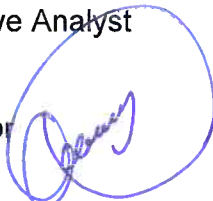


CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

DATE: November 15, 2013

TO: MIGUEL SANTANA, City Administrative Officer
GERRY MILLER, Chief Legislative Analyst

FROM: ENRIQUE C. ZALDIVAR, Director
Bureau of Sanitation



SUBJECT: **\$3 BILLION DOLLARS GENERAL OBLIGATION SAVE OUR STREETS BOND (SOS)**

Enclosed please find the Bureau of Sanitation report on the "Save Our Street" (SOS) Bond Program. The report is written in such a way to take advantage of opportunities that might exist when multiple benefits can be realized to add green streets and alleys to the reconstruction and resurfacing of City streets as part of the SOS program.

The integration of Green Streets with the SOS program provides an opportunity to cost-effectively increase the value and sustainable return on investment of the City's street repair projects. Incorporating Green Street features will also help the City meet obligations under the Clean Water Act; address localized flooding, and provides environmental, social, and economic value to the City. It is estimated that a 5 to 10 percent allocation to include Green Street elements on all street reconstruction projects and a 2 to 5 percent allocation of all resurfacing projects for optimized, multi-benefit, regional projects will not only provide funding that can be leveraged to the benefit of the City, but that can also potentially garner additional support from the environmental community and business sector. The Green street features will also assist the City to initiate Mayor Garcetti's Great Street Initiative for community engagement and economic development.

In summary, the Bureau of Sanitation concludes and recommends the following:

1. Green streets provide multiple benefits and leveraging of resources, but not every street is equally suited for including green elements.
2. Street reconstruction provides the best opportunity for integrating green street elements that will provide relief to the areas with localized flooding, improve water quality, recharge groundwater, and comply with storm water MS4 permit provisions, etc. It is recommended that green elements be integrated into the street construction project up to 10% of the construction cost.
3. Street resurfacing provides less opportunity for integrating green street elements; however, due to the impact of streets on water quality, it is recommended to allocate up to 5% of the budget of street resurfacing projects to regional storm water projects to comply with the federal clean water act and the storm water MS4 permit provisions. This approach will assist leveraging other sources of funds related to storm water program.

4. Establish advisory oversight to suggest budget to the green elements as part of the "Save Our Street Bond Program".
5. Receive the attached table in Transmittal No. 1 as an initial list of potential green street projects that can be integrated with the Save Our Streets (SOS) bond.
6. Develop a Green Streets Working Group to include the Bureau of Sanitation, Bureau of Engineering, Bureau of Streets Services, Department of City Planning, and Department of Transportation.
7. Instruct the Green Streets Working Group, in coordination with CAO, CLA and the Oversight Committee(s) to validate the feasibility of the potential green street projects in the attached table.
8. Instruct the Green Streets Working Group to continue identifying green street projects throughout the City.
9. Instruct the Green Streets Working Group to report on a semi-annual basis to the Board of Public Works and the oversight Committee(s) on its progress in identifying additional green street projects, a list of all pending and proposed green street and alley projects, a review of monitoring data, and a specific report on one pending and one proposed project.

Thank you for the opportunity to comment on the SOS program and if you have any further question or comments. Please contact Shahram Kharaghani or Wing Tam at (213) 485-0587 and (213) 485-3985, respectively.

AH:SK:WT
WPDCR9075

Enclosure

Cc: Greg Good, Mayor's Office
David Hirano, CAO
Maria Souza Rountree, CLA
Kevin James, President, BPW
Barbara Romero, Commissioner, BPW
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Neil Guglielmo, BOS
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Wing Tam, BOS

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

Englander / Buscaino- Krekorian, et al. Motion - WITH ASSISTANCE FROM LOS ANGELES DEPARTMENT OF WATER AND POWER, BOS, BSS, BOE, LADOT AND DCP, REPORT ON THE FEASIBILITY AND POTENTIAL LOCATIONS FOR CREATING GREEN STREETS, SIMILAR TO THE ELMER AVENUE PROJECT IN COUNCIL DISTRICT SIX (CF.13-1300-S1)

Your Committee has requested that the Bureau of Sanitation report on the following:

Potential locations for green streets throughout the City that can be integrated with the \$3-billion street repair general obligation bond program on the May 2014 General Municipal Election Ballot. The goal of the program is to improve the City's street system to an overall pavement grade of "B" or better.

Sections of this report include:

- Executive Summary
- 1. Need for Runoff Management from Streets
- 2. Green Streets and Alleys
- 3. Green Street Features Can Improve Road Conditions by Reducing Flooding
- 4. Water Quality Improvement Program: Green Streets Support the City's "Green/Blue Strategy"
- 5. Community Benefits Support the Feasibility of Green Streets
- 6. Green Street Project Costs Are a Reasonable Fraction of Overall Transportation Project Costs
- 7. Locating Potential Green Street Opportunities
- 8. Recommendations

Transmittals attached to this report include:

- 1. Initial Green Street Project Locations
- 2. GIS Analysis
- 3. Green Street Elements Summary Matrix
- 4. Description of BMPs Selected for Estimated Cost Ranges
- 5. List of Flood Control Projects

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

Executive Summary

The Bureau of Sanitation has been requested to report on the feasibility and potential locations for potential Green Street opportunities throughout the City that can be integrated with the \$3-billion street repair general obligation bond program.



Streets not only move cars and people, but also runoff and pollution.

Why are Green Streets Not Only Feasible But Valuable in Los Angeles?

Streets in the City of Los Angeles are used for many purposes. Their obvious purpose is to connect people and places within the City. They convey cars, bikes and pedestrians resulting in a higher quality of life in our City. However, they also carry vast quantities of our rainfall runoff in an effort to prevent flooding. And unfortunately, they both

generate and convey a majority of the City's runoff pollution to our waterways and our beaches and thus are regulated by Regional, State and Federal laws and regulations.

Green Streets programs are being implemented in increasing numbers as integrated, sustainable, regionally-developed solutions that yield multiple environmental, social, and economic benefits. For example, studies have shown that properly-conceived Green Street programs, strategically implemented across a region, can mitigate (on average) 20 to 30 percent of runoff contamination. Green Street features can retain and/or slow runoff which helps prevent flooding and further damage to our streets caused by flooding. As Green Streets evolve into "Complete Great Streets", additional social and economic benefits can be realized through enhanced transportation performance, neighborhood beautification, resource awareness, groundwater replenishment and more stabilized property values and communities.



Our urban hardscape contributes to a number of localized flooding problems.

The Bureau of Sanitation, through the Green Streets Committee, the

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

development of standard plans (the only such plans in the nation), and the 2007 Board of Public Works Green Streets Initiative, has laid a solid foundation for effective implementation of a city-wide Green Street Program. The Bureau of Sanitation is poised to seamlessly provide support and integrate new metrics focused on a sustainable return on investment to the “Save our Streets” program.

What Constitutes a Green Street?

Green Streets represent an opportunity to address multiple issues that come together in some of our City’s streets--there is no single model for what constitutes a Green Street. They could include simple curb cuts and engineered tree wells, biofilters and bioretention, curb extensions, parkways and median retrofits, porous pavement and water capture dry wells. Depending upon the volume of runoff to be retained and managed, combined with the features of the street itself, Green Streets can be tailored to meet the specific needs of that street at a low incremental possible cost.

To date, a number of Green Street demonstration projects have been constructed in the City of Los Angeles. These include not only the widely cited Elmer Avenue and Oros Street projects, but also lower cost installations such as Riverdale Ave in Elysian Valley area, along Imperial Highway near El Segundo, and Grand Boulevard in Venice. It is important to note that, for demonstration projects like Elmer Avenue and Oros Street, the construction cost on a per mile or block basis could be considered very high.

However, the purpose of these projects was to learn Green Street techniques so that future projects could be designed and implemented more cost effectively which we as a City are now poised to do.



The City is already implementing cost-effective Green Street Projects: Riverdale Project, Elysian Valley

Where Do Green Streets Provide the Best Value to “Save Our Streets”?

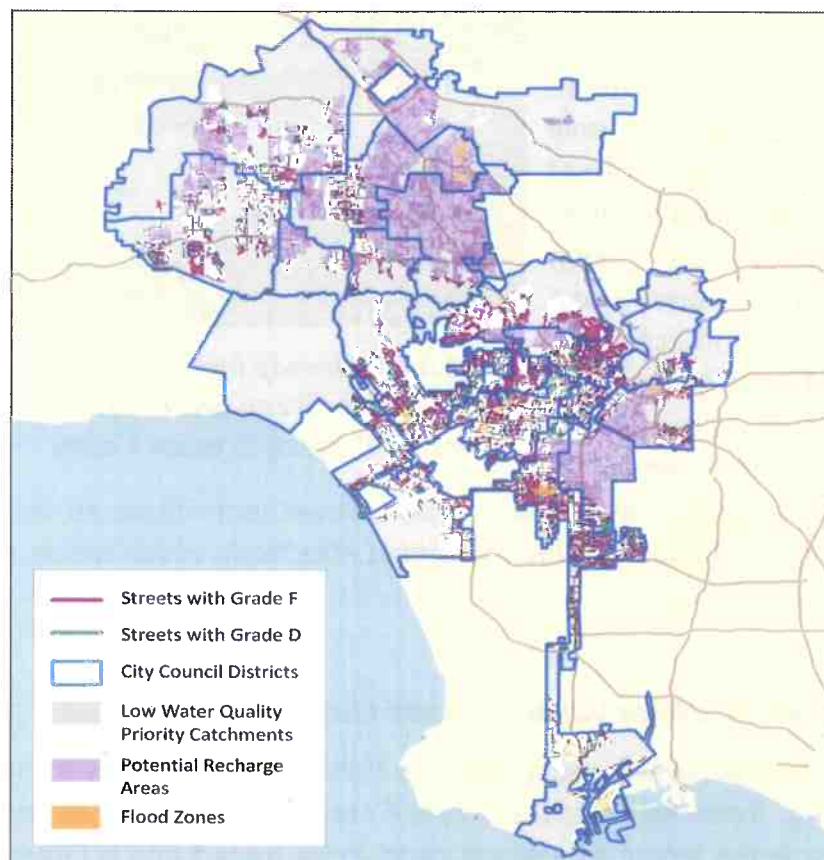
To be clear, not all streets and sidewalks within the City that would be improved by the proposed bond program (e.g. those with Grades D and F) are candidates for Green Street features. Nor would the entire length of a street need to be turned into a Green

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

Street. Instead, the focus of a Green Streets approach would only be strategic segments of those streets and sidewalks that meet a combination of criteria such as:

- √ Undergoing substantial reconstruction (i.e. not just resurfacing)
- √ Experience repeated flooding and water ponding that accelerates deterioration and leads to higher road maintenance costs.
- √ Located along streets where the quality of life and connectivity, in particular by walking or biking, would be greatly enhanced through traffic calming and green features
- √ Contribute significant quantities of polluted runoff to our regulated water bodies (e.g. the Los Angeles River, Ballona Creek and Santa Monica Bay).

The Bureau of Sanitation has performed spatial analyses to identify areas with street grades of “D” and “F” and areas where green street implementation can provide optimized value for water quality, as well as drainage and flood control have been identified. In addition, areas where the development of local water resources, providing an important third benefit (recharging groundwater, reducing consumption and improving liability), have been identified. Details on each of these analyses have been provided in this report.



Initial candidate Green Street project locations and areas have been identified using mapping overlays of failing streets, reported flooding, and other issues addressed by Green Street features.

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

How Much Do Green Streets Cost?

Incremental costs associated with incorporating Green Street elements into transportation projects can be relatively minor—as low as 5 percent of capital project costs and project area—if properly planned and implemented. Demonstration projects, such as Elmer Avenue, included multiple additional project features and adaptive operational costs, are not the norm, but have provided information and “lessons learned” that can be optimized for future projects.

Based on projects built in other regions (e.g., Portland), with longer track records for implementation, opinions of estimated costs for residential and commercial retrofits are projected to be on the order of \$40,000 and \$70,000 per block, respectively. This could correspond to approximately \$60 and \$40 per lane mile, respectively. Experience with the Portland program indicated that if coordinated with a street improvement project, the incremental costs could be lower.

It is also important to point out that water quality mitigation (which can be attained through Green Street implementation) is already mandatory for larger capital projects in accordance with the City’s Municipal Stormwater Permit and thus a cost that must be incurred regardless.

Furthermore, other Southern California transportation funding measures—such as the Orange County Transportation Authority Renewed Measure M—have demonstrated that not only can a relatively small allocation of funds for Green Street features be highly beneficial, such an allocation can help garner the support of the environmental and business communities seeking to promote multi-benefit projects, more inviting commercial districts, and new “green infrastructure” work opportunities. The Renewed Measure M program also utilizes a proven quantitative approach that utilizes some of the same tools used for development of the Greater Los Angeles Integrated Water Resources Management Plan. Such efforts also frequently attract additional outside funding from other State and Federal grant programs (e.g. Proposition 84).

How Would a Green Street Program Be Managed?

To ensure that funds dedicated to Green Streets are used most effectively, the Bureau of Sanitation proposes to utilize the management model which involves an Oversight Committee (s) and dedicated staff from the Bureau of Sanitation that has responsibilities to implement millions of dollars in water quality and green infrastructure projects. The Bureau of Sanitation Green Streets Program has involved many of the steps proposed here including (1) identification and prioritization of projects, (2) oversight of project design and construction, and (3) assistance with coordination between City departments, including City Council Districts and the Mayor’s office, non-

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

governmental agencies, environmental and community groups, Neighborhood Councils, and State and Federal Regulators.

Conclusion: Incorporating Green Streets Into the Save Our Streets Program is Feasible

The integration of Green Streets with the Save our Streets program provides an opportunity to cost-effectively increase the value and sustainable return on investment of the City's street repair projects. Incorporating Green Street features will also help the City meet obligations under the Clean Water Act and potentially provide environmental, social, and economic value to the City. It is estimated that a 5 to 10 percent allocation to include Green Street elements on all street re-construction projects and a 2 to 5 percent allocation on all re-surfacing projects for optimized, multi-benefit, regional projects will not only provide funding that can be leveraged to the benefit of the City, but that can also potentially garner additional support from the environmental community and business sector.



Curb inlet and infiltration basin in Downtown LA--Hope Street and 11th Street.

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

1. Need for Runoff Management from Streets

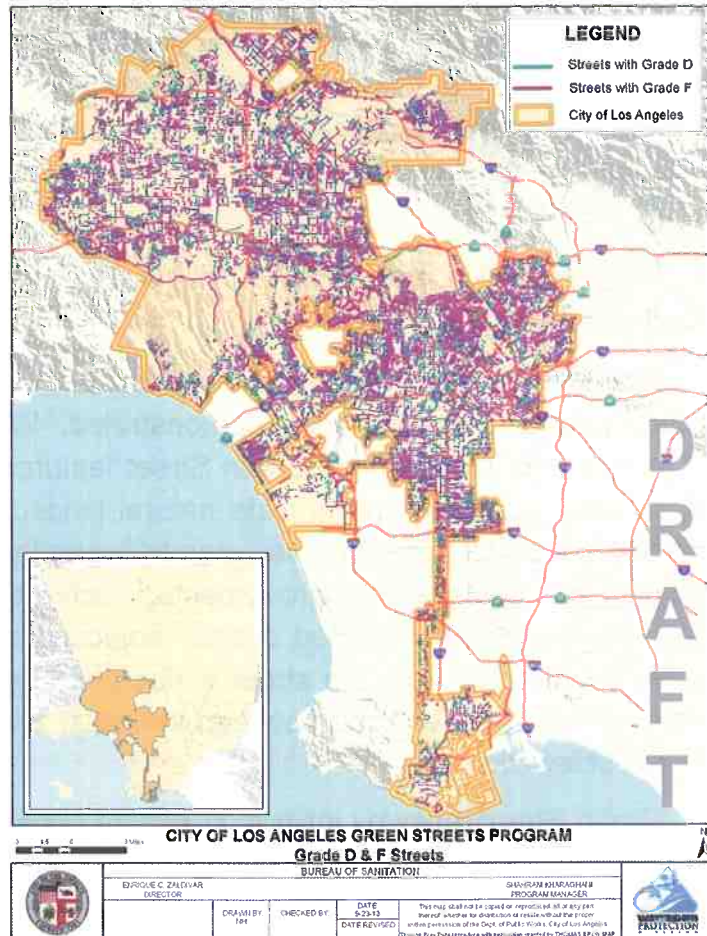
On August 23, 2013, the Los Angeles City Council adopted the Save Our Streets LA initiative (SOSLA) program, formerly known as the Los Angeles Emergency Local Street Safety and Traffic Improvement Measure. The Bureau of Sanitation (BOS) was directed to address the above recommendation with assistance from other City departments.

The City of Los Angeles has approximately 6,500 miles of streets with 10,000 miles of sidewalks, 900 linear miles of alleys, and 34,000 catch basins. The streets are currently constructed of concrete and asphalt and often contribute to

urban blight where street deterioration has occurred. Streets are subject to flooding during rain events, conveying flows similar to a flood control channel. Water ponding and seepage deteriorate asphalt and concrete.

Streets are also part of the City's storm drain system which is managed by BOS. Stormwater runoff, as well as dry weather runoff, flows down the streets into catch basins that are connected to storm drain lines that flow directly into channels, rivers, lakes, and the ocean. Because runoff is not diverted to centralized treatment facilities, a multitude of pollutants including trash, grease, oil, and sediments, can be carried into the receiving water bodies, causing pollution in the waterways and along their shores. Contaminated stormwater runoff is the number one source of ocean pollution in Southern California, and the City's street infrastructure plays a major role in flushing these pollutants out to the ocean.

In an effort to control pollution from runoff, the State of California requires new development and redevelopment projects to maximize the percentage of pervious



Failing streets in need of major reconstruction cover a significant area of the City.

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

surfaces (i.e. surfaces that allow water to penetrate into the ground below). This in turn minimizes the amount of stormwater that flows from impervious surfaces (like pavement and sidewalks) into storm drains. Resurfacing or reconstructing streets and sidewalks without improvements to retain, treat and/or infiltrate runoff will not reduce the level of pollution to receiving water bodies.

2. Green Streets and Alleys

Background

Green Streets are being implemented in increasing numbers as their feasibility to improve runoff management is demonstrated. Within Los Angeles, there are a number of streets and alleys where Green Street features could be added to increase the area of pervious surfaces and provide natural landscaping to capture and infiltrate or filter stormwater runoff. The parkway area between the roadway and the sidewalk is an ideal location for landscape improvements, such as parkway infiltration swales. As the parkway is generally located directly adjacent to the roadway, stormwater runoff can easily be directed from the street surface into the parkways. The landscape parkways also provide a buffer zone between vehicular traffic in the streets and the pedestrians on the sidewalks.

Green Street parkway infiltration swales generally consist of depressed planters that are capable of capturing and retaining stormwater and urban runoff. They minimize the impacts of stormwater runoff on the receiving water bodies by reducing the volume of polluted stormwater that currently flows untreated into the City's storm drain system. The reduction of the stormwater flow is achieved by allowing the stormwater in the infiltration swales to percolate into the ground below or be filtered through the soil matrix. Green Street parkways also provide adequate space for street trees to mature and to develop a significant canopy coverage that will improve air quality as well as reduce the heat island effect from urban pavements.

Thus, the street parkways and other areas of the public right-of-way provide much needed opportunity areas where infiltration swales and other types of pervious surfaces or landscape improvements can be constructed to collect, retain, or detain stormwater runoff. The transformation of selected paved streets into Green Streets can alleviate many of the flooding and stormwater pollution issues while providing greener city streets and a sustainable urban environment. Green Street programs have already been adopted in various cities such as Chicago (Illinois), Seattle (Washington), Portland (Oregon), and San Mateo County (California).

The City's Green Street Accomplishments to Date

The Bureau of Sanitation, working in concert with other City departments, has

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

already put in place the foundation for a Green Street program that has produced a number of significant accomplishments. Currently, the City's Green Streets efforts are lead by the Bureau of Sanitation coordinated through the Green Streets Committee (GSC) attended by all involved City bureaus and departments. The GSC has been working diligently over the past few years identifying stormwater capture and infiltration opportunities within City streets and alleys, as well as developing guidelines and standard plans to implement "green elements" such as porous pavement, planters, and infiltration swales in sidewalks, parkways, alleys, and other areas.

Numerous projects have resulted from this program as well as seven standard plans and design guidelines that developers and City departments can follow when building green streets and green alleys. The seven standard plans--the first of their kind in the country are listed in the table below.

Standard Green Street Plans Los Angeles Already Has in Place
1. Parkway swale in oversized right-of-way
2. Parkway swales in major/secondary highways
3. Parkway swales with no street parking
4. Vegetated stormwater curb extension
5. Permeable alley gutter retrofit
6. Permeable alley pavement for new alleys
7. General requirements for green streets

In addition, the Bureau of Sanitation has been working collaboratively on coordinating and implementing various green street recommendations, which include:

- institutional changes for all City departments to include green infrastructure
- preparing design guideline standards
- adopting standard plans
- public right-of-way changes
- developing policies
- identifying priority projects
- developing a Green Streets database and website
- monitoring program
- permitting flowchart/checklist
- identifying funding sources
- developing the Low Impact Development Ordinance

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

The Board of Public Works (BPW) adopted a Green Streets initiative in May 2007 with the concept that the streets of Los Angeles offer an enormous opportunity to infiltrate, capture, and filter urban runoff to prevent pollution. Green Street projects that have improved existing streets to capture, treat and/or infiltrate urban runoff are listed in the following table.

City of Los Angeles Green Street Projects to Date

1. Oros Green Street (completed August 2007)
2. Grand Blvd. Tree Wells (completed July 2009)
3. Imperial Highway Sunken Median Stormwater Best Management Practices (BMP) (completed October 2009)
4. Elmer Avenue Neighborhood Retrofit Project – Phase I (completed March 2010)
5. Riverdale Avenue Green Street (completed September 2010)
6. North Hollywood Alley Project (completed January 2012)
7. East Cahuenga Corridor Alley [Hollywood Alley or Cosmo Alley] (completed January 2012)
8. Woodman Avenue Median Project (completed July 2013)
9. Elmer Avenue Paseo Project (completed July 2013)
10. Elmer Avenue Green Street Project – Phase II (to be completed October 2013)
11. Glenoaks/Sunland Stormwater Capture Project (completed September 2013)
12. Humboldt Stormwater Greenway Project (to be completed October 2013)
13. Manchester Neighborhood Greenway Project (to be completed December 2013)
14. Old Oak Road Stormwater Project (to be completed January 2014)
15. University Park Neighborhood Rain Gardens (to be completed July 2014)

The City has also made great strides in its Alternative Street Surfacing Materials, and Green Alley programs. These collaborative efforts between City departments, academic and non-profit institutions, and the private sector have been instrumental in the development of guidelines, manuals, standards, and policies, and the implementation of pilot green projects by City departments and private developers.

Lastly, the Bureau of Sanitation has prepared and is maintaining a Green Infrastructure Projects Master File that includes projects from all City of Los Angeles departments. This file has currently identified over 30 finished projects; 60 funded projects that are in design or in construction; and over 150 future projects with identified potential locations and concepts. Additional projects are being developed to be included in this master file as they are identified.

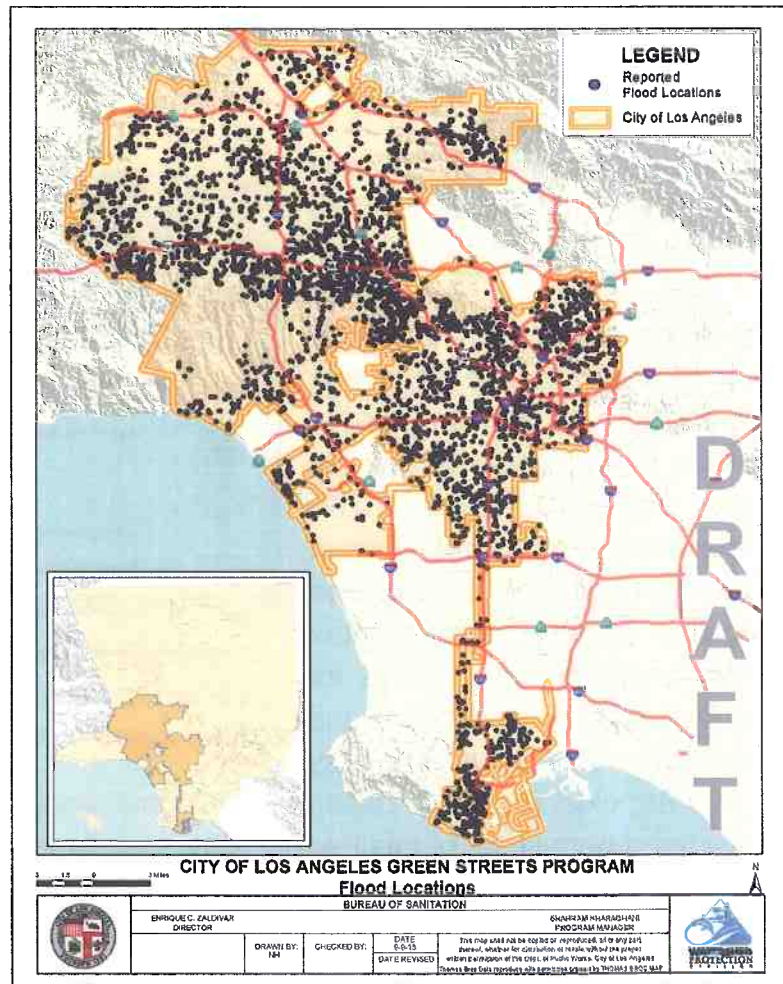
\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

In summary, because the Bureau of Sanitation have already established a working program infrastructure for the identification and implementation of Green Streets, the inclusion and implementation of Green Street projects as part of the Save Our Streets program is very feasible.

3. Green Street Features Can Improve Road Conditions by Reducing Flooding

Another common use of Green Street features that would benefit the Save Our Streets program is to mitigate street flooding. During the winter season (October 15 – April 15), the City experiences localized flooding every time we have a significant rain event. These locations are identified in Transmittal No. 2. Localized flooding endangers public health and safety in addition to causing damage to private and public properties. There currently exists a list of more than 400 flood control priority projects, which have been identified that would mitigate localized flooding throughout the City (Transmittal 5). BOS has estimated the cost for constructing these priority projects to be several hundred of millions of dollars.

To leverage the City's scarce resources, street repair programs may also provide the opportunity to address flood control priorities. Multi-benefit green street features as described in this report are a feasible and cost effective way to help capture and attenuate heavy runoff which in turn alleviates flooding and ponding.

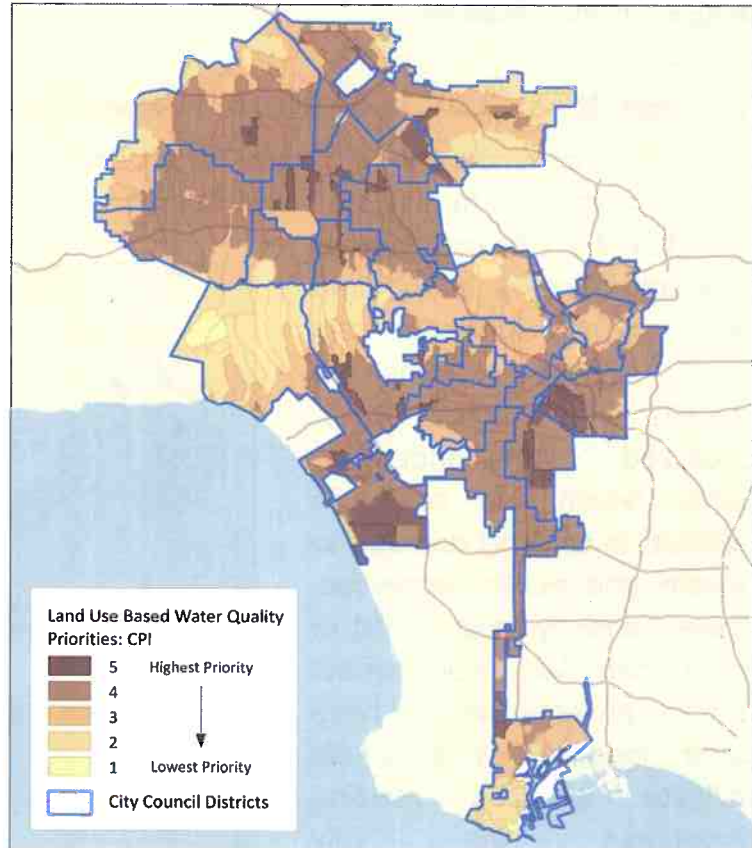


With flood locations found throughout the City, there are many opportunities to link street repair with flood mitigation through Green Street features.

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

4. Water Quality Improvement Program: Green Streets Support the City's "Green/Blue Strategy"

Incorporating Green Street elements into the Save Our Streets program is a feasible way to reduce runoff pollution from our City's streets. The operation of the City's storm drain system is regulated by a National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit (Permit). The federal NPDES stormwater program came about as the result of the 1987 amendments to the Clean Water Act (CWA), and the City has been subject to four successive Permits that were issued in 1990, 1996, 2001, and 2012, respectively. The current Permit was adopted by the Los Angeles Regional Water Quality Control Board on November 8, 2012 for the County of Los Angeles and the incorporated cities. The City of Los Angeles, the other cities in the County, and the County of Los Angeles are all considered permittees of this Permit. City compliance with these permit requirements is managed by BOS.



By focusing Green Street projects in those areas producing the most runoff pollution, the City could improve runoff water quality significantly.

With each renewal of the Permit, the mandates have become more stringent, progressing from a general emphasis on education to the imposition of very specific requirements. The current Permit contains the most extensive provisions to date. They include increased permittee responsibilities and the implementation of programs to satisfy Total Maximum Daily Load (TMDL) regulations. The Permit identifies 22 TMDLs that the City must comply with. It is expected that additional TMDLs will be adopted during the term of the Permit (until the end of 2017), which further requires the development of an Enhanced Watershed Management Program and its implementation to meet the various TMDL requirements.

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

The BOS has developed a Water Quality Improvement Program to achieve compliance with Permit and TMDL regulations. In this program, BOS has embraced a “green/blue strategy” in dealing with water quality to satisfy Federal Clean Water Act Mandates. One of many tools in the green/blue strategy is the implementation of green streets and green alleys. In addition to managing street runoff (the “green”), green streets and alleys can also play an important role in augmenting the local water supply by recharging the ground water basins (the “blue”). As part of this analysis, the BOS has identified high priority areas for water quality improvement along with areas where recharge of groundwater aquifers is most likely. Pursuing these objectives together, along with improving the quality and durability of our streets, is feasible, yielding a much more sustainable street/runoff management system for the future.

5. Community Benefits Support the Feasibility of Green Streets

The City’s experience, and that of many other cities, is that Green Street efforts are widely supported by local communities as residents take pride in their neighborhoods and are involved in making their communities greener, healthier and cleaner. Such community support aids in both the implementation of street reconstruction projects as well as the ongoing maintenance of Green Street features.



Broadway Avenue is scheduled to be modified to a “Green Street”.



Grand Boulevard in Venice after installation of engineered tree wells.

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

The community has been involved from the onset of the Green Streets and Green Alleys program, and residents take an interest in providing input on all aspects of the green streets and alleys projects in their neighborhoods. This partnership has created trust and has enabled the City to implement many successful green streets and alleys throughout the City. Green streets and alleys through their green elements (rain gardens, infiltration swales, porous pavements, and biofiltration swales) cleanse pulled stormwater and urban runoff while augmenting water supply, and improving flood control. The greenery of trees canopy and plants provide habitat areas as well as mitigate the heat island effect associated with climate change. Furthermore, Green Street programs have helped to create so-called “green” jobs and work opportunities for young adults in our communities.

6. Green Street Project Costs Are a Reasonable Fraction of Overall Transportation Project Costs

Incremental costs associated with incorporating Green Street elements into transportation projects can be relatively minor. Studies on highway construction have indicated that incremental costs associated with water quality mitigation can be as low as 5 percent of capital project cost, and likely less than 5 percent of the project footprint area when strategically and properly planned and implemented. Greater incremental benefits are possible with optimized drainage conditions. The 5 percent metric is based on design criteria approximately equal to the 85th percentile runoff event. It should be noted that if the tributary area be significantly larger, the water quality benefit could be *significantly increased*.

Demonstration projects, such as Elmer Avenue, included multiple additional projects features and adaptive operational costs such as monitoring. Total costs for these demonstration projects should not be considered a basis for scaling and projecting City-wide costs. These demonstrations include additional monitoring and outreach that have provided information and “lessons learned” that can be utilized and optimized for future projects.

Based on projects built in other regions (e.g., Portland), with longer track records for implementation, opinions of estimated costs for residential and commercial street retrofits are projected to be on the order of \$40,000 and \$70,000 per block, respectively. This could correspond to approximately \$60 and \$40 per lane mile, respectively.¹

¹ This assumes 300-foot block lengths, with travel widths 70 to 80 percent of the right of way, and 10 percent of the non-traveled right of way suitable for green street retrofits. Residential streets were assumed to have a 70-foot right of way, 2 lanes plus parking, and 50% impervious non-street tributary areas. Commercial streets were assumed to have a 140-foot right of way, six lanes plus parking, and 80% impervious non-street tributary area (unpublished Geosyntec, 2013).

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

Experience with the Portland program indicated that if coordinated with a street improvement project, the incremental costs could be lower (personal communication with Bill Owen, 2013).

It is also important to point out that water quality mitigation (which can be attained through Green Street implementation) is already mandatory for larger capital projects in accordance with the City's Municipal Stormwater Permit and thus a cost that must be incurred regardless.

Furthermore, other Southern California transportation funding measures--such as the Orange County Transportation Authority Renewed Measure M--have demonstrated that not only can a relatively small allocation of funds for Green Street features be highly beneficial, such an allocation can help garner the support of the environmental and business communities seeking to promote multi-benefit projects, more inviting commercial districts, and new "green infrastructure" work opportunities. The Renewed Measure M program also utilizes a proven quantitative approach that utilizes some of the same tools used for development of the Greater Los Angeles Integrated Water Resources Management Plan. This approach also undergoes public review from multiple participating agencies, institutions, and business interests. Such efforts also frequently attract additional outside funding from other State and Federal grant programs (e.g. Proposition 84).

7. Locating Potential Green Street Opportunities

The motion directed the BOS to report on potential green streets throughout the City that can be integrated with the Save Our Streets bond to improve the City's streets.

The Bureau of Sanitation prepared the attached initial list of potential green street projects (Transmittal No. 1). These locations were determined through analysis of Geographic Information System (GIS) data to identify City streets within each City Council District that meet two fundamental criteria:

- 1) the street has been assessed with a pavement grade of "D" or "F"; and
- 2) the street experiences flooding during rain events (Transmittal No. 2).

The recommended types of green street elements (i.e., infiltration system or biofiltration planter) were based on the permeability of the soil underlying the streets. In addition, the rough cost estimates for the potential green street projects included in the table were based on the Green Street Element Summary Matrix (Transmittal No. 3) and the Description of BMPs Selected for Estimated Cost Ranges (Transmittal No. 4).

\$3 Billion Bond General Obligation Save Our Streets Bond Green Streets and Green Alleys Programs

8. Conclusions and Recommendations

Based upon the conclusions presented in this report and the result of the spatial (GIS) analysis to identify an initial prioritized list of streets that could utilize green streets and alleys elements, the Bureau of Sanitation concludes and recommends the following:

1. Green streets provide multiple benefits and leveraging of resources, but not every street is equally suited for including green elements.
2. Street reconstruction provides the best opportunity for integrating green street elements that will provide relief to the areas with localized flooding, improve water quality, recharge groundwater, and comply with storm water MS4 permit provisions, etc. It is recommended that green elements be integrated into the street construction project up to 10% of the construction cost.
3. Street resurfacing provides less opportunity for integrating green street elements; however, due to the impact of streets on water quality, it is recommended to allocate up to 5% of the budget of street resurfacing projects to regional storm water projects to comply with the federal clean water act and the storm water MS4 permit provisions. This approach will assist leveraging other sources of funds related to storm water program.
4. Establish advisory oversight to suggest budget to the green elements as part of the "Save Our Street Bond Program."
5. Receive the attached table in Transmittal No. 1 as an initial list of potential green street projects that can be integrated with the Save Our Streets (SOS) bond.
6. Develop a Green Streets Working Group to include the Bureau of Sanitation, Bureau of Engineering, Bureau of Streets Services, Department of City Planning, and Department of Transportation.
7. Instruct the Green Streets Working Group, in coordination with CAO, CLA and the Oversight Committee(s) to validate the feasibility of the potential green street projects in the attached table.
8. Instruct the Green Streets Working Group to continue identifying green street projects throughout the City.
9. Instruct the Green Streets Working Group to report on a semi-annual basis to the Board of Public Works and the Oversight Committee(s) on its progress in identifying additional green street projects, a list of all pending and proposed green street and alley projects, a review of monitoring data, and a specific report on one pending and one proposed project.