CITY OF OAKLAND



# AGENDA REPORT

TO: DEANNA J. SANTANA
CITY ADMINISTRATOR

FROM: Vitaly B. Troyan, P.E.

SUBJECT: Infrastructure Report - Streets

DATE: September 14, 2012

City Administrator Approval

Date 9-28-12

COUNCIL DISTRICT: City-Wide

## RECOMMENDATION

This informational report provides an overview of the current condition of Oakland's pavement, discusses steps to optimize existing funding, and provides some alternatives for consideration that may increase funding for pavement preservation. Some highlights of the report include:

- The pavement preservation industry uses an objective rating system and scale called the "Pavement Condition Index" (PCI) to access the conditions of pavement. Pavement condition thus assessed ranges from 0 (complete failure) to 100 (newly constructed street).
- The three-year average network Pavement Condition Index (PCI) is currently 56, on a 100-point scale, and falling. The Metropolitan Transportation Commission (MTC) ranked Oakland's overall pavement condition 98th among 109 Bay Area jurisdictions surveyed.
- The average PCI in the Bay Area is 66. PCI of 80 is an optimum pavement condition to be maintained according to industry best management practices.
- The current backlog of repairs is $435 million, and growing.
- The projected funding in the next few years is approximately $6 million per year. The average annual funding needed to just maintain the current overall condition is $28 million.
- Attention to the cost of maintaining streets and roads at a good state of repair should be a high priority.
- Options for increasing funding levels include general obligation bonds, revenue bonds, local sales tax, assessment districts, and legislative advocacy strategies.
- A potential source of additional funding is the proposed by reauthorization of Measure B, which could increase funding for pavement preservation by as much as $8 million annually.
- A summary of progress on the Paving Plan adopted by Council in 2007 is also discussed.

Oakland's streets are at the tipping point on the pavement life-cycle curve. If deferred, costly

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reconstruction will be needed in the near future in order to maintain pavement. We need to increase current funding from the present level of $6 million a year to nearly $28 million annually and consideration needs to be given to a larger, short-term effort to address some of the current backlog. Staff recommends increasing funding as much as possible.

In summary:

- No Action — No Funding Increase: This action will continue the rapid deterioration of our streets and growing backlog of deferred maintenance.
- Increase Funding: Several scenarios are provided showing varying levels of funding and their impacts on the street conditions and deferred maintenance. Staff recommends increasing funding as much as possible towards meeting the proposed $28 million a year funding level.

## OUTCOME

Acceptance of this report and direct staff to continue to more fully define options for increase funding and return with specific recommendations for consideration.

## BACKGROUND/LEGISLATIVE HISTORY

Oakland has approximately 806 miles of streets, ranging from two-lane roadways to multi-lane boulevards and thoroughfares. The breakdown of our street classifications is as follows:

*Table 1 – Street classification and miles*

| Classification | Miles | Percentage |
|---|---|---|
| Arterial | 179 | 22% |
| Collector | 120 | 15% |
| Residential | 507 | 63% |
| Total | 806 | 100% |

The classification of a street is important because funding that comes to Oakland from federal sources, including the federal gas tax, can only be spent on arterial and collector streets. Arterial streets are defined as a high-capacity urban road with the primary function of delivering traffic from collector roads to freeways, and between urban centers at the highest level of service possible. Collector streets are defined as low-to-moderate-capacity streets which serve to move traffic from local residential streets to arterial roads. Unlike arterials, collector roads are designed to provide access to residential properties. Residential streets are defined mainly as built up on both sides with residential homes or a mixture of residential and local facilities.

As noted above, the pavement industry uses a Pavement Condition Index (PCI), a numeric grading system on a scale of 0 to 100, to rank the condition of streets. In this system, PCI scores

of 90 or higher are considered "excellent", representing newly built or resurfaced streets. PCI scores below 50 are considered "Poor."

All roadways deteriorate over time by traffic loading and weathering. However, the rate of deterioration can be controlled, and pavement condition can be greatly preserved by applying timely maintenance treatments. Paved streets normally have three life cycle stages: 1) initial deterioration; 2) visible deterioration, and 3) disintegration and failure. During the first few years of use, the roadway surface starts to experience some initial deterioration. This stage represents a PCI of 80 or above. Preservation strategies during this period are least costly and can reduce the need for more costly rehabilitation later on. Streets in the visible deterioration cycle show signs of distress as potholes and cracking occurs. This stage has a PCI score of 50 or above and represents an especially critical range. Rehabilitation is required at this stage to extend the life of the roadway, but if deferred, major reconstruction costing three to seven times more will be needed in the future as those roadways will disintegrate and fail.

Utility trenches and other construction can also hasten the degradation of streets. For this reason, Oakland enforces a 5-year moratorium on utility excavation on streets following rehabilitation (resurfacing to slurry seal). Work within this timeframe, including emergency work, requires restoration of the entire street width. Staff is currently reviewing trench details and excavation requirements and will be bringing recommendafions for possible changes to the Oakland Municipal Code in the near future that will further enhance the protections against utility-related damages to City streets.

***Potholes and pavement failures***

Potholes and cracks represent the early stages of a disintegrating and failing pavement. The weight of traffic pounding on surface pavement causes cracking. Cracked surface pavement, if not properly maintained and preserved, will allow rain water to leak into the sub-base, eroding pavement strength as cracks start developing and gradually grow larger and larger. At this stage, as the cracked pavement starts to disintegrate, depressions and potholes are created causing the pavement to lose its ride quality.

It is important to note that funds and efforts expended for pothole repairs, while necessary, represent only stopgap measures and do not improve overall pavement conditions. The same pavement, without sub-base repairs and surface treatment, will simply experience more potholes, disintegrate, and ultimately fail. For this reason, potholes tend to appear over and over on some streets.

## ANALYSIS

### *Overall Conditions*

The condition of pavement on Oakland's 800 plus miles of local streets and roads is only fair at best. Oakland's 2010 pavement condifion index (PCI) score is 56 out of a maximum possible 100 points, as computed on a three-year moving average basis. This score is three points less than the 2009 reading, indicating pavement quality is deteriorating. In addition, Data released by the Metropolitan Transportation Commission (MTC) ranks Oakland 98th among 109 Bay Area jurisdictions; the average PCI in the Bay Area is 66. The PCI breakdown for Oakland's 800 plus miles of streets is as follows:

*Table 2 – Street conditions and miles*

| Condition | Miles | Percentage | PCI Range |
|---|---|---|---|
| Excellent | 64 | 8% | 100-90 |
| Good | 255 | 31% | 70-89 |
| Fair | 305 | 38% | 69-50 |
| Poor | 182 | 23% | 49-0 |

As a point of reference, in 2006, Oakland's overall network PCI was 63. Under current funding levels, this score is expected to fall to 49 by year 2014, indicating an increasing rate of degradation. ***Attachment A*** provides an overview of Oakland's pavement conditions.

### *Pavement Life Cycle*

A typical pavement will take twenty years to go from a PCI of 90 to a PCI of 60, yet will only take three to five years to deteriorate further to a PCI of 40, or from 'fair' to 'poor'. This accelerated rate of deterioration makes it critical to fund preventive maintenance treatments to sustain streets at high PCI levels at relatively low costs. Again, cost of reconstruction of pavement after its failure is more than three times the costs of preservation or rehabilitation treatments over the life cycle of that pavement.

The other factor that impacts funding needs is the growth of deferred maintenance. Oakland's current backlog of repairs is currently estimated to be $435 million. This figure was $300 million in 2006 and $112 million in 2003. At current funding levels, deferred maintenance is expected to grow to $682 million by the year 2014. Therefore, a larger, reliable funding source is needed in Oakland to apply proper preservation or preventive maintenance, in order to maintain our streets in 'good' condition and prevent further deterioration. Additionally, there is also a need for a "catch up" effort because so much of our network has fallen to the 'fair' and 'poor' levels.

*Table 3* below shows the past and projected funding budget for pavement in Oakland.

*Table 3 – Past and Projected Funding*

| REVENUE SOURCE | FY 10/11 | FY 11/12 | FY 12/13 | FY 13/14 | FY 14/15 |
|---|---|---|---|---|---|
| Proposition 42 - State Sales Tax | 1.7 | 2.5 | 2.6 | 2.7 | 2.8 |
| Prop IB – State Bond* | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| Federal STP Fund | 3.6 | 0.0 | 3.0 | 0.0 | 3.0 |
| Measure B: Alameda CTC | 0.0 | 0.0 | 0.6 | 0.6 | 0.0 |
| Vehicle Registration Fees | 0.0 | 1.5 | 1.5 | 1.5 | 1.5 |
| **TOTAL** | 11.5 | 4.0 | 7.7 | 4.8 | 7.9 |

* *One time allocation*

It is important to note that current funding sources fall under two categories: 1) relatively stable sources (sale taxes); and 2) somewhat less stable (grants, one time funds) or limited sources (federal). Oakland generally uses the stable funds for in-house maintenance programs (potholes and crack sealing) and the less stable funds for capital rehabilitation by outside contractors.

The above table does not include current or future appropriations from Gas Tax and minor funding received from Measure B, since these funds have not generally been used for street resurfacing contracts. These funds instead provide approximately $14 million in annual funding for other street and road maintenance and operations performed by Public Works staff

If Measure B sales tax is reauthorized and doubled (from ½ cent to 1 cent) in November 2012, an additional $8 million per year will be available to the City of Oakland for street purposes, much of which could be used for street resurfacing.

An important restriction to keep in mind is that federal funding cannot be used to fund repairs on residential streets, which represent about 63% of our street network. A stable and increased funding source is needed in Oakland to maintain our residential streets and prevent further deterioration.

***Optimal Pavement Management Approach - Preventive Maintenance***

A successful pavement management program is designed to maintain the highest overall street condition (network PCI) and therefore must focus resources on pavement preservation rather than pavement reconstruction. According to industry best management practices, pavement network is most optimally maintained at a PCI of 80. It is for this reason that some streets may necessarily be deferred for the benefit of the entire network.

Oakland's current funding for pavement comes with "strings attached" in the form of performance targets, which means that we must fund preventive treatments first in order to prolong the life of City streets. This is why the Council approved a formal policy adopting preventive maintenance as a priority for scheduling street rehabilitation in 2007. Under this

policy we spend 80% of our available dollars optimally by focusing more on funding preventive treatments on 'good' or 'fair' streets. The remaining 20% is spent on 'worst' streets. As optimal as this policy is, continuing to operate under the current budget will slow, but will not prevent the continued downward trend of our street conditions. The policy is also required to continue to receive federal funding through the Metropolitan Transportation Commission.

In addition, we are implementing new technologies in the field of pavement-management to optimize our dollars and provide green approaches to pavement management. "Cold In-Place Recycling" (CIR) is one technique new to the Bay Area, in which existing pavement is used to resurface the roadway. Besides conventional resurfacing treatments, Public Works has begun using other cost-saving technologies such as chip-seal micro-resurfacing, slurry sealing and full-depth recycling. These technologies are location-specific and may not be appropriate for all local roadways, but they represent alternative technologies that help reduce costs, as well as greenhouse gas emissions from pavement projects.

Finally, our paving projects take a holistic approach to improving streetscape features and attempt to incorporate elements of the "Complete Streets" concept in which sidewalks, curb ramps, bike lanes, and transit stops are included in the improvements, to the extent possible, for safe access and use by pedestrians, bicyclists and transit riders, as well as motorists. It is important to note that this approach is now a requirement for all federal transportation funds programmed through MTC, and for Measure B funds programmed through Alameda County Transportation Commission (Alameda CTC).

***Needed Funding***

A budget and funding needs analysis for pavement must consider the trends of decreasing PCI and increasing repair backlog. *Table 4* below shows the impact of varying funding levels on street conditions and deferred maintenance over the next few years. These scenarios start at the current projected funding level with worsening conditions, and extend to a funding level that aims to reverse the downward trends, gradually increasing the City's PCI.

*Table 4 – Funding Scenarios and Impacts*

| Annual Funding Level | Projected PCI in 2014 | Projected Deferred Maintenance in 2014 |
|---|---|---|
| Current level--no increase | 49 | $770 million |
| $10 million | 51 | $736 million |
| $23 million | 55 | $697 million |
| $41 million | 60 | $648 million |

As illustrated in *Table 4* above, Oakland must increase funding for pavement rehabilitation as much as possible. In addition, as noted above, Oakland must continue with its preventive maintenance-focused policy to optimize available dollars. Any funding short of $28 million a year will continue the overall network deterioration trend and growth of the deferred maintenance backlog. Any deviation from preventive maintenance will further accelerate the problem.

***Status of 2007 Pavement Plan***

In 2007, Council adopted a formal policy to appropriate 80% of pavement dollars toward preventive maintenance, in keeping with the MTC requirements described above, and 20% for the "worst street", or those streets that would not typically be rehabilitated in a preventive maintenance program. Council also adopted a list of priority streets to be rehabilitated under Pavement Maintenance. Seventy-seven (77) miles of streets were included in the original plan. To date, approximately $30 million in pavement funding, including generous grants under the Stimulus Program and state and federal grants have been programmed and fifty-three (53) miles of priority streets have been rehabilitated. An additional ten miles have been completed under the "worst streets" effort. At the current funding levels, it is anticipated that the priority list will be completed in 2016. ***Attachment B*** is a map showing the original paving plan and streets paved to date.

As described above, the policies of the City and MTC, as well as industry best management practice, require that paving plans be developed based on optimizing available funding for preventive maintenance. Every few years, an assessment of all streets in Oakland is conducted. This effort is completed in collaboration with, and is partially funded by, MTC. The information collected is then fed to a pavement management system, developed by MTC, and based on available funding, a proposed list of streets is generated. That list is then evaluated against several other factors, including long-term planned utility work, street realignments or other potential projects that could conflict with the proposed work. When all such potential conflicts have been addressed at this planning-level stage, a final list of proposed streets is generated. This is the list that will be brought to Council to be formally adopted as the next five-year plan. Staff will return to Council for a discussion of specific streets for the next priority list in 2014.

***Funding Options***

Oakland's streets are at the tipping point on the pavement life-cycle curve, after which pavement conditions will decline rapidly, requiring very costly repairs. At current funding levels, pavement conditions will deteriorate to an average PCI reading of 49 – in the "poor" range – by the year 2014. In order to bring Oakland's pavement up to a "good" condition, we would need to increase current funding, from the present level of $4.5 million per year to nearly $28 million annually. In addition, we need a one-time large capital outlay to reduce our backlog. Staff believes that attention to this funding request should be a high priority.

The following summary of funding options is provided for discussion; additional research is needed to determine their viability in Oakland.

- **General Fund.** Although the General Fund is an extremely limited source and is not therefore a likely source of funding, any General Fund support may be used as a local match to State and Federal dollars. It is generally good fiscal policy to spend, whenever possible, on a "pay as you go" basis for paving and preventive maintenance.

- **Parcel Tax.** A parcel tax would provide stable funding for paving. Most parcel taxes have been for schools, but there are also parcel taxes passed for fire districts, libraries, parks, and transit. Passage requires a 2/3 vote. An annual parcel tax in the range of $200 per parcel would generate approximately $20 million per year.

- **Measure B Reauthorization.** In November, voters in Alameda County will be asked to consider a reauthorization of Measure B, the current half-cent sales tax for transportation funding countywide. Should this measure pass, it is estimated that Oakland could receive up to an additional $8 million in transportation funding, some or all of which could be used for street rehabilitation.

- **General Obligation Bond.** Bonding is best when an initial large capital outlay is needed. It is not recommended for projects, such as paving, that have a shorter life cycle than the underlying bond, because the city will still be paying when the asset requires rehabilitation. However, this option may be useful to provide funding for an accelerated street paving program to reduce the $418 million repairs backlog. Passage requires a 2/3 vote. A $400 million Street Improvement Bond Issue would cost property owners approximately $300 per year.

- **Revenue Bond.** Revenue bonds are another option to consider for a large initial effort. Revenue bonds use existing dedicated sources of funding to secure bonds. Potential sources of this funding for a pavement bond might include a portion of Measure B or State Gas Taxes.

- **Assessment Districts.** Benefit assessment districts may be set up to fund paving of residential streets within small geographic areas. Passage would require a simple majority vote in each district. This option may provide funding for residential neighborhoods and free other funding to target collectors and arterials.

- **Impact Fee. TBD.** Typically, impact fees provide for a modest level of revenue and would come in very unpredictably, depending on economic cycles. Fees are also typically spent on projects with a rational nexus connection to economic development activities. Maintenance and repair of existing assets is therefore not the best use of impact fee funds. Information on impact fees may be presented to Council in the fall.

- ❖ Legislative Advocacy. MTC is dedicating more (and seeking more) funding for pavement from Federal and State sources. Oakland should work actively with MTC and other Bay Area jurisdictions on this advocacy whenever possible.

Legislative advocacy needs to be focused on maintaining, and if possible increasing, State support for local streets and roads (gas tax funding). A significant hike in the gas tax with a majority of the funding going to road repair would be welcome. However, there has been very little support for a statewide fee increase at the State level.

Legislative advocacy needs to also be focused on passage of federal legislation. Congress recently passed a stop-gap two year extension of federal transportation funding (MAP-21), however the legislation includes no increase in the federal gas tax, and no additional resources for local street and roads from the Federal government. Advocacy needs to turn to the next federal bill to be enacted in 2014.

## COST SUMMARY/IMPLICATIONS

1. FISCAL IMPACT:

   There is no direct fiscal impact to this report. Long-term fiscal needs are discussed in this report along with options that could be considered for future funding of this critical infrastructure need. Funding at the current level for capital rehabilitation of street will lead to an ever greater backlog in street rehabilitation and ever increasing maintenance costs.

2. DISABILITY AND SENIOR CITIZEN ACCESS:
   Street resurfacing eliminates poor paving conditions and provides a uniform travel surface for all roadway users, including pedestrians using crosswalks and transit vehicles.

## SUSTAINABLE OPPORTUNITIES

**Economic**: The public pays twice for poor pavement conditions—first, directly or indirectly, in higher vehicle maintenance costs and then in higher pavement rehabilitation costs. Increasing funding for pavement improves driving conditions and provides economic benefit to the entire community.

**Environmental**: Driving on poor pavement accelerates vehicle depreciation, reduces fuel efficiency, and damages tires and suspension. All of these increase the carbon footprint on the planet. Similarly, applying preventive maintenance treatments uses less carbon and other resources than heavy pavement rehabilitation or reconstruction. Increasing funding for pavement focuses more on preventive measures, improves driving conditions and provides benefit to the environment.

Social **Equity**: Poor pavement conditions impact everyone who uses personal vehicles, takes public transportation, or receives goods and services. Increasing funding for pavement improves driving conditions and provides a benefit to the entire community.

**CEQA**

This is an informafional report. There are no CEQA requirements.

For questions regarding this report, please contact Gus Amirzehni, Engineering Design and Right-of-Way Manager, 510-238-6601.

Respectfully submitted,

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Attachments:

Attachment A – Oakland Streets Fact Sheet
Attachment B – 2007 Paving Plan Status

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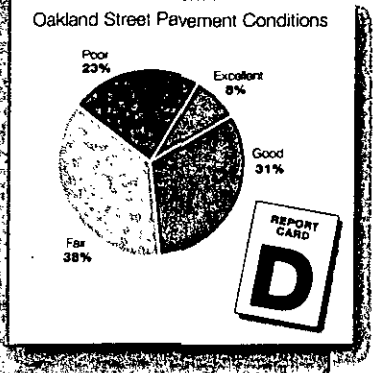
ATTACHMENT A

CITY OF OAKLAND

Public Works Agency

# OAKLAND STREETS FACT SHEET




- **The City of Oakland has 806 miles of City-maintained streets.** Streets vary from two-lane (local) streets to six-lane arterials (major streets). **Buses use 150 miles of streets; 80 miles of streets have designated bikeways.** Oakland also maintains 225 pedestrian paths.

- **Oakland's street quality ranks 98th out of 109 Bay Area cities.** The Metropolitan Transportation Commission uses the Pavement Condition Index (PCI) to rate streets from Excellent (score of 90 – 100) to Poor (score of 0 – 49). **Based on a 2010 survey, Oakland's three-year average PCI Is 56. The Bay Area average PCI is 66.**

- **If streets were maintained more often, the total cost of street maintenance would actually decrease. The average cost of street work is:**

  $ 5 per square yard for **preventive maintenance**
  $ 20 per square yard for **light resurfacing**
  $ 40 per square yard for **heavy resurfacing**
  $140 per square yard for **reconstruction**

  The cost of deferred maintenance reinforces the adage "Pay me now, or pay me later."

- **Oakland would need to spend $28M per year just to maintain the existing pavement condition.** Unfortunately, the City's budget for street renovation is just a fraction of that:

| FISCAL YEAR | RESURFACING | NOTES |
|---|---|---|
| 2010-2011 | $9.3M | Includes $7M of ARRA (federal economic stimulus) funding |
| 2011-2012 | $6.3M | Entire amount is County/State/Federal funds |
| 2012-2013 | $4.3M | Entire amount is County/State/Federal funds |

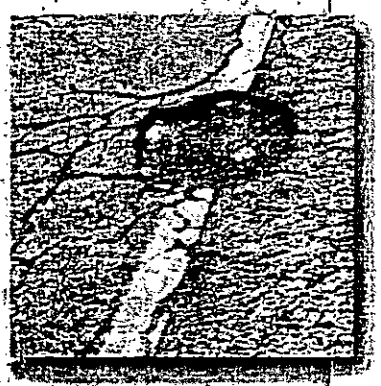
- **The backlog of streets needing work is $435M and growing.**

CITY OF OAKLAND

Public Works Agency

# OAKLAND STREETS

## FREQUENTLY ASKED QUESTIONS



**TO REPORT POTHOLES**

Please call the **Oakland Public Works Call Center (510) 615-5566** to report potholes and other infrastructure issues, or go to www.oaklandpw.com to report a problem online.

Q. What is a pothole?
A. A pothole is a defect in streets caused by lack of preventive maintenance. Potholes represent the early stages of a disintegrating and failing pavement. Potholes are created by lack of surface protection against moisture. As rain works its way under the surface and the sub-base of a street, cracks start developing and gradually grow larger and larger. With traffic pounding over the surface, segments begin to separate from pavement, leading to the creation of potholes. This is especially problematic on heavily traveled streets carrying trucks and buses. It is important to note that funds and efforts expended for pothole repairs provide stopgap measures and do not improve overall pavement condition. The same pavement, without resurfacing or reconstruction, will simply experience more potholes, disintegrate and fail.

Q. Why isn't there enough money for street maintenance?
A. In part, improvements in fuel efficiency have led to lower gas tax revenue for cities. For example, in 1993, cars averaged 10 miles per gallon and the Gas Tax was $0.18 per gallon. Today, cars get 30 miles per gallon, yet the Gas Tax is still $0.18 per gallon. As a result, we're driving more and paying less. The phce of asphalt has also quadrupled in the last decade. Finally, the loss of sales tax and property tax revenue caused by the current recession has dramatically reduced the City's ability to pay for street maintenance.

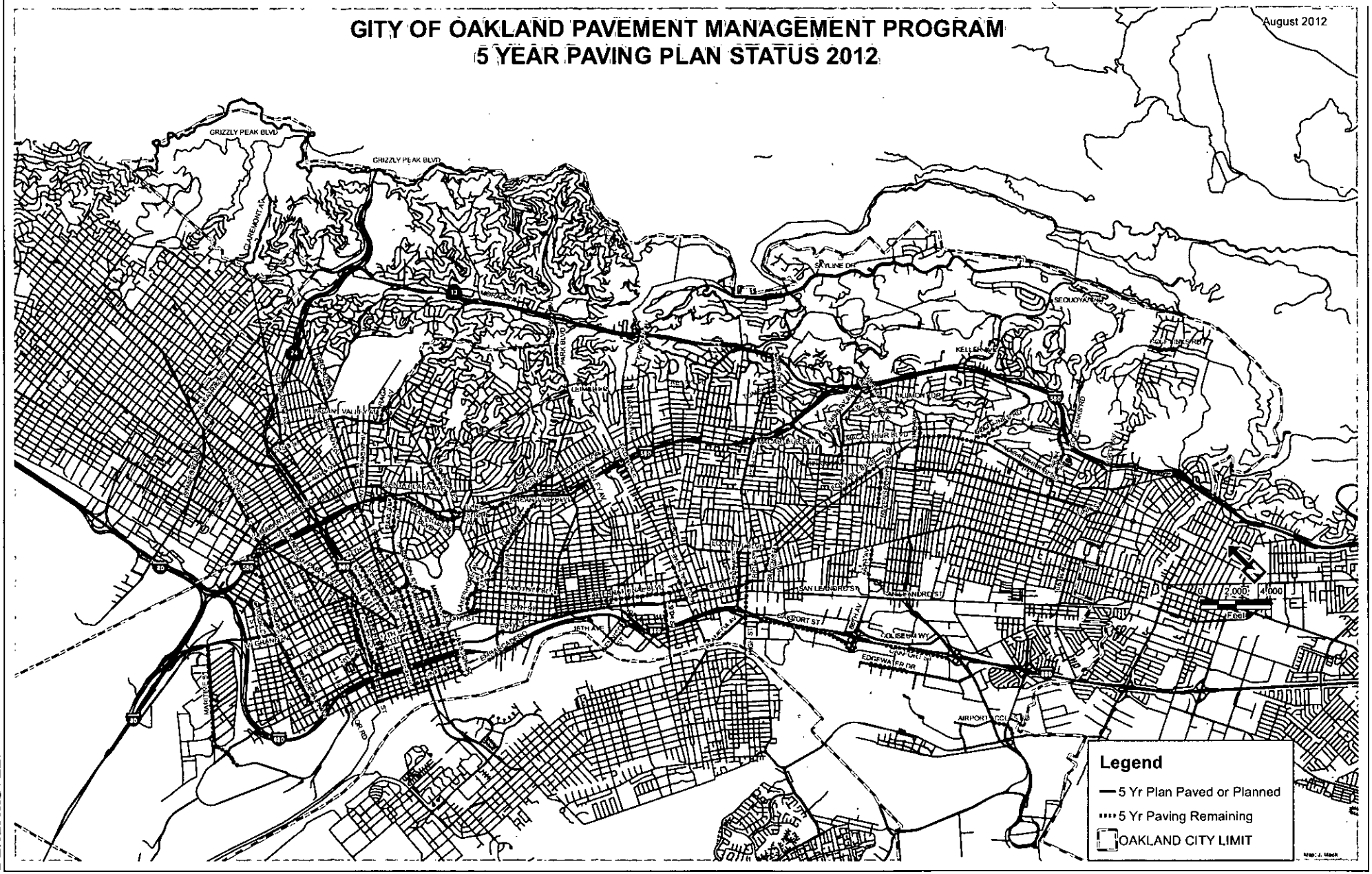
Q. Is my street scheduled for paving?
A. The City's Five-Year Paving Phoritization Plan can be viewed online at www.oaklandpw.com. Oakland is on an 85-year repaving schedule, meaning that a street that is repaved today won't be repaved again for another 85 years.

Q. What will happen to the rest of the streets?
A. Federal economic stimulus funds and state bond funds will allow 20 miles of major streets to be paved in Spring 2011 (out of the approximately 450 miles that need paving). Passage of Alameda County's $10 surcharge on vehicle registration will provide about $1.5M per year (allowing for resurfacing of 4 miles) also starting in 2011. Beyond that, City streets will continue to deteriorate until additional paving money is provided.

Q. How do you determine which streets are going to be paved?
A. It's much cheaper to preserve a street by resurfacing it than it is to rebuild a damaged street ($20 per square yard to resurface vs. $140 per square yard to reconstruct). So for the same amount of money we can raise the condition of one city block from Poor to Excellent (pavement reconstruction), or we can improve seven city blocks from Fair to Excellent (pavement preservation). For this reason, we spend 80% of our scarce resources on Fair streets and only 20% on Poor streets. Preserving what we have must continue until additional paving money becomes available.

# GITY OF OAKLAND PAVEMENT MANAGEMENT PROGRAM
## 5 YEAR PAVING PLAN STATUS 2012

August 2012




ATTACHMENT B