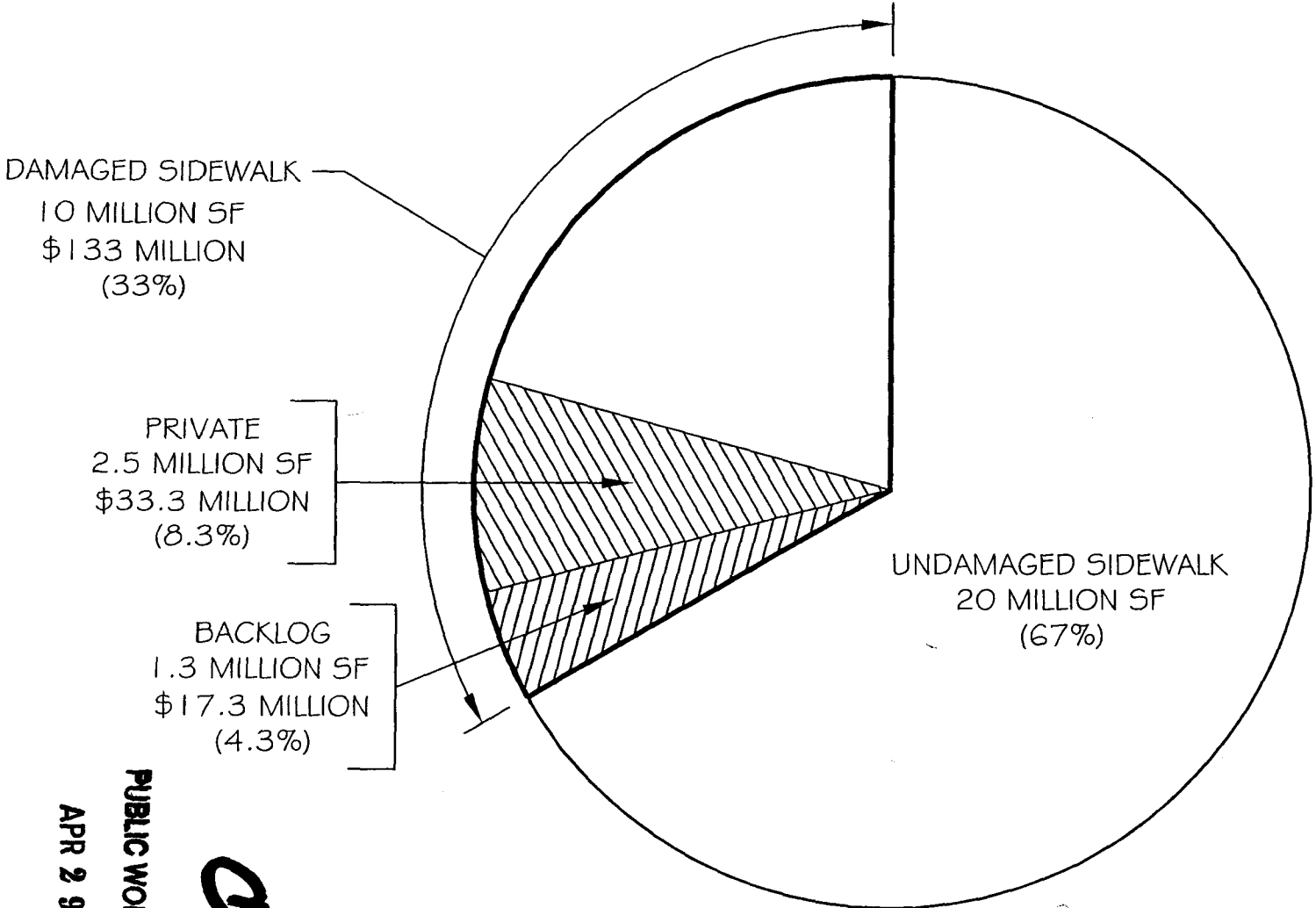
Attachment (A , B , & C)

APPROVED AND FORWARDED TO
THE PUBLIC WORKS COMMITTEE


OFFICE OF THE CITY MANAGER



ESTIMATED SIDEWALK CITYWIDE (30 MILLION SF)



DAMAGED SIDEWALK
10 MILLION SF
\$133 MILLION
(33%)

PRIVATE
2.5 MILLION SF
\$33.3 MILLION
(8.3%)

BACKLOG
1.3 MILLION SF
\$17.3 MILLION
(4.3%)

UNDAMAGED SIDEWALK
20 MILLION SF
(67%)

D

PUBLIC WORKS CMTE
APR 2 9 2003

ATTACHMENT A

**CITY OF OAKLAND
PUBLIC WORKS AGENCY
MAINTENANCE SERVICES DEPARTMENT**

ATTACHMENT B

SIDEWALK REPAIR BACKLOG

Date: 11/15/2002

ESTIMATED TOTAL SIDEWALK CITYWIDE (SF):	30,000,000			ESTIMATED COST OF SW NEEDING REPAIR: \$	133,591,186
ESTIMATED SIDEWALK NEEDING REPAIR (SF):	10,000,000	33.33%		ESTIMATED BACKLOG COST: \$	17,258,282
SIDEWALK REPAIR BACKLOG (SF):	1,291,873	4.31%			
 RATIO OF BACKLOG TO SIDEWALK NEEDING REPAIRS (%):		12.93%			

1	\$ 2,175,953	\$ 311,762	\$ 209,648	\$ 513,870	\$ 3,211,233	23%
2	\$ 1,571,446	\$ 246,173	\$ 143,967	\$ 271,816	\$ 2,233,402	16%
3	\$ 2,134,585	\$ 243,784	\$ 138,955	\$ 255,907	\$ 2,773,231	20%
4	\$ 633,989	\$ 140,404	\$ 65,958	\$ 103,356	\$ 943,707	7%
5	\$ 870,560	\$ 222,274	\$ 71,055	\$ 103,179	\$ 1,267,068	9%
6	\$ 1,401,001	\$ 261,959	\$ 148,878	\$ 274,848	\$ 2,086,686	15%
7	\$ 901,512	\$ 142,978	\$ 92,177	\$ 154,631	\$ 1,291,298	9%

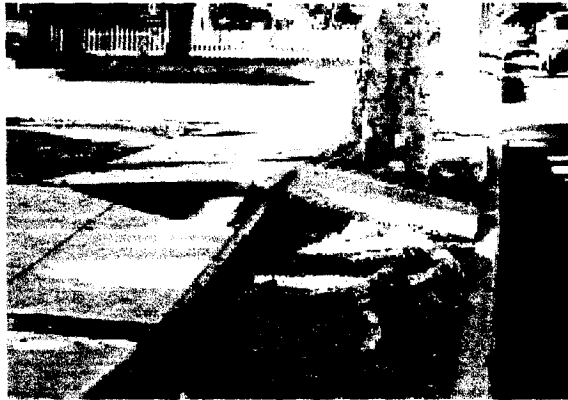
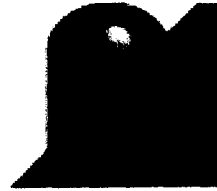
TOTAL (SW, DWY, CURB, GUTTER): \$ 13,806,625

OTHER CONTRACT BID ITEMS (25%): \$ 3,451,656

RUBBERSIDEWALKS

A 21ST CENTURY SOLUTION

A Budget Saving Alternative



CONCRETE

Concrete is damaged by tree root growth. Replacing concrete is expensive. Trip hazards are even more expensive.



RUBBERSIDEWALKS

Rubbersidewalks eliminate sidewalk damage and trip hazards. Because they are maintainable, there is no longer a need to replace sidewalks near trees.



UNDER CONCRETE

Rubbersidewalks modularity allow roots to be periodically inspected and trimmed.



UNDER RUBBERSIDEWALKS

Tree roots grow less aggressively.

RECYCLED TIRES

Rubbersidewalks made of 100% recycled tire rubber keep tires out of landfill.



Rubbersidewalks preserves the urban forest while offering a new strategy for sidewalks maintenance.

SPECS

- Material:** Recycled California crumb rubber, compressed, Urethane binder & color
- Sizes:** 30"x12"x2" (2.5 sq ft); 5'x2.5'x1.875" (12.5 sq ft); 4'x2.5' x 1.875" (available in 2003).
Tree well pavers available in November.
- Weight:** Small paver: 26 lbs., Five foot paver: 133 pounds., Four foot pavers 106 pounds.
- Colors:** Light gray, dark gray, terra cotta, forest green, cobalt blue, black (custom colors available). UV & Fade resistant; fading in first month, then stable for 5 years; 1/2" surface color only; or whole color.
- Surfaces:** Five foot paver: Smooth surface, all beveled edges (Brick design available on request).
Four foot paver: Smooth surface, all beveled edges (Brick design available on request)
Small paver: Brick design/Smooth reversible
- Maintenance:** Sweep, hose down, steam clean or mop.
- Strength:** 2000 pounds per sq. inch.
- Skid Resistance:** 66 dry (43 wet).
- Drainage:** Pervious, drainage at module seams.
- Flammability:** Highly flame resistant, 500 degree flash point. If exposed to open fire, pavers will smolder. Lit cigarettes, cigars or matches can burn on paver and will self-extinguish, leaving a stain that can be brushed off.
- Other:** Non-toxic, odorless, no volatile organic compounds, ADA compliant, sole source.
- Customizing:** Can be cut at site [curves, around tree trunks, etc.], or custom cut at factory.

MEDIA & PUBLICATION

MAGAZINES

Tree Care Industry October 2001
Rubber Sidewalks Saves Trees
by Dan Dale

Natural Home Magazine December 2001
The Right Path
by Marsha Scarbrough

I.D., June 2002
Savvy Sidewalks - Where the Sidewalks Ends
by Michelle Taute

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NEWS PAPER ARTICLES

Los Angeles Times, July 14, 2001
With Rubbersidewalks, Trees on the Rebound
by Bob Pool

Daily Breeze, May 30, 2001
Cities go to the mat for old trees
by Traci Jai Isaacs

Contra Costa Times, May 26, 2002
New sidewalks bend conventional wisdom
by Denis Cuff

The Daily Telegraph, July 16, 2001
Rubber paving gets to root of street safety
by Ben Fenton

Ventura Star, November 2001
Thousand Oaks might save with sidewalks of rubber
by Julia Rogers

Department of Public Works NEWS, February 13, 2002
City of Los Angeles
DPW Experimenting with Rubbersidewalks
by Marshall Lowe

The resources of the earth are limited. Recycling is limited only by our imagination and effort...

Rubbersidewalks Presentation

Thursday, January 23, 2003

Richard Valeriano
Sr. Public Works Inspector
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Santa Monica, CA 90404
Ph (310) 458-8504

The following is an outline of today's PowerPoint presentation regarding Rubbersidewalks. The presentation covers two questions: 1) what are the 4 benefits associated with Rubbersidewalks? and 2) what are the economics of using Rubbersidewalks?

A Technological Alternative in an Urban Environment

4 Perspectives on the benefits of using Rubbersidewalks

- 1) The maintenance perspective, Sidewalk repairs;
- 2) The environmental perspective, Recycling used tires;
- 3) The urban forest perspective, Saving trees; and
- 4) The Risk Management perspective, trip and fall cases.

Street Maintenance perspective

1) Fiscal responsibility: Rubbersidewalks introduces the concept of modularity. This is a new maintenance solution to costly repetitive sidewalk repairs. Sidewalk maintenance is a myth. Concrete sidewalks cannot be maintained. When damaged by invasive tree roots they can only be demolished and reconstructed. That is not maintenance, it's rebuilding. Rubbersidewalks introduces a sidewalk that can be maintained and, in the light of repetitive sidewalk damage, is more cost effective than concrete reconstruction.

The Environmental perspective

2) Rubbersidewalks use recycled waste tires that have been processed into crumb rubber. This conserves landfill space, reuses materials in order to benefit for the environment, and makes a commitment to the public health. Stockpiling tires is a potential for disease transmission caused by the vermin that breed in stockpiles.

The Urban Forest perspective (The Arborist's perspective)

3) Rubbersidewalks benefit the health and stability of mature trees in an urban environment. The 21st street experiment points to a new relationship between tree roots and sidewalks. Rubbersidewalks enable a greater number of offshoots and a different growth pattern than is currently observed under concrete sidewalks. This discovery radically alters tree root maintenance management with respect to sidewalk repairs. Also, because Rubbersidewalks are modular they can be easily removed to monitor the tree root systems.

The Risk Management perspective

1) Personal liability: risk management and city attorneys view Rubbersidewalks as a solution to trip and fall litigation settlements. Sidewalks are social: used for transportation and recreation. The first priority must be personal safety. The sidewalk is a public meeting place. It provides use to our most vulnerable citizens, our children and our seniors. It must be ADA compliant and provide a vibration free zone for wheel chairs. Rubbersidewalks have been tested for safety and durability in Santa Monica for the past 5 years. Because Rubbersidewalks are molded and pressed, they are hard enough to pass the most important test condition, which is someone traveling down a sidewalk on roller blades experiencing the transition from concrete to rubber and back again to concrete. Rubbersidewalks also hard enough to support high heels and walkers.

Rubbersidewalk Facts.

Rubbersidewalk paver modules are a molded product, which cures under conditions of heat and pressure. They weight 9 lbs per square foot and come in various colors, and sizes, including sidewalk gray, terracotta, forest green, and cobalt blue. The surface has a concrete like, skid proof texture. The modules are: (1' x 2.5'); (5' x 2.5'); or (4' x 2.5') and all pavers are 1.87" thick.

Rubbersidewalks are secured to each other and to existing concrete with a system of plastic paver restraints, TapCon anchors and, when necessary, a non-toxic Fast Set epoxy structural adhesive. The paver surface is long lasting (10 to 15 years); flame resistant, 500-degree flash point, and can be refinished or repainted to add to its lifespan. Minor gouging or damage can be repaired with an epoxy compound. Rubbersidewalks can be steam cleaned. It is possible to use one side of the paver for a number of years and then turn the pavers over and use the other side. There are various strategies to accomplish this double life plan. Rubbersidewalks are currently installed in many cities in California including Los Angeles, Santa Monica, Thousand Oaks, Cerritos, Glendale, Orange, Ventura, Concord, Manteca, Irvine and Fillmore. They have also been installed in Savannah, Georgia and Hollywood, Florida.

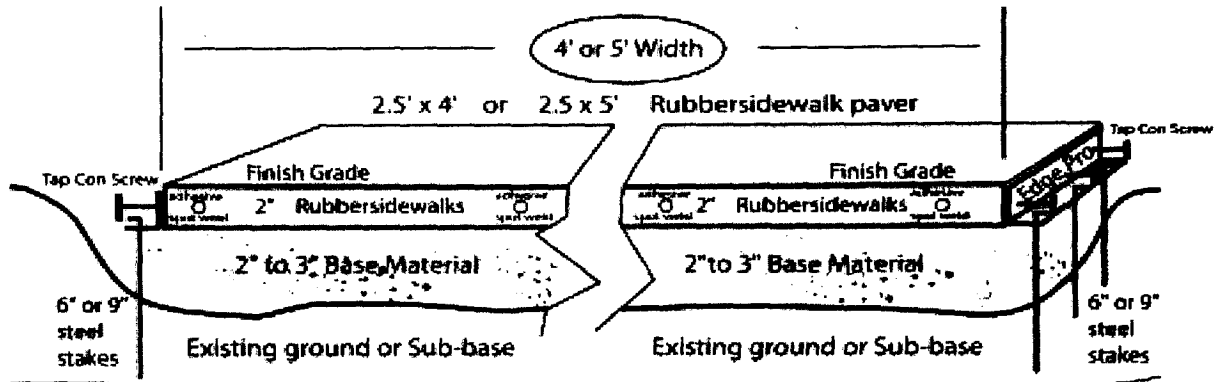
The 21st Street Experiment.

We have been conducting a controlled experiment in on 21st Street and Ocean Park Blvd in Santa Monica for the last 3 years. Half of the Rubbersidewalks are removed and the tree roots are measured and trimmed while the other half is left undisturbed in order to monitor and observe the pattern of growth next to a mature ficus tree and the also see the effects of the new kind of Rubbersidewalk maintenance, which is now a real alternative.

The Economics of using Rubbersidewalks.

Rubbersidewalks and tree root related sidewalk repair costs in general are difficult to estimate because the factors and possible costs regarding concrete break out, tree root trimming and sub-base preparation can vary greatly depending on the tree's type, age and the size of the parkway. Also, costs can vary depending on whether or not the work is done 'in house' by a city crew or is contracted out. The charts and graphs in the presentation explore all the possible price ranges from \$6.00 per square foot to \$16.00.

Rubbersidewalks Section Drawings



Installation Notes

Saw cut existing concrete sidewalk. Be sure saw cuts are accurately measured, i.e. parallel. The saw cuts also should be straight, neat, and perpendicular. Break out existing concrete. Set up a string line or some other system of establishing a straight edge to determine the finish grade of the Rubbersidewalks.

Trim roots using directional cutting to benefit the tree root system. If directional cutting is a new concept please consult with an arborist. In general, it means that each root is to be considered on an individual basis and each root is trimmed at an exact right angle to its individual direction or angle of growth.

Compact (vibra-plate) the sub-base, using water to improve compaction, and then add 2" to 3" of base material. Base material can include sand (washed plaster sand or more compactable varieties), decomposed granite (d&g), CMB or class-A base.

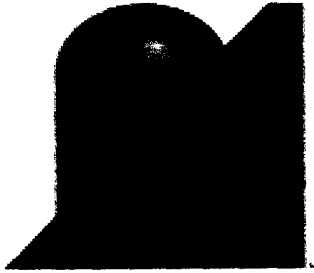
The base material should be well graded at 2" below finish grade.

Place the Edge Pro paver restraints with the 'L-shape flange' facing outward.

Fine grade the base material (sand) and place the Rubbersidewalk pavers without any further disturbance of the base material to ensure even edges in the sidewalk placement. Apply structural adhesives, if that is how inner joints are being fixed, with a spot weld pattern (1/2" dia) vertically centered to the inner edges of the Rubbersidewalks.

Determine where you will place the Tap Con screws, which will join the Edge Pro paver restraints to the Rubbersidewalk sides and drill a starter pilot hole only in the paver restraint, **not in the Rubbersidewalk itself**. A right angle drill is very useful.

Top off the Rubbersidewalks with brooming on some fine grade #90 silica sand to fill in the inner joints.



RUBBERSIDEWALKS, INC.

RUBBERSIDEWALKS PRICE LIST

1) RUBBERSIDEWALKS PAVERS:

4' x 2 ½' x 1 7/8" color/black base, beveled edges, grid bottom

5' x 2 ½' x 1 7/8" same as above

\$6.50/ sq ft COD

\$6.85/sq ft net 30

2) INSTALLATION ACCESSORIES:

Average cost is \$.65/sq ft depending on site

(Example: 1000 sq ft = \$650/accessories)

Dimex EdgePro Paver Restraints	\$62.00/box 90 feet	(\$.68/ft)
Restraint stakes	\$ 7.80/box 60 ct	(\$.13/pc)
TapCon anchors	\$ 8.80/box 100 ct	(\$.08/pc)
RS Slow Set epoxy	\$23.00 per 2 pt kit	

3) DELIVERY, TBD (Orders may be picked up at La Habra yard.)

Installation accessory amounts are calculated as follows (RSI provides calculations in all Estimates):

Dimex EdgePro Paver Restraints

Lineal feet: length of site x 2)

Example: 4-6 foot wide sidewalk, 25 feet long = 50 feet restraint

Restraint stakes

1 stake per 1.5 lineal ft restraints,

Example: 1 box@60 stakes per 90 ft restraints

TapCon anchors

1 anchor per each sq ft pavers

Example: 1 box@100 for 100 sq ft


RS Slow Set epoxy

1 2-qt kit per 500 sq ft

1 2-pt kit per 250 sq ft

Orders require 30 days. All-black pavers available on request.

Installation training available on all first orders.



Local Government Commission
"The LGC is a nonprofit organization working to build livable communities."

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Waste Prevention

Free Resources | Energy | Currents Newsletter | January/February 2002

New Rubber Sidewalks Put Local Governments on the Right Path

by Marsha Scarbrough

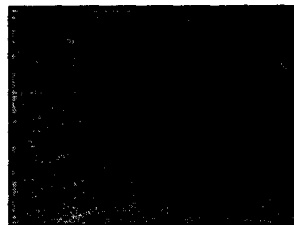
To avoid trip-and-fall lawsuits, many cities cut down mature shade trees when their roots buckle sidewalks. After long days of dealing with root-ravaged sidewalks in Santa Monica, CA, a public works inspector dreamed about contorted sidewalks, but in his dream, they started moving.

"They were elastic. Instead of breaking when the tree roots pushed them up, the sidewalks swelled up and down like waves in the ocean," said Richard Valeriano. "I woke up and said, 'Wow! I wonder if sidewalks have to be hard?'" Then he went to the gym and noticed that his health club was installing new flooring of square rubber tiles. He tracked down the manufacturer, U.S. Rubber Recycling, and told company president Rick Snyder about his dream.

Snyder's engineers came up with a mold, filled it with ground-up recycled tires, and baked the rubber under pressure to create tiles that look like brick paving. The first rubber sidewalk replaced a broken concrete walkway beside an old ficus tree near the Santa Monica library.



Sidewalks created from recycled rubber offer local governments a new path for addressing infrastructure issues. Concrete sidewalks near trees must be replaced every five or six years while rubber sidewalks may last for decades.



A few miles away in Torrance, screenwriter Lindsay Smith noticed a county crew preparing to cut down a row of mature ficus trees. As caretaker of a nearby bird sanctuary, she knew the trees were vital habitat for migrating birds. She persuaded workers to put down their chainsaws and showed up at a meeting of public works officials with a rubber tile in hand. She saved half the trees — and became a rubber sidewalk activist.

Smith, Snyder and Valeriano joined forces. So far, they've convinced public works officials from more than 20 cities to test the sidewalks, which simply bend as roots grow under them. The individual panels, which can be glued together, can easily be lifted up and replaced after roots are trimmed. They offer a softer surface for joggers but are

tough enough to stand up to skateboards and stiletto heels.

The initial cost is about twice as much as concrete, but concrete sidewalks near trees must be replaced every five or six years while rubber sidewalks may last for decades. Snyder predicts the current cost for the rubber tiles (about \$6 per square foot) will fall dramatically as demand increases. The potential for home patios, pathways, and commercial applications has not yet been explored.

Besides saving trees, rubber sidewalks help solve the environmental problem posed by used tires. The US Department of Energy estimates that at least 500 million (and maybe as many as 3 billion) used tires are stockpiled in America. Another 270 million tires are scrapped every year.

For more information, email rubbersidewalks@aol.com

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