CITY COUNCIL
AGENDA STATEMENT

CITY OF CHULA VISTA

04/05/07 Workshop

ITEM TITLE: STATUS REPORT ON THE MISSING INFRASTRUCTURE MANAGEMENT PROGRAM EFFORT TO DATE

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CHULA VISTA APPROVING THE DRAINAGE PROJECT PRIORITY LIST AND AUTHORIZING STAFF TO SEEK SPECIAL FUNDING FOR ANY PROJECT THAT MEETS THE FUNDING CRITERIA

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CHULA VISTA REAFFIRMING ITS COMMITMENT TO THE IMPLEMENTATION OF A TRUE PAVEMENT MANAGEMENT SYSTEM

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CHULA VISTA APPROVING A PAVEMENT MANAGEMENT PROGRAM BASED ON $11,504,665 IN FISCAL YEAR 2007 AND $9.5 MILLION IN FISCAL YEAR 2008, AND THEREFORE TRANSFERRING $2 MILLION FROM NORTH BROADWAY BASIN RECONSTRUCTION (STM354) AND $5 MILLION FROM 4TH AVENUE RECONSTRUCTION BETWEEN DAVIDSON AND SR54 (STL309) INTO PAVEMENT REHABILITATION PROGRAM – FUTURE ALLOCATIONS (STL238) (4/5THS VOTE REQUIRED)

POLICY DISCUSSION AND DIRECTION REGARDING POTENTIAL REVENUE SOURCES FOR INFRASTRUCTURE AND/OR PAVEMENT NEEDS

SUBMITTED BY: **CITY ENGINEER** ST

DIRECTOR OF GENERAL SERVICES [signature]

DIRECTOR OF PUBLIC WORKS OPERATIONS [signature]

REVIEWED BY: **INTERIM CITY MANAGER** [signature]

4/5THS VOTE: YES **X** NO

BACKGROUND

In February of 2006, staff began development of an Infrastructure Management Program for a limited number of the City's public assets including pavement; drainage; missing sidewalks, curbs and gutters, and pedestrian ramps ("missing infrastructure"); deficient cross gutters (included with missing infrastructure for the purposes of this report); and utility wire undergrounding. Since that time, a comprehensive review of best-in-class work in the area of public infrastructure asset management shows that in order to be most effective, this effort should be broadened to include the full range of the City's public infrastructure.

While tonight's focus is on pavement and drainage, the City of Chula Vista has a pressing need to develop and implement a broad infrastructure asset management program in order to create a comprehensive asset management approach that ensures the best use of limited funding. This is just the first step toward creating what should become an Infrastructure Asset Management Program; continued work on this effort will take time and a significant investment of resources.

ENVIRONMENTAL REVIEW

The Environmental Review Coordinator has reviewed the proposed project for compliance with the California Environmental Quality Act (CEQA) and has determined that the adoption of the Drainage Project Priority List is not a project as defined under Section 15378 of the State CEQA Guidelines; therefore, pursuant to Section 15060 (c)(3) of the State CEQA Guidelines the activity is not subject to CEQA. Although environmental review is not necessary at this time, as funding is secured and each individual drainage project moves forward toward implementation, environmental review will be required and a CEQA determination completed prior to commencing construction of any of the facilities. Implementation of the Pavement Management Program qualifies for a Class 1 categorical exemption pursuant to Section 15301(c) (Existing Facilities) of the State CEQA Guidelines because the project is the rehabilitation of existing streets, sidewalks, gutters, etc. for the purpose of public safety. Thus, no further environmental review is necessary for the Pavement Management Program.

RECOMMENDATION

That Council:

1) Accept the status report on the Infrastructure Management Program effort to date.

2) Approve the Resolution approving the drainage project priority list and authorizing staff to seek special funding opportunities for any project that meets the funding criteria.

3) Approve the Resolution endorsing the continued implementation of a Pavement Management System.

4) Approve the Resolution approving a pavement management program based on $11,504,665 million in FY 2007 and $9.5 million in FY 2008 and transferring $2.0 million from North Broadway Basin Reconstruction Project (STM354) and $5.0 million from 4th Avenue Reconstruction between Davidson & SR54 Project (STL309) into Pavement Rehabilitation Program – Future Allocations (STL238).

5) Utilize this opportunity for policy discussion and direction regarding potential revenue sources for infrastructure and/or pavement needs.

BOARDS/COMMISSION RECOMMENDATION

Not applicable.

DISCUSSION

In February of 2006, staff began the development of an Infrastructure Management Program for a limited number of the City's public assets including pavement; drainage; missing sidewalks, curbs and gutters, and pedestrian ramps ("missing infrastructure"); deficient cross gutters (included with missing infrastructure for the purposes of this report); and utility wire undergrounding.

Work in the four focus areas has identified an estimated total funding need of approximately $392,400,000 to $396,000,000 (in 2006 dollars) to address gaps and deficiencies identified with this first phase of infrastructure analysis. The specific component parts of this estimate are as follows:

Infrastructure Component	Total Funding Need (2006 Dollars, Rounded)
Pavement	$ 192,000,000 over 10 years $ 19,200,000 per year
Drainage Priority 1 Tier (Funded Projects) Subtotal Priority 1 Tier Priority 2 –4 Tiers Priority 5 Tier	 $ 28,800,000 ($ 4,400,000) $ 24,400,000 $ 6,300,000 to $8,900,000 $ 1,310,000 to 2,300,000[1]
Storm Drain (Corrugated Metal Pipe)	$ 29,000,000
Missing Infrastructure	$ 139,400,000
Subtotal Partial Infrastructure Funding Need	***$392,400,000 to $396,000,000***
Utility Wire Undergrounding[2]	$275,000,000

As part of this effort, a comprehensive review of the best-in-class work in the area of public infrastructure asset management shows that in order to be most effective, this undertaking should be broadened to include the full range of municipal public infrastructure.

While tonight's focus is on pavement and drainage, the City of Chula Vista has a pressing need to develop and implement a broad infrastructure asset management program in order to

[1] Unable to estimate two of eight projects at this time.

[2] Utility wire undergrounding is presented separately as it is not typically included within municipal infrastructure asset management programs and because it has a separate, restricted funding source (Rule 20A funds).

create a comprehensive asset management approach that ensures the best use of limited funding. This is just the first step toward creating what should become an Infrastructure Asset Management Program; continued work on this effort will take time and a significant investment of resources.

The Need for an Infrastructure Asset Management Program

In FY 2007, within the public works function, the City will spend over $56 million in capital and operating funds to provide municipal infrastructure services to the public and to plan, design, operate, maintain, and replace public works infrastructure. To highlight just some of the City's backbone infrastructure responsibilities, these monies will go toward maintaining 1,113 lane miles of roads including traffic striping, pavement markings, roadside signs, street trees and planted parkways; 18.9 million square feet of sidewalk; 3.9 million square feet of curb and gutter; 229 miles of storm drain system; 471 miles of sewer lines; 8,501 street lights; and 250 signalized intersections.

Infrastructure is similar to an automobile, house or any other expensive asset. It will last longer and provide a higher quality of service with proper and regular maintenance. Extending the useful life of our infrastructure will defer expensive replacement costs and, in the long term, save the City, and thus, our residents, money.

Like much of North America, the City's public infrastructure is nearing a critical point in maintenance and funding lifecycles. Asset management is not new, but is considered a relatively new concept when applied to municipal infrastructure.

The City's best-in-class research shows that few cities have been able to fully undertake this effort. Cities in Canada appear to have made the most progress; Portland, Oregon appears to be the west coast standout.

The emphasis on infrastructure asset management is being driven by the widely accepted fact that cities historically have managed their infrastructure poorly. This has resulted in a national concern for municipal infrastructure, which is in poor condition and is continuing to deteriorate to the point of negatively impacting the economic strength of cities, as well as health concerns of citizens.

While the City begins to aggressively manage its infrastructure, Chula Vista continues to grow and develop and so do the demands and expectations placed on its infrastructure and services. We face the same challenges as other cities to apply limited resources to satisfy increasing public expectations, minimize the risk of critical infrastructure failure, and plan for the long-term financial sustainability of our public infrastructure and services.

The City took the first step to creating a comprehensive Infrastructure Asset Management Program in February of 2006 thereby furthering efforts to create an integrated approach to growth planning. For the City, as owner, planner and operator of all Chula Vista's infrastructure, except water, there should be a seamless process between growth planning and rehabilitation planning. Planning, engineering and operational initiatives should all be considered as well in developing solutions to the City's infrastructure challenges, whether they be new challenges resulting from growth or on-going challenges resulting from the ownership and operation of major infrastructure.

Over time, the Infrastructure Asset Management Program will evolve to become the City's primary infrastructure policy document. An early step in this evolution will be to consider and incorporate the City's policies related to management of existing infrastructure, followed by the development of a seamless integration of growth policy and rehabilitation policy. A further step in this evolution will be to fully integrate the tools available for financing infrastructure with the prioritization and decision making related to infrastructure planning and management.

The City of Chula Vista has a pressing need to develop and implement a broad infrastructure asset management program in order to create a comprehensive asset management approach. Continued work on the effort to create an Infrastructure Asset Management Program will take time and a significant investment of resources. Undertaking this effort and taking it to completion will demonstrate to the property owners, residents and businesses in our city that the most effective infrastructure planning mechanisms will be developed and implemented.

What is an Infrastructure Asset Management Program?

In its simplest form, an Infrastructure Asset Management Program begins with a systematic program to inventory and evaluate the condition and capacity of infrastructure assets and then combines that data with a management and improvement program, which integrates operations and maintenance with capital renewal/improvements over multiple budget cycles.

When implemented and managed properly, an Infrastructure Asset Management Program can provide a municipality with a roadmap to achieve an infrastructure that meets expected performance levels at the lowest possible cost.

Minimization of expenditures on municipal infrastructure may seem like the least cost alternative to infrastructure management, but only defers needed expenditures until infrastructure assets fail and require replacement—almost always at a much greater cost due to parts, labor, method of replacement and collateral damages. These increased costs are often hidden but are real costs that unnecessarily increase costs to residents and negatively affect the quality of services provided to customers.

This briefing document is intended to:

- Summarize the management principles underlying the infrastructure asset management approach that has been undertaken;
- Provide a general summary of work to date in the areas of missing infrastructure and utility wire undergrounding;
- Report in more detail the current status of the condition of the infrastructure in the areas of pavement and drainage;
- Recommend prioritization of identified drainage projects and an overview of storm drain pipe needs;
- Provide general information regarding current funding and potential new revenue streams; and,
- Make recommendations regarding the most immediate cost effective actions in the area of pavement.

The primary management objective of an Infrastructure Asset Management Program is to reach and maintain a sustainable level of municipal infrastructure operation, maintenance, and renewal which:

- Provides planned service levels of the infrastructure at the most cost-effective user costs.
- Provides service levels that contribute to attracting and retaining residential, business, and commercial customers.

Cities that are creating and implementing a comprehensive Infrastructure Asset Management System indicate that the following management tools are necessary to achieve these objectives:

- Improved budget preparation, analysis, and management, which allow tracking of costs for operations and assets.
- Development of a financial plan that links infrastructure operating budget with the capital budget.
- Implementation of an asset inventory system that enables the management of the infrastructure as a whole with the implementation of preventative maintenance focused on preservation and to help avoid a reactive failure repair approach to asset replacement.
- Development and implementation of an asset condition and capacity evaluation system that relates asset condition and capacity to expected service levels. This condition and capacity assessment system must look at the infrastructure systems as whole units rather than as a conglomeration of unrelated individual assets. This allows more effective decisions on trade-offs between asset maintenance and asset replacement.
- Development and implementation of a comprehensive computerized management information system for the identification, prioritization, and monitoring of infrastructure capital improvements projects. This system must provide a systematic, quantitative approach for evaluating the costs of operation/maintenance compared with asset renewal/replacement. This is an aspect of asset management that utilizes data upon which to base management decisions concerning costs of operation/maintenance versus renewal/replacement of assets.

Most cities will say they perform all of the above at least in the form of *subjective* consideration by management personnel without a formalized asset management approach. Cities are now moving toward creating integrated prioritization plans based on *objective* data and agreed upon criteria for priority setting.

Best-in-class asset management programs are highly automated and have four key components in common:

1. Customer Service and Work Management to support the day-to-day activities of the operations branches and supply summary data to an infrastructure information repository. The Customer Service module unifies the service delivery to the resident and provides the framework for service levels, performance measures, and standard reporting. The Work Management system supports the implementation of planned maintenance, capital project management and costing,

and provides the information necessary to support performance measurement. It also facilitates mobile computing for field activities.

2. An Infrastructure Information Repository functions as a knowledge bank, facilitating collaboration vertically within public works departments/divisions and horizontally across infrastructure types. It provides all the information needed to manage public works infrastructure throughout the life cycle and enables a wide range of queries and reports for analysis and modeling. It also contains summary and aggregate data from other business systems as well as integrates infrastructure inventory data about each asset into the GIS database and other external files.
3. A Right-of-Way Management System standardizes the procedures and software used to coordinate and control activities on the public right-of-way. This system is integral to the Work Management system.
4. Performance Measurement lays the groundwork for long term infrastructure planning and service improvement.

An Infrastructure Asset Management Program systematically and quantitatively utilizes all of the above tools to continually assess and improve the infrastructure as a whole system (to maintain service levels) rather than considering the infrastructure as independent discrete assets that are repaired as they fail.

While the City of Chula Vista has partially completed inventory and condition assessment information for some of its infrastructure, the public works infrastructure and the related public services are managed across three departments—Engineering, General Services and Public Works, using software applications and extensive paper and manual systems. Existing work management tools and processes are not integrated across the Departments and rely on ad-hoc processes to plan, schedule, approve, coordinate, and report field work. We do not have the tools to coordinate all activities on City streets and rights-of-way to minimize impacts to traffic, neighborhoods, businesses, and the infrastructure itself. City staff produce good results, but it requires significant effort and diligence to manage and coordinate the many construction, maintenance, and third party activities that occur on City streets.

Agencies reporting costs associated with the implementation of an automated, integrated, comprehensive system estimated $4 million to $5 million for implementation with ongoing costs of approximately $600,000 annually.

Infrastructure Asset Life-Cycle Management

Ideally an Infrastructure Asset Management Program is based upon life-cycle management. Asset life-cycle management involves optimizing the following three inter-related costs of a capital asset over its useful economic life:

- Initial capital cost of an asset (planning, design and construction).
- The cost of operating and maintaining (O&M) that asset over its useful (economic) life, including increased costs as the asset naturally deteriorates over time.
- The replacement cost of that asset at the end of its economically useful life.

A critical aspect of infrastructure assets management is that maintenance and capital renewal of individual assets are considered interrelated. Maintenance of the assets should be performed until the point where it is more cost effective to replace or rehabilitate the asset to retain the asset's expected operability.

Infrastructure asset management, when performed properly, looks at systems and subsystems as a whole and focuses investment in maintenance and capital replacement to make the best use of available funding by avoiding catastrophic failure.

Approaching asset management utilizing life-cycle management would constitute a significant change in budget planning for the City; however, it is recommended as a most responsible and realistic alternative toward sustainability of public assets.

Chula Vista's Infrastructure System

Attachment 1 is a template that has been developed as a result of a review of best-in-class practices. It both provides the comprehensive list of infrastructure assets that might be tracked by the City and shows what the summary results of the first two levels of an Infrastructure Asset Management Program could include. If the City were able to invest the time and effort required to create a true Infrastructure Asset Management Program, a full inventory and valuation component followed by a condition assessment and gap analysis (dollars required to bring the asset from current condition to acceptable condition) would be completed.

Master Planning Efforts To Date and Tonight's Focus

Prior to the effort that began in February 2006, master planning components included the following: Comprehensive Master Plans, with specific recommended priorities, were completed and adopted by Council for wastewater and bicycle facilities; the City currently maintains an accurate inventory of traffic control devices and streetlights; the State of California maintains a listing and ranking system for the City's 18 identified bridges.

Considering the list of assets recommended for inclusion with an Asset Management Program, these provide a good start; however, much more time and attention is required to move this effort to the next level.

Tonight's workshop provides an overview and currently planned or recommended next steps for the February 2006 focus areas:

- Utility Wire Undergrounding
- Missing sidewalks, curbs, gutters, pedestrian ramps, and deficient cross gutters
- Drainage
- Pavement

Work in each of these areas has resulted in the start of an inventory process utilizing our Geographic Information System (GIS). The first generation of GIS maps resulting from the data gathered during the inventory and condition assessment processes will be provided during the workshop.

UTILITY WIRE UNDERGROUNDING

Utility wire undergrounding is not typically considered an item of municipal infrastructure because it is an asset that is primarily the responsibility of the local utility and it has a discreet and separate funding source and therefore does not usually compete for General Fund dollars. However, it was included in the City's first phase of analysis due to a Council referral and a previous tendency to wrap this activity into infrastructure discussions.

Starting in 1968, developers have been required to install underground electric and communications utilities in new subdivisions. However, approximately 164.63 miles of existing overhead electrical distribution lines remain, predominantly in western Chula Vista. San Diego Gas and Electric (SDG&E) estimates that it would cost approximately $275 million (2006 dollars) and take about 138 years to place these lines underground. The communications utilities (e.g., Cox, SBC, etc.) have generally cooperated by installing their facilities in SDG&E's joint trench at no extra charge to the City.

In order to underground these utilities, the City is required to form Utility Undergrounding Districts in accordance with rules established by the California Public Utilities Commission. The City receives an annual allocation of funds (known as Rule 20A funds) from SDG&E that must be spent on undergrounding projects.

The City's current franchise agreement with SDG&E sets this amount at a constant $2.0 million per year, which is greater than the standard formula would have realized (about $840,000 per year). Current 20A rules require that these funds be spent primarily on undergrounding projects on major transportation corridors and city gateways. However, other California cities have created additional funding opportunities to accelerate already allowed 20A projects as well as allow for undergrounding wires in neighborhoods. These alternative funding mechanisms include special surcharges on electric bills, assessment districts (Rule 20B funds), and realization of what is known as "Rule 20C" funding through developer partnerships. The City of San Diego has an aggressive undergrounding program due to the implementation of a surcharge that generates from $10 million to $36 million annually.

As of March 31, 2006, the City has allocated a total of approximately $30.36 million in Rule 20A funds to underground utilities within the City. This includes sixteen undergrounding districts that have been completed since 1995 for approximately $24.23 million. These projects require a tremendous amount of coordination between the City, SDG&E and other utility companies. A significant public outreach effort is required to secure right-of-way and to complete the PUC required district formation process. City resources must be allocated for ancillary street and appurtenance design. These related activities are considered "unfunded" as they do not qualify for use of 20A funds; these labor-intensive activities appear as administrative costs to the project.

The City has six utility undergrounding districts that have been formed and are part of the current program. Five of these districts are located on Fourth Avenue, L Street and J Street and were estimated in November 2005 to cost a total of $10.22 million in 20A funds. The Bayfront Undergrounding District, which is currently under construction, is estimated by SDG&E to cost approximately $20.0 million and is scheduled to be completed by June

2008. SDG&E estimates that these projects will exhaust the City's allocated funds for at least the next ten years.

Included in the workshop packet is the first phase GIS inventory map for utility wire undergrounding. It shows projects completed to date, projects planned through 2018 and remaining above ground wires. This topic will be covered in a second Infrastructure Management Council Workshop anticipated before the end of the calendar year. That workshop will include a comprehensive overview of Chula Vista's current utility undergrounding program, project selection criteria, progress to date, current plans, unmet needs and potential funding options.

MISSING CURBS, GUTTERS, SIDEWALKS, PEDESTRIAN RAMPS AND DEFICIENT CROSS GUTTERS

The City's Subdivision Manual requires all developers to construct full street improvements in new developments. In older areas of the City, particularly in formerly unincorporated areas, roadway improvements often consisted of only asphaltic concrete (AC) pavement, sanitary sewers, and minimal drainage improvements. The Americans with Disabilities Act (ADA), which became effective on July 26, 1992, mandated construction of pedestrian access ramps (also known as ADA ramps) in all new developments and areas where the City is applying pavement overlays or reconstructing the street.

Chula Vista's infrastructure network includes almost 19 million square feet of sidewalk.

As a start toward creating an Infrastructure Asset Management Program, City staff has completed an inventory of all missing sidewalks, curbs, gutters, and pedestrian ramps, and estimated the cost by elementary school attendance area. This approach was undertaken in response to City Council interest in ensuring safe, uninterrupted routes to school and in order to position the City for increased success with the federal Safe Routes to School grant program. This approach also allowed the City to enhance partnerships with the Southbay Partnership; Healthy Eating and Active Communities; and Walk San Diego who have started a walking audit effort for Chula Vista's Elementary Schools.

Preliminary analysis of missing infrastructure of this type and construction estimates (2006 dollars) are summarized in the table below. It is important to note that this effort focused only on missing infrastructure due to funding, staffing and time constraints. Although the public works departments (Engineering, General Services and Public Works) have begun some work to create comprehensive databases for deficiencies (cracks, buckling, etc.) in these areas, a comprehensive, complete inventory/condition assessment of deficient infrastructure has not been completed.

MISSING SIDEWALKS, CURBS, GUTTERS AND PEDESTRIAN RAMPS

TYPE OF INFRASTRUCTURE	2006 ESTIMATE
161,933 feet of missing sidewalks	$ 24,289,925
147,716 feet of missing sidewalks, curbs and gutters	$107,094,091
1,223 missing pedestrian ramps	$ 7,949,500
TOTAL	**$139,333,516**

Staff also compiled a list of 87 cross-gutters consisting of those about which residents have inquired or that cross major streets (collectors and arterials). These were prioritized based on traffic volumes, speed limit grade differential and the presence of a stop sign. This information is now being integrated into street improvement and traffic signal installation projects as funding allows.

Because there are no readily available funding sources for this type of infrastructure work such as restricted 20A funds for utility wire undergrounding or Transnet funding for transportation/street projects, these types of municipal projects are especially challenging to initiate and complete.

Thus, current project prioritization is primarily driven by availability of specific funding (e.g., CDBG funding in eligible areas) and special compatibility with grant opportunities and/or legislative funding opportunities. Project prioritization is also often influenced by resident input.

This topic is also planned for more in-depth coverage in a second Infrastructure Management Council Workshop anticipated before the end of the calendar year. The phase one GIS map in the workshop packet shows elementary schools and other attractors within that school's attendance boundary, location of missing sidewalks, curbs and gutters, and estimated funding requirements (in 2006 dollars) by school attendance boundaries.

The next workshop will include a comprehensive overview of Chula Vista's progress to date, current plans, unmet needs, recommended project selection criteria and potential funding options. It is hoped that this timing will also allow for more information to be available regarding the outcome of several grant submissions, a legislative funding request and a grant funded pedestrian master plan component—all of which could impact this component of the Infrastructure Asset Management Program.

DRAINAGE

One of the areas of focus for tonight's workshop is drainage. This section provides an executive summary of the drainage work to date. Attachment 2 is a more in-depth "Report on Drainage Deficiencies in Chula Vista."

For this effort, "drainage" refers specifically to the management of urban runoff and flood control (pipes, culverts, channels, detention basins, etc.), and Corrugated Metal Pipe (CMP), which is part of the City's storm water conveyance system. This effort included attention to both condition of the drainage system, as well as an analysis of the capacity of the system (i.e., Are various components sized correctly to manage the amount of flow estimated for a 100-year flood event?).

Special Challenges with "Urban Runoff" and Flood Control

Structures included under the drainage umbrella are intended to manage urban runoff (storm water and otherwise) and provide flood control.

Urban runoff originates in every neighborhood throughout the city and heads directly to our beaches and waterways through our flood control channels. We are currently struggling to

adequately address the growing need to maintain this aging infrastructure, with special attention to the fact that the flood control system is the primary conduit for urban runoff.

Management of urban runoff continues to be one of the greatest challenges that local governments struggle to resolve; yet it remains relatively under the radar of the general public. Federal, state and regional mandates in this area have grown exponentially, with a new permit with more stringent requirements being adopted just within the last three months.

While continually more stringent National Pollution Discharge Elimination System (NPDES) permit requirements have caused local governments to take a more innovative and proactive role in combating water pollution, only so much improvement can be realized through designing and implementing new structural best management practices. Improved infrastructure must be combined with active and consistent public outreach to raise public awareness of this issue and how individual social behavior directly impacts our local water quality. Raising awareness is the first step to sustained behavior change.

A recent Orange County survey showed that the public is generally unaware of what the term urban runoff means, and that there was little knowledge that the sanitary sewer system and the storm water system are two separate infrastructure systems with two entirely different forms of treatment. Learning that the storm water system empties directly into the bay without the benefit of removing any contaminants and pollution often comes as a surprise to the general population. However, data from several California cities show that water quality issues actually attract a high level of attention with residents. This information can be used to develop a highly effective public outreach program.

Municipalities currently have a unique opportunity to maintain drainage infrastructure while providing a benefit to water quality--not only with the primary focus of protecting both life and property, but also with a pursuit of a multi-purpose approach to projects that not only provides for flood control protection and operations, but which also balances ecosystem issues such as habitat restoration and water quality requirements.

In addition, both the general public and the regulatory community must be encouraged to accept and promote the need to balance water quality, habitat and ecosystem restoration and flood control issues. Often there is a preference for scenic and heavily vegetated flood control waterways in lieu of concrete channels. However, when the need for flood capacity demands the removal of some vegetation, it becomes extremely difficult to win approval from the regulatory agencies as well as environmentally sensitive members of the general public.

Undertaking "simple" maintenance activities requires significant work to assess each location's unique environmental requirements and to interface with the regulatory agencies to secure the appropriate permits. It is recommended that the City undertake at least this step so that maintenance activities can begin.

The City's Historical Efforts and Summary of Current Work

City staff and the City's consultants have prepared various Drainage Master Plans and studies from 1964 to the present. The last study to include a list of drainage priorities and cost estimates was the "Report on Flooding and Proposed Corrective Facilities," which was prepared by City staff in May 1992 and presented to City Council in July 1993 in conjunction with the City's Growth Management Oversight Commission's 1992 Annual Report. A total of 37 projects were identified at a total estimated cost of $13,561,000. As part of the City's 2004 Drainage Master Plan, the known existing flooding problems in the City were identified, with a discussion of the possible solutions.

An analysis of the City's Capital Improvements Program (CIP) and operations activities from FY 2002 through FY 2006 shows that an estimated $9.0 million has been spent on drainage projects. Capital appropriations came from a variety of sources including CDBG, Gas Tax, Storm Drain Fees, and Grant Funds, with the bulk of funding coming from CDBG, Residential Construction Tax and the Western Chula Vista Financing Program. The last General Fund contribution was about $0.2 million in FY 2003.

Current Recommended Drainage Projects

Based on the results of the historical studies and a survey of best practices, City staff has developed a prioritization system for drainage projects. All recommended projects to address drainage deficiencies, not involving Corrugated Metal Pipe (which is discussed in the following section), have been grouped into Priority Tiers 1 through 5 based on the frequency and severity of flooding. Each Priority Tier contains from three to five recommended projects. Detailed estimates were prepared for Priority 1 projects, while rough cost estimate ranges were prepared for Priorities 2 through 4. Priority 5 needs are currently addressed through maintenance actions; however, they are included for capital consideration because it has been determined that a capital intervention could eliminate or at least minimize ongoing maintenance requirements.

The table below summarizes the categories, projects and estimated total funding requirement (2006 dollars). Priority 1 Tier gives project details; the remaining priority tiers are summarized in the aggregate and with cost ranges.

Location (Alphabetical by Drainage Basin)	Preliminary Cost Estimate (2006 Dollars)
Priority 1 Tier: Frequent flooding and/or high chance of personal injury or property damage.	
Bonita Basin: Bonita Road and Allen School Road	$ 500,000
Bonita Basin: Canyon from Terra Nova Drive to Bonita Road	$ 3,900,000
Central Basin: East of Second Avenue and North of H Street	$ 1,500,000 (FUNDED)
Central Basin: Hilltop Drive, Hilltop Drive, s/o H Street to Shasta Street	$ 1,800,000
Long Canyon Basin: Canyon from Corral Canyon and East H to channel	$ 4,600,000
Telegraph Canyon Basin: Country Club Drive culvert, channel and First Avenue culvert; Hilltop Park upstream of First Avenue and Millan Court; east of Hilltop Drive south of Telegraph Canyon Road	$ 5,600,000
Telegraph Canyon Basin: Fourth Avenue to Third Avenue channel and L Street Culvert	$ 7,100,000
Telegraph Canyon Basin: Moss Street and Fifth Avenue	$ 900,000
Telegraph Canyon Basin: Third Avenue and Emerson Street to 900' west; Emerson Street drainage system	$ 2,900,000 (FUNDED)
Total Priority 1 Tier Unfunded Projects	$24,400,000 less funded projects
Priority 2 Tier: Occasional flooding with a chance of personal injury or property damage.	
Five recommended projects	$4,430,000 - $6,100,000
Priority 3 Tier: Frequent nuisance flooding.	
Two recommended projects	$260,000 - $600,000
Priority 4 Tier: Occasional nuisance flooding.	
Three recommended projects	$1,600,000 - $2,200,000
Priority 5 Tier: Frequent or routine maintenance manages problem, CIP project could eliminate problem.	
Eight potential projects	$1,310,000 - $2,260,000[3]

Of the Priority 1 Tier, the Hilltop Drive project ($1.8 million) is recommended for advancement should funding be identified. This project was requested by the impacted residents in the early 1960's and received City Council support at that time. The project was partially funded as DR-134 and some preliminary work was done. In FY 2005, the project was deleted due to an ongoing inability to identify the remainder of the needed funding.

In order to have a complete picture of current and future drainage deficiencies within the City, staff needs to be able to run various scenarios to determine the effect of development on the City's drainage capacity. Staff is proposing a new CIP project which would modify the software developed with the Drainage Master Plan. This would allow staff to run various scenarios based on changing conditions, incorporating the County's latest hydrology modeling requirements and taking into account the effect of detention basins.

Corrugated Metal Pipe Recommendations

As noted above, recommended drainage projects focus primarily on specific needs to address current or potential flooding situations. Corrugated Metal Pipe (CMP) recommendations relate to the piping system that carries urban runoff and storm water to a discharge point.

Based on the CMP needs identified as part of the 2004 Master Plan, the City retained a consultant to televise and prioritize replacement/rehabilitation of the CMP within the city. To date, approximately 14 miles of the City's total known 16 miles of CMP have been

[3] Unable to estimate two of eight projects at this time.

televised. The remaining approximately two miles of CMP was not inspected due to access issues. These issues included damaged pipe, paved over or buried access points and cleanouts that were not installed. CMP is typically one of a municipality's older assets and thus records to base an inventory upon can be scarce or inaccurate.

In addition to the recommended drainage projects summarized above, CMP projects have been placed in a recommended prioritization of effort--from those pipes that require immediate attention to pipes that are structurally sound but should eventually be lined. The high cost of these projects is primarily due to their location in very tight work areas, between structures, under roadways, as well as sensitive environmental issues.

The total CMP need is estimated to be $29 million (2006); more details is provided in the table below. Should new or increased revenue be realized, a CMP program of $5.8 million annually for five years is recommended.

ESTIMATED CMP REPLACEMENT COST

Categories	Original Est.	Added Pipe	Soft Costs	Total
Current CIP				$2,900,000
Requiring Immediate Attention *	$761,470	$383,781	$383,781	$767,562
Additional Inspection				$860,000
Recommended within one year	$4,778,150	$2,408,188	$7,186,338	$14,372,675
Recommended within three years	$2,124,850	$1,070,924	$3,195,774	$6,391,549
Recommended within five years	$326,375	$164,493	$490,868	$981,736
Line remainder of pipe (13,338 LF)				2,667,600
Total Estimated Cost	$7,990,845	$4,027,386	$11,256,761	$28,941,122

*** This line item only gives the total for the added pipe. The rest is under Current CIP.**

Funding for Drainage and CMP Projects

Drainage, including CMP, is another area where there are no readily available funding sources such as restricted 20A funds for utility wire undergrounding or Transnet funding for transportation/street projects. Ideally, the City would move to a watershed-based program that could integrate multiple objectives such as ecosystem restoration, flood control requirements and water quality. An adequate, equitable and dedicated funding source for drainage, perhaps ultimately approached through watershed-based programs, that would fund not only capital but also operations and maintenance is needed.

Because there is no specific funding for these types of municipal projects, they are especially challenging to initiate and complete. Thus, current project prioritization is primarily driven by availability of specific funding (e.g., CDBG funding in eligible areas) and special compatibility with grant opportunities and/or legislative funding opportunities.

Funding sources used in the past have included Storm Drain Fee revenue, Residential Construction Tax (RCT) and Community Development Block Grants. These funding sources are now otherwise committed (CDBG to the recently received HUD loan for the Castle Park sidewalk program; RCT to the Western Chula Vista Infrastructure Financing Program debt obligation) and/or are insufficient to fund required activities. For example, current Storm Drain Fee revenue at 70¢ per month per residence is entirely dedicated to storm drain maintenance and is not even sufficient to fund maintenance activities required to fulfill federal and state mandates that continue to grow more stringent, let alone fund capital projects for flood control and storm water management.

Funding for drainage projects and maintenance could be realized from an increase to the 70¢ per month per residence Storm Drain Fee currently in place. FY 2007 revenue projected from the current fee is just over $500,000--far short of the revenue needed to keep up with mandated maintenance let alone undertake capital drainage projects. Increasing this fee to $2.10 per month per residence would result in an estimated $1.5 million in revenue—still not adequate, but an important option to consider. This would require voter approval. Other potential funding sources that can be applied more broadly, perhaps to drainage, are discussed in the funding section at the end of this report.

PAVEMENT

The major focus of tonight's workshop is pavement management. The pavement contract season is upon us and determination of a two-year approach is necessary to both optimize pavement contracting and available funds.

The City of Chula Vista is responsible for an estimated 1,113 lane miles or 441 center line miles with a current estimated $659 million replacement value. If placed in an unbroken straight line, this amount of pavement would stretch from Chula Vista to Vancouver, Washington.

The City initiated and has maintained a pavement management system since 1986 in accordance with the California Streets and Highways Code, which requires California cities to implement a pavement management system as a condition to obtain funding from the State transportation improvement programs. Pavement assessment is recommended every three to five years.

In 1986 the City hired a consultant to begin a system of pavement inspection using laser detection technology and City streets were retested using the same method in 1995 and 2002. At that time, laser inspection was presumed to be the latest technology and was perceived to be more accurate than visual inspection due to the presumed objectivity of a non-human system. However, based on the practical experience of our engineering/ operations staff and field experts, as well as engineering professionals from other municipalities, visual inspection is currently considered to be a more reliable method of pavement testing if conducted by trained, experienced professionals to maximize consistent evaluation.

The last pavement condition survey was done by Infrastructure Management Services (IMS) in the winter of 2002. IMS's analysis of the City's data concluded that the City would need to program and spend a total five-year budget of approximately $46.6 million to maintain the existing pavement condition level of 76 (on a scale of 0 to 100). A budget scenario was

run specifying the City's current annual budget with a 3% yearly inflation factor and it resulted in a condition level reduction to 71 in five years.

An analysis of the City's Capital Improvements Program (CIP) and operations activities from FY 2002 through FY 2006 shows that an estimated $45.9 million has been spent on street rehabilitation/renovation projects and approximately $25.4 million has been spent on roadway capacity enhancement projects. This included citywide pavement overlay contracts for $7.4 million, $2.7 million and $2.5 million; the reconstruction of Main Street from Broadway to I805 (%5.5 million) and the reconstruction of H Street from I5 to Broadway.

Capital appropriations came from a variety of sources including CDBG, Gas Tax, Grant Funds, Residential Construction Tax, and Proposition 42, with the bulk of funding coming from Transnet. The last General Fund contribution was about $0.9 million in FY 2002. This General Fund contribution was used for landscaping beautification efforts associated with the reconstruction of H Street between Broadway and I5.

The most recent contract for pavement testing and management services was awarded by City Council to Nichols Engineering on January 10, 2006; the results of this work form the basis of tonight's recommended next steps.

Rating Pavement

The City's new (2006) pavement management system is based on visual inspection, and therefore does not directly correlate to previous inspections. Asphaltic Concrete (AC) and Portland Cement Concrete (PCC) pavements are scored according to different criteria. Over 90% of the pavement in the City is AC, which is rated low, medium and high for the following distresses:

- Alligator cracking
- Block cracking
- Distortions (bumps, sags, shoving)
- Longitudinal and transverse cracking
- Deterioration of patching/ utility cuts
- Rutting and depressions
- Weathering and raveling (surface wear)

The City's remaining pavement is either PCC covered with an AC overlay or PCC. If the pavement has an AC overlay, it is rated according to the categories for AC pavement. The PCC pavement is rated low, medium and high for the following distresses:

- Corner breaks
- Divided (shattered) slab
- Faulting (difference in elevation across a joint)
- Linear cracking (longitudinal, transverse and diagonal cracks)

- Deterioration of patching/ utility cuts
- Scaling and map cracking (network of hairline cracks)
- Spalling (breakdown of slab edges or corner)

The rating for these components is then combined to give a total rating for each street segment (generally from intersection to intersection). These ratings can be categorized as follows:

- Excellent to Very Good: 100 down to 85
- Good: 85 down to 70
- Fair: 70 down to 50
- Poor: 50 down to 25
- Very Poor: 25 to 0

2006 Chula Vista Pavement Ratings

The current estimated citywide pavement rating is 79 with the range of scores falling between 13 and 100. As noted above, comparing the details of the 2006 numbers to the 2002 numbers is an apples to oranges comparison given the different methodologies.

The map packet for tonight's workshop includes a GIS-based citywide view of the pavement condition by street segment.

The Case Against "Worst-First" and the Case for a Pavement Management System

The philosophy of pavement preventative maintenance – applying the right treatment on the right street at the right time – represents a dramatic change in philosophy, strategy and direction for most agencies and particularly for the public.

Pavement management is the process of planning, funding, designing, constructing, monitoring, evaluating, maintaining and rehabilitating the pavement network to provide the maximum benefits for use of available funding.

Previously, the most common approach to project selection within a network was the "worst-first" strategy. In this case, the pavements that are selected for treatment are those that are closest to failure. Accordingly, the treatments that are applied are more expensive and more time-consuming to construct.

The worst-first strategy quickly depletes available funding focusing on streets that cannot get worse. In the meantime, streets in acceptable condition continue to deteriorate due to lack of attention, opportunities to expand the useful service life cost effectively are lost and the backlog continues to grow as these once acceptable streets quickly drop into the "major rehabilitation needed" category. The result is a quickly growing backlog that outpaces any progress made by sinking all available funding into the worst streets.

Pavement preventative maintenance programs begin, either formally or informally, with the concept that cost-effective treatments can be applied earlier in a pavement's life. These treatments are thinner, are very cost-effective, are constructed relatively rapidly with minimal disruption to the motoring public, and reach or exceed their design lives because they are applied to pavements that are in generally good condition.

Pavement management is the process of evaluating and tracking the conditions of streets, identifying when streets require maintenance/ rehabilitation, and choosing the appropriate maintenance/ rehabilitation method for those streets. Experts conduct an evaluation of the pavement surface, each street is then ranked based on a Pavement Condition Index (PCI), and finally an appropriate maintenance strategy is recommended based on this PCI. This process also includes budgeting for street maintenance funding and conducting inventories of street assets. An effective pavement management system provides a systematic and objective method for determining priorities and the optimal time for repair.

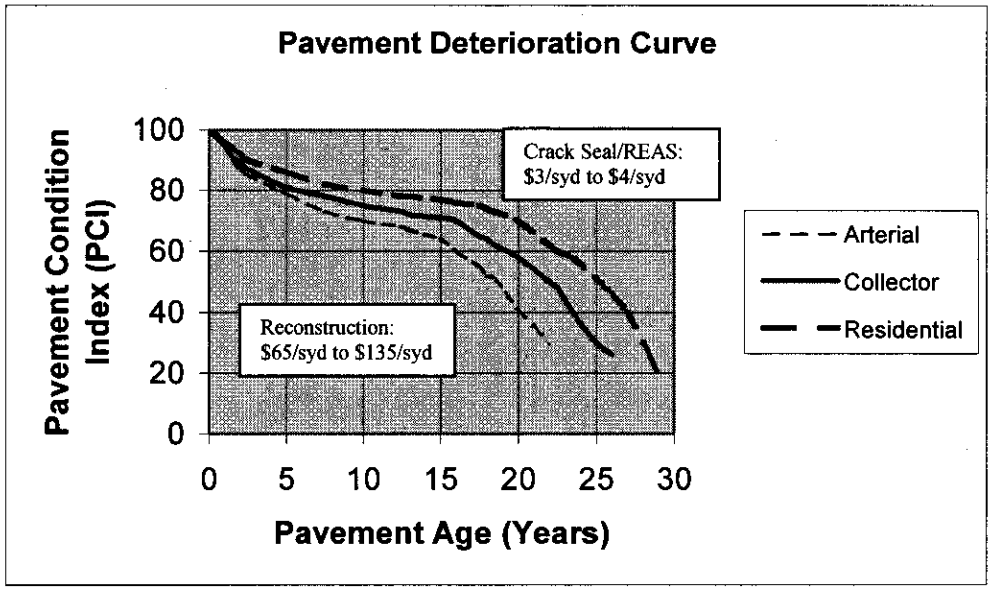
Even though transportation/street maintenance is one of the few areas where regional and state monies are allocated (Transnet, Proposition 42, Proposition 1B), needs continue to exceed available funding. Most public agencies face financial constraints and must make choices about how to spend their limited transportation dollars. Even with dedicated pavement preventative maintenance funding, a choice must be made regarding how to maintain pavement. When funding constraints are present, preventative maintenance and worst-first strategies are incompatible.

Pavement Rehabilitation Methods

All streets deteriorate over time and will eventually require some form of maintenance. The timing and type of maintenance needed for any given street depends on several variables including the condition of the street, the type of traffic on the street, and the structural properties of the street. A pavement management system tracks and quantifies these factors. This provides the City with helpful information that can be used to decide which streets require maintenance, when to perform the maintenance, and how much it will cost.

The type of maintenance strategy selected is based on the condition of the street. A street in the Excellent to Very Good Category may not require any maintenance other than crack filling, while a street in the Very Poor category may need a total reconstruction, involving removal and/or recycling of the current asphalt and base courses. Costs increase exponentially depending on the level of treatment – crack sealing and a Rubber Emulsified Aggregate Slurry (REAS – also known as a Flex Seal) costs $3.00 to $4.00 per square yard (including soft costs), while a complete reconstruction costs approximately $65.00 to $135.00 per square yard. Even when considering the longer life provided by a reconstruction or overlay (approximately 25 years for a reconstruction or 15 to 20 years for an overlay as compared to five to seven years for a seal) it is apparent that sealing a street is more cost-effective.

The typical pavement deterioration curve is shown below. A pavement surface deteriorates exponentially after a certain point is reached, generally in the Fair category



(between 60 and 70). Beyond that point, more expensive rehabilitation methods will be required, such as overlays or total reconstruction.

Following is a description of maintenance and rehabilitation methods that have been used by the City:

1. **REAS Seal:** Rubber Emulsified Aggregate Slurry (REAS) seals, also known as Flex Seals, are ideally applied every five to seven years after street construction or rehabilitation in order to maintain the pavement surface on streets with little to no structural failure. A slurry seal is a thin (less than one-inch thick) layer of asphalt emulsion, dense aggregate, water and additives that are mixed together and applied on the pavement. Crack sealing/ filling should be done prior to application of the seal. This method is the least expensive of the strategies used by the City for rehabilitating the entire street surface. The unit price for this application is approximately $3.00 to $4.00 per square yard, including overhead and soft costs. If streets needing this strategy are ignored, the pavement surface will deteriorate at an exponential rate, thus requiring a more expensive pavement maintenance strategy, such as an ARAM seal coat or pavement overlay.

2. **Chip Seals:** For non-residential streets (typically arterials and collectors), a chip seal is an appropriate maintenance strategy. A chip seal involves spraying a thin layer of asphalt emulsion, and then immediately spreading a thin aggregate cover. This creates a rougher surface with greater friction than slurry seals, which is more appropriate for higher speeds. Like a slurry seal, this method should be used in conjunction with crack sealing/ filling. The unit price for this application is approximately $6.50 per square yard.

3. **ARAM Seal Coat:** The ARAM Seal Coat method of pavement rehabilitation is performed on streets in which the pavement condition requires more than a REAS slurry seal, but not necessarily a pavement overlay. Streets requiring this

pavement strategy typically have no structural failure, but have minor cracking. This seal coat strategy consists of the application of an Asphalt Rubber Aggregate Membrane (ARAM) chip seal over the existing pavement surface in conjunction with crack sealing/ filling. This method of rehabilitation costs approximately $8.00 per square yard.

4. **Pavement Overlays:** Pavement overlays are applied on streets that show signs of structural failure, such as alligator cracking. Dig-outs (four-inch deep removal and replacement of failed pavement) are performed to remove the areas of structural failure and a minimum 1½" thick pavement overlay is placed above the existing pavement surface to complete this method of rehabilitation. ADA requirements would trigger the installation of pedestrian ramps if there are no existing ramps or the existing ramps are deemed non-compliant. The work for this application typically includes edge grinding, adjustment of manholes/ valves/ monuments, and pedestrian ramp construction. The unit price for this method of rehabilitation is approximately $34.00 per square yard for a 1½" thick overlay.

5. **Pavement Reconstruction:** Pavement reconstruction is performed on streets that cannot be rehabilitated by any of the strategies mentioned above. Streets requiring reconstruction show evidence of overall structural failure and need to have the existing pavement and base course removed/recycled so that they can be reconstructed with an adequately designed pavement section, which is based on several factors: street classification, traffic index and R-Value (resistance value) of the subgrade soils. Many of these streets were not designed for modern day transportation requirements (e.g., heavier vehicles, higher volumes). The estimated cost of reconstruction varies from $65.00 per square yard for a cul-de-sac to $135.00 per square yard based on thickness of the pavement and base course.

Existing Conditions

As of January 2006, the City had approximately 441 centerline miles of public streets and alleys, of which approximately 431 centerline miles are public streets that are open to traffic. This is somewhat higher than the 387.3 center line miles of accepted streets reported in the Fiscal Year 2005-06 GASB 34 report, due to additional streets accepted since the time the last GASB was prepared. The total City street network by functional class and average PCI is provided in the table below.

As the chart below indicates, the average PCI for Chula Vista's 431 centerline miles of public paved streets is 79 as of 2006, which puts the average street in Good condition. If no rehabilitation were done over the next ten years, the average PCI for the entire network would be projected to drop below 60. Should the overall network fall below 70, it becomes almost impossible to catch up with the backlog.

CHULA VISTA PAVEMENT NETWORK

Functional Class	Centerline Miles	Lane Miles (Rounded)	% of Network by Area	Average PCI	Rating
Arterial	46.5	231	18.9%	80	Good
Collector	74.4	209	19.6%	77	Good
Residential	309.9	654	60.6%	79	Good
Alley	10.1	19	0.9%	58	Fair
TOTAL	440.9	1113	100%	79	Good

Streets were also rated by functional class. It was determined that the City's arterials, which comprise approximately 18.9% of the City's network, have an average PCI of 80. Residential streets, with about 60.6% of the network, have a PCI of 79, while collector streets, with about 19.6% of the network, have an average PCI of 77.

The phase one GIS map included in the workshop packet provides specific street information. Please note that the Excellent to Very Good and Good categories are combined; the Fair, Poor and Very Poor categories are shown separately. The map provides the detail regarding the greater proportion of poor streets in western Chula Vista. The older portion of eastern Chula Vista west of Brandywine Ave./ Medical Center Drive also has a large concentration of fair and poor streets.

City-owned alleys have generally not been included in the City's pavement rehabilitation programs, because they are considered to be secondary access ways that are only used by vehicles serving the local properties. However, should the City pursue a comprehensive Infrastructure Asset Management Program, alleys should be included as a managed asset.

Approximately half the alleys are PCC, which is considered to be the standard for alleys due to usage by trash trucks, and they are in excellent to good condition. Approximately 1.1 miles have a gravel or dirt surface and were not rated. The remaining alleys are ACC, are in Poor to Very Poor condition, and most require total reconstruction. Privately owned alleys would not be eligible for city-funded maintenance.

Pavement Rehabilitation Scenarios

In the past, the City sometimes used resident request to assist in the formation of priorities for the construction of street improvements. Transitioning to a true pavement management approach would minimize the use of citizen request data instead relying on objective assessment and computerized analysis.

Applying the right treatment to the right street at the right time can extend the service life of that street from three to five years.

True implementation of a pavement management system is often difficult for residents to understand because relatively new streets may be seen receiving treatment (the average person may not understand the difference between a

seal, an overlay, etc.) whereas a street needing reconstruction may appear to be ignored. The reality is that the pavement management system drives the best use of dollars to avoid having the pace of streets falling into the reconstruct category outpace available funding.

The purpose of a pavement management system is to enable the City to use its pavement dollars in the most cost-effective manner so that the overall pavement condition is as good as possible. Therefore, it is generally more cost effective to do a balanced program of seals and overlays than to just do all the worst streets. If seals and overlays are applied at the right time, further deterioration can be avoided, thereby postponing or eliminating a more expensive type of repair. If a street requires reconstruction, timing is not as important, since further deterioration will not affect the type of treatment required. Also due to the high cost of reconstruction, many more streets can be rehabilitated using seals or overlays.

Delaying pavement preservation for only one year can rob five to six year of pavement service life.

The StreetSaver® program is the basis for the City's updated pavement management system. StreetSaver® is non-proprietary software originally developed by the Metropolitan Transportation Commission of the San Francisco Bay Area, so it is specifically based on California road conditions and is one of the most widely used

pavement management programs in the State. The StreetSaver® program includes a number of assumptions that can be reset by the user.

Initially, staff is using many of the assumptions recommended by the City's consultant. The assumptions will be revisited as practical experience is gained with our city streets and their unique characteristics. Priority is given to the City's major streets through weighting factors: Arterials are given a weighting factor of 1.0, while collectors have a factor of 0.72 and residential streets have a factor of 0.55. The program schedules seals for residential streets every seven years, and every five years for arterials and collectors. There is a PCI cap of 90, which assumes that no treatment will be necessary if the PCI is above 90.

A copy of the StreetSaver® Decision Tree is attached (see Attachment 3). The Preventive Maintenance Decision Tree only applies to pavement in Good to Very Good condition (PCI is greater than 70). Fair streets (noted as "Good" in the Decision Tree) fall into either Category III if there are significant load-related distresses, such as alligator cracking or rutting, or Category II if not. Poor and Very Poor Streets are classified as Category IV and V, respectively. For Portland Cement Concrete (PCC) pavement, the Consultant estimated that five percent of the slabs would need to be replaced for Categories II and III, and 15 percent would need to be replaced for Category IV. For asphalt (AC) pavement, standard treatments used by the City are included. However, it is assumed that a thicker (2") overlay should be used for Category III Arterials due to the larger traffic loads. Milling/grinding will probably be necessary if the street has been overlaid in the past in order to reduce the height of the street, particularly at the gutter.

The Consultant has recommended one additional treatment for Arterials and Collectors in Poor condition, and that is the RAC Overlay. This type of overlay uses less asphalt and includes rubber recycled from old tires. This treatment is very temperature sensitive, but it can increase durability if properly applied and it can also reduce traffic noise. The cost has generally been higher than conventional AC overlays, but it has become more cost-effective with the increasing price of petroleum and asphalt.

Staff then used the StreetSaver® software to look at several types of programs over a ten-year period for 2006 through 2015. Six of these scenarios are summarized below. All scenarios are in 2006 dollars. Based on the current condition of the City's streets, the City's consultant has determined that the City is starting out with an estimated backlog of $43 million in streets that need maintenance and/or rehabilitation. It should be noted that the reconstruct estimates included in the backlog are for pavement surface only, funding estimates for other infrastructure complexities that challenge project initiation and completion (e.g., right-of-way, drainage, etc.) were not estimated with this project phase.

One of the major funding sources for the City's pavement/transportation projects to date has been Transnet (approximately $5 million to $6 million annually). The original Transnet was scheduled to end in FY 2008; an extension was approved by voters and begins in FY 2009. The Transnet extension imposes more strenuous restrictions on the use of funding, including a requirement that 70% of a city's funding allocation must go towards "capacity enhancing" activities—major street rehabilitations qualify as capacity enhancing. Only 30% of funds may be used for maintenance (including seals). This assumption has been built into the budget scenarios described below; however it may threaten the optimal implementation of a pavement management system. If this is the case, the Transnet extension provides an appeal process that staff recommends be undertaken if necessary to support the practical application of a pavement management system.

Scenario 1: Ideal Budget. This scenario answers the question, "What would be the funding requirement to eliminate the current estimated backlog and maintain or improve the overall PCI?" The analysis shows that an approximate investment of $19.2 million per year for ten years (actual total is $188.1 million) would eliminate the backlog by the end of the tenth year and improve the City's overall PCI from 79 to 81.[4]

Scenario 2: Budget to Maintain Current PCI (79). In order to maintain the current PCI of 79 over a ten-year timeframe, an expenditure of $14.5 million per year for the first six years and about $20 million for the last four years is required. The total ten-year expenditure requirement is approximately $171 million. The backlog drops to approximately $30 million in this funding scenario.

Scenario 3: Existing Budget (High). This scenario takes all funding already appropriated for pavement activities for Fiscal Year 2007, anticipated Transnet funding over the next

[4] It should be noted however that reconstruct estimates included in the backlog are for pavement surface only, funding estimates for other infrastructure complexities that challenge project initiation and completion (e.g., right-of-way, drainage, etc.) were not estimated with this project phase.

five-years, interest earnings on Transnet, anticipated Proposition 42 funding, plus the addition of funds previously and currently allocated for reconstruction of North Broadway and North Fourth Avenue from Davidson Street to SR-54. It assumes that these streets will be considered by the software based on their current attributes, and will compete with all other streets in Chula Vista on the basis of the pavement management system criteria. The total assumed funding is $70,304,665 over ten years. At the end of that period, the Citywide PCI is estimated to decrease from 79 to 68, with the backlog increasing to approximately $130 million (compared to $160 million if the existing budget is not revised).

Scenario 4: Existing Budget (Low). This is based on the City's existing five-year plan for use of Transnet funds, plus Proposition 42 funding. The second five-year period is assumed to be the same. The total funding would be $39,804,000 over ten years. At the end of that period, the Citywide PCI is estimated to decrease from 79 to 64, with the backlog increasing to approximately $160 million—almost four times the current estimate.

All these scenarios assume an average rate of deterioration based on available data for California streets. The scenarios do not assume the addition of new streets to the network, which increases the citywide average PCI and adds to the inventory that must be managed.

Due to the high cost or unacceptable end result of these scenarios, two additional scenarios have been run covering only two years each. This allows the City to consider additional revenue streams during the two-year period.

Scenario 5: Two-Year High Budget. This scenario is the two-year version of Scenario 3 above. It assumes a budget of $11.5 million in FY 2007 and $9.5 million in FY 2008. It includes the transfer of funds from the North Broadway and North Fourth Avenue CIP projects in order to let those projects receive equal consideration with all other City street in the automated program. It also assumes that all available Transnet and Proposition 42 funds will be applied to the rehabilitation program in 2007. The anticipated Proposition 1B allocation of $3.5 million is included in the FY 2008 figure. The most significant difference between this scenario and Scenario 3 is that the backlog increases to an estimated $115 million as compared to $130 million because more streets on the edge of dropping into the rehabilitation category within the first two years are pulled back into the "less-cost-required" maintenance category.

Since the percentage of maintenance funds from Transnet will be limited to 30% beginning in July 2008 assuming an appeal is not approved, staff will be recommending that the majority of the currently unrestricted Transnet funding go toward preventive maintenance in 2007. Although the $11.5 million available in the first year is significantly higher than what the City has been able to typically put toward pavement, it is significantly lower than the $20 million required to maintain the current PCI (see Scenario 1); therefore, the PCI after two years' treatment in this scenario is projected to decrease from 79 to 76.

Scenario 6: Two-Year Low Budget. This scenario is the two-year version of Scenario 4 above. This scenario assumes that the North Broadway and Fourth Avenue projects will remain in the CIP and be implemented. Therefore, the remaining pavement budget will be approximately $3.1 million in 2007 and $1.7 million in 2008. The maintenance percentages will be similar to the previous scenarios. The PCI after two years' treatment is projected to be 75.

For the purposes of these scenario runs, no funding was allocated toward reconstruction projects, due to the fact that such projects are expensive and not cost-effective on a citywide basis. However, the inventory and condition assessment process did include identification of streets needing reconstruction. Results indicate that 24 street segments of a total 2,841 street segments needed reconstruction in 2006; another 13 are recommended for reconstruction in 2007, and; an additional 24 segments are recommended for 2008. The total estimated funding requirement for these three years is approximately $11.7 million for these three years.

Given constructability issues, the real cost of reconstructing these streets could be several times that amount. It is recommended that the City seek out additional funding through grant opportunities and legislative earmarks or bonding as discussed as an option later in this report. These streets would be selected outside the Pavement Management System, and would be ranked based upon the following criteria: Condition (PCI rating), Classification, Constructability (including sufficient right-of-way and consideration of the degree of drainage and missing infrastructure issues), as well as Citizens' Requests.

Due to the City's extensive backlog, Scenario 5 is the recommended as an immediate next step. Should this recommendation be accepted, just over $11.5 million in pavement work would be contracted out before the end of FY 2007 and an estimated $9.5 million would be contracted out in FY 2008. The most distinct advantage of this Scenario is that it avoids an additional $30 million of backlog accruing at the end of ten years.

During the two years test run, the Collector and Arterial Streets would be re-inspected giving an actual indication of the rate of deterioration of City streets to compare to the projected rates assumed in the software model. This would also give staff an opportunity to propose an alternative method of financing a more aggressive rehabilitation program should tonight's Council direction indicate an interest in doing so.

Analyzing Final Program Choices Before Implementation

While the StreetSaver® software generates various objective scenarios for consideration, staff must evaluate each variation. Further evaluation includes actual street pavement performance as compared to the model's assumptions, practical observations compared to the software's recommendations, updated construction costs and application of treatment methodologies, etc.

The software generates scenarios for a five-year program. Before proceeding with each year's implementation of the selected five-year scenario, staff will look across the five-year window and may group street segments appearing any where within the five-year

window to ensure that the resulting paving contract is bundled to make the most economic use of available funding.

Other Considerations for Pavement Management

No-Cut Rule: A no-cut rule or moratorium on excavations specifies that no excavations are allowed for a certain number of years after pavement overlays unless emergency circumstances prevail. If a no-cut rule exists, the most common time frame is three years, although in some cases it is longer (e.g., five years). The prevalence of a no-cut rule varies significantly depending on the culture in the municipality, the degree of development (high development areas used fewer no-cut rules) and community sensitivity in regard to repeat disruptions. It should be noted that even when a no-cut rule exists, its success in restricting repeat excavations is variable. Unless this is understood when instituting a no-cut rule, false expectations can be raised which, in turn can lead to negative community perceptions.

Pavement Restoration Procedures: With respect to actual road repair procedures, various mechanisms are used by municipalities ranging from the utility company repairing the excavation to municipal specifications, to the city coordinating the final pavement restoration at the utility company's expense, to a flat charge pavement repair system which transfers the responsibility for the final repair to the City in exchange for a per square foot charge to the utility company.

Pavement Degradation Fees: An inherent by-product of utility cuts is the reduced service life of pavements. No matter how well a utility cut is repaired, the nature of the excavation process and the disturbance of the sub-base have a significant effect on lessening the overall life of the pavement infrastructure.

Municipalities that have implemented such a fee have related the fee to the age of the last overlay. Others have adopted a flat rate for ease of administration. Technically, a relationship to the age of the last overlay is a more accurate method of reflecting the true effects of utility cuts on pavement life.

Developer Requirements: Currently, developers are required to seal coat a new street after paving. However, current knowledge regarding the chemistry and wear of pavement indicates that it would be preferable to omit the seal coat directly after paving and to place the funds for this work into a City account to seal coat the street after at least three years of use. This would cover the City's first normal maintenance cost for the street.

Idealistically, the City should require optimal design standards for all new street construction and reconstruction. Although this may increase costs for developers and the City initially, the longer wear and consequent deferral of expensive resurfacing and reconstruction projects will benefit the City and its residents in the long term.

It is recommended that all of these concepts be further studied for potential implementation.

Current Funding Sources for Local Streets and Roads

This part of the report covers various funding sources that have been used in the past for pavement repair and rehabilitation. A more general discussion of infrastructure funding occurs toward the end of the report. The sources of funding for local streets and roads include the following:

Gas Tax: This refers to the gasoline excise tax (Highway Users Tax) that is paid by consumers at the gas pump. As specified in Sections 2105 – 2110 of the California Streets and Highways Code, a portion of this revenue is distributed to California cities based on the ratio of a given city's population to the population of California cities as a whole as well as the city's actual maintained miles. Cities with populations between 100,000 and 500,000 also receive an additional $10,000 per year. These revenues vary on a monthly basis, but the City's annual revenue has generally been between $4.0 million and $5.0 million.

These revenues can be used for research, planning, design, administration, construction and maintenance of public streets, highways, mass transit guideways and related facilities for non-motorized traffic. Acquisition of right-of-way and environmental mitigation related to such facilities is also eligible for funding. The City has historically allocated these funds to the operating budget to pay for general street maintenance, such as: potholing, patching and filling cracks, and street related improvements, such as sidewalks repair. Generally, a small portion of this funding ($1.0 million or less) has been used for small Capital Improvement Program (CIP) projects related to transportation planning or maintenance, such as street signing and striping, cross gutter replacement and the Neighborhood Traffic and Pedestrian Safety Program. Due to increased maintenance costs, the use of these funds for CIP projects will be limited in the future.

In the 1970's and 1980's, gas tax monies were predominantly used to fund street CIP projects. While gas tax revenues have increased from $749,000 in 1975 to approximately $5.0 million in FY 2006, the use of these funds to support street improvement CIP projects has declined. Meanwhile, the amount used for street operations, traditionally funded by the General Fund, increased. However, trying to shift gas tax dollars back to street CIPs without new or increased revenue only results in transferring the shortfall from street CIPs to street maintenance operations.

Proposition 42 Funds: This proposition was adopted in 2002 and pertains to the Motor Vehicle Fuel Sales Tax. Funds from this tax were originally allocated to cities in accordance with Assembly Bill 2928, which was enacted in 2000, and distributed on the basis of population. Due to State budget shortages, these funds were not distributed to cities and counties for several years. As a result, a complimentary proposition was adopted on the California ballot in 2002 in order to amend the California Constitution to limit and regulate the suspension of this fund transfer.

The City received its first allocation after passage of Proposition 42 in FY 2006. Proposition 42 funds must be spent by June 30th of the fiscal year following their allocation. According to Proposition 42 and Section 7104 of the California Revenue and Taxation Code, the allocation can only be used by cities for street and highway

maintenance, rehabilitation, reconstruction and storm damage repair. Storm damage repair is limited to repair, reconstruction and construction of new drainage improvements in jurisdictions that have been declared Federal disaster areas.

Annual revenue is estimated to be $1.0 million with the exception of FY 2008. Since an advance of Proposition 42 funding was provided to California cities, there will be a one-year gap of Proposition 42 funding.

Transnet: San Diego County voters originally approved The Transnet Program in November 1987, with funding to be provided by a ½ percent sales tax in place from 1988 through March 31, 2008. One third of the revenues are allocated by SANDAG to local agencies for local streets and roads funding. Funds from the original Transnet program can be used to repair and rehabilitate existing roadways, to reduce congestion and improve safety, and to construct needed facilities. The original program is slated to expire at the end of June 2008.

The Transnet extension is projected to result in $300 million of transportation project revenue for Chula Vista over its 40-year life.

In November 2006, San Diego County voters approved a 40-year Transnet Extension (to April 2048). This extension gives priority to facilities contributing to congestion relief. As of FY 2009, at least 70 percent of funds distributed to local agencies must be used to fund construction of new or expanded facilities, major rehabilitation and reconstruction of roadways, traffic signalization, transportation infrastructure to support Smart Growth, capital improvements for transit facilities, and operating support for local shuttle and circulator transit routes. No more than 30 percent of Transnet funds can be used for local street and road maintenance. SANDAG has defined major rehabilitation as including pavement overlays one-inch thick or greater.

SANDAG has also proposed a one percent limitation (included as part of the 30 percent) for all planning and studies not directly related to a project. The City's revenue from this source has recently averaged from $5.0 million to $6.0 million.

General Fund: For the most part, the General Fund has not been used to fund street rehabilitation and maintenance. However, all of the above funding sources have a "Maintenance of Effort" provision that requires the City to spend at least as much out of its discretionary funds (local funds that have "no strings" on their usage) as it spent during some period prior to the passage of the legislation authorizing the funding. The Gas Tax and original Transnet legislation stipulates funding equal to the amount spent during FY 1985; the Transnet extension requires funding equal to the average of FY 2001 through 2003 adjusted every three years based on the Construction Cost Index developed Caltrans; and Proposition 42 requires funding at the average level of FY 1997 through FY 1999. This requirement has been met through expenditures within the operating budget to finance staff costs associated with the City's street maintenance crews.

Legislation: Several bond measures qualified for the November 2006 ballot. The ballot measure impacting transportation most is SB1266, the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006, which was approved by voters in November. $1.0 billion will go directly to cities for traffic congestion relief,

traffic safety, transit, storm damage, maintenance, construction and other projects to improve local streets. Preliminarily, Chula Vista's share has been calculated at approximately $7.0 million. It currently appears that California cities receiving over $400,000 will receive their allocations in two equal portions in 2008 and 2010; this funding has been factored into Scenario 5 (the recommended scenario).

Local projects eligible for the $4.5 billion in the Corridor Mobility Improvement Account (the largest portion of funding) needed to be nominated by SANDAG. The SANDAG Board approved a list of projects on December 15, 2006. The project of most interest to the City is the addition of two High Occupancy Vehicle (HOV) lanes to I-805 between SR-94 and Palomar Street. Subsequently, the California Transportation Commission did not approve this project.

New and/or Increased Funding Possibilities

Vehicle Registration Fees: Recently, State legislation has been proposed to allow local counties to impose new vehicle registration fees for clean water purposes. Congestion management and street cleaning are considered approved programs for clean water purposes. In 2004, San Mateo County was authorized to enact a $4 annual fee per registered vehicle.

Alternative Funding Sources: There may be alternative funding sources available for some of the City's larger projects, particularly gateways such as North Fourth Avenue. These projects may involve pavement rehabilitation, in addition to landscaping and other enhancements. It is recommended that staff pursue grants and Federal earmarks, where appropriate, for this work.

The State Recycling Board offers several small grants for the implementation of RAC overlay programs. In the past, these grants have not been enough to subsidize the cost differential between RAC and conventional overlays. However, City staff should pursue these grants if a decision is made to do a RAC overlay contract.

Although general practice has dissuaded municipalities from issuing bonds for street maintenance activities, a new school of thought is arising. The possibility of issuing bonds to reduce the pavement rehabilitation backlog, particularly the streets that would require reconstruction is beginning to get attention. This approach is getting more attention as "new" streets (i.e., reconstructed streets) are estimated to have a life of 25- to 30-years when pavement management strategies are utilized. Therefore, after reconstruction, street life exceeds the time required to retire the debt.

Based on a five-percent bond issue with an assumed 20-year payback, the following table summarizes the debt service and total actual pay out associated with various potential funding levels:

Funding	Annual Debt Service	Total Amount Payable
$10.0 million	$0.80 million	$16.00 million
$20.0 million	$1.60 million	$32.00 million
$30.0 million	$2.40 million	$48.22 million
$40.0 million	$3.20 million	$64.00 million

Another option may be to borrow funds from the State Revolving Fund or SANDAG, which charge low interest rates. However, in response to an earlier Council referral regarding the use of Proposition 42 monies to secure a bond--neither a bond issue nor borrowing funds should be considered unless there is a specific and secure source of future revenue that can be identified. This is not currently the case.

Additionally, there should be a specific advantage to having more money up front and a specific use for the borrowed money. In the case of pavement, the specific use would be street reconstruction. Treatments any less than reconstruction do not result in an extension of service life that exceeds the time required to retire the debt.

Next Steps for a Pavement Management Effort

If the recommendations regarding the immediate next two years are approved, staff will proceed with finalizing a StreetSaver® data run for a recommended five-year program that will be the basis of the execution of a paving contract to begin this calendar year. After advertisement, the recommended award of the contract will come back to the City Council with the list of streets, total amount of award, anticipated impact on the city's overall PCI, etc.

After tonight's workshop, all policy discussion and specific direction will be integrated into a more specific pavement management recommendation for implementation with the 2010 fiscal year. For instance, should the City Council direct further investigation into pavement policies (e.g., potential implementation of a no-cut rule) and/or further investigation of potential new or enhanced revenue streams, the resulting recommended pavement management program would be significantly different than the result of a maintained status quo situation. Final recommendations and projected results will be brought to the City Council for consideration, discussion and approval.

PAYING FOR CHULA VISTA'S INFRASTRUCTURE SYSTEM

Dollars available for tonight's focus areas present a common municipal challenge. As spending from general funds rises faster than revenues and as public safety services expenses consume more general funds, dollars available for infrastructure needs have become scarce to non-existent.

While a recent movement at the State level to implement new funding for infrastructure will help in the area of transportation, these measures by themselves will not be sufficient to overcome past years' under investment. Simply stated, more resources must be identified, collected and committed. We will be challenged to consider how best to leverage finite resources most effectively. Additional revenue streams implemented by other California cities are summarized below.

Increase Sales Tax Locally: Another source of revenue would be passage of a municipal sales tax increase. Vista, National City and El Cajon have recently enacted a municipal sales tax that was approved by the voters.

- Vista voters enacted a 30-year ½ percent sales tax in 2006 for general governmental purposes. The City cited the need for funding of capital needs

including new fire stations, new city hall, space for anti-gang and narcotics deputies, new sports fields, as well as operational priorities including additional staff for one of the new fire stations and an increase in deputies to deal with gang and graffiti.

- National City voters enacted a one percent sales tax in 2006 that is deposited into the City's General Fund and anticipated to generate $70 to $90 million over its ten-year imposition. It was justified as necessary to avoid layoffs in the Police and Fire Departments and at the new library. It should be noted that a signature-gathering drive has led to a 2008 ballot measure to consider repealing the increase.
- In November 2004, El Cajon voters enacted a ½ percent sales tax projected to generate $62 million over ten years specifically earmarked for replacement of aging police and fire structures with earthquake-reinforced facilities, a new Emergency Operations Center and new animal control facilities.

These examples may demonstrate that local residents will vote for a sales tax increase if the revenue will finance improvements that they feel are important.

Devote More Local Sales Tax to Road Maintenance and/or Municipal Infrastructure: Most transportation sales taxes allocate 20 to 25 percent of revenues to the maintenance of local streets. If the local sales tax ordinance allows adjustments to the distribution of the sales tax revenue, counties could increase this share to address projected maintenance shortfalls. Voter approval is needed to accomplish this. Sonoma's recently enacted sales tax devoted 40% to be allocated back to the cities and the county for local street and road purposes.

Citywide Assessment Districts: Cities can propose a property assessment for transportation system maintenance and operations in general, pavement maintenance or street lighting. Such an action would require a two-thirds approval of a given jurisdiction's voters. This would be similar to assessments that cities have implemented for storm drainage and sanitary sewers. Examples of current benefit assessment districts are noted in the table below.

Jurisdiction	Service Provided	Parcel Cost (Annually)
City of San Jose	Sanitary and Storm Sewers	$271
City of San Jose	Library	$25
San Diego County	Vector Control	$11
Santa Clara Valley Water District	Flood Control	$30
Santa Clara Valley Water District	Clean and Safe Creeks	$41
Santa Clara County	Vector Control	$ 5
Alameda County	Street Lighting	$15
Note: Parcel Cost based on single-family residential household		

Local Bond Measure: Recently, cities have successfully gained voter approval of bond measures to improve park, library, police, and fire facilities. This option can be used to improve a local jurisdiction's infrastructure. Such a measure could be structured to address any of the infrastructure areas discussed in this report, such as drainage and/or major rehabilitation of the City's pavement infrastructure along with system

enhancements like pedestrian safety improvements, pedestrian curb ramp installation, traffic signal upgrades for congestion relief, and street trees/median island landscaping for aesthetic enhancements. The evaluation of such a measure for infrastructure would need to be weighed against other community priorities, and packaged accordingly.

CONCLUSION, RECOMMENDED WORKSHOP ACTIONS AND POTENTIAL NEXT STEPS

Many cities describe their struggles with securing attention and funding to meet basic infrastructure management needs. The most challenging issue often boils down to, "taking care of what one already has is just not as exciting as starting new things."

In order to make up for lost time and lost ground, Chula Vista will be required to focus on this topic and maintain it as an ongoing priority. It will be difficult, if not impossible, to make progress without committing more funding to infrastructure repair and maintenance. Currently allocated funding is not sufficient to meet ongoing and worsening needs; therefore, without an increase in funding the City will continue to fall behind in this area of responsibility. Additional funding will require a greater allocation of general funds to infrastructure and/or new or enhanced revenue streams.

The following recommendations sum up the contents of this report. Knowing that this is a challenging fiscal time for the City makes it somewhat difficult to present these recommendations. In recognition of the many competing demands on the budget, the Recommended Workshop Actions and Potential Next Steps have been noted as "immediate" or "short-term." Because of the significant unfunded gap in this area, it is important to move ahead tonight with the below Recommended Workshop Actions and to keep Potential Next Steps on the radar screen.

Recommended Workshop Actions

1. IMMEDIATE: Approve the Drainage Project Priority List.
2. IMMEDIATE: Commit to the implementation of a true Pavement Management System knowing that the general public may question the approach until a wider education effort takes hold.
3. IMMEDIATE: Approve a two-year pavement management program based on $11,504,665 million in FY 2007 and $9.5 million in FY 2008 by transferring $2.0 million from the North Broadway Basin Reconstruction Project (STM354) and $5.0 million from the 4th Avenue Reconstruction between Davidson & SR54 Project (STL309) into Pavement Rehabilitation Program – Future Allocations (STL238).
4. IMMEDIATE: Direct staff to return with further analysis and recommendations regarding new and/or expanded revenue sources for funding infrastructure needs.

Potential Next Steps

1. IMMEDIATE: In order to fulfill its responsibility to manage its backbone infrastructure, the City must make this area an ongoing annual priority. It is recommended that the City Council revisit its Strategic Focus areas in order to consider creating a focus area specifically for infrastructure.

2. IMMEDIATE: Infrastructure needs should be funded on a priority basis before new City programs are considered for funding.
3. IMMEDIATE RFQ: Development and implementation of a comprehensive, automated Infrastructure Asset Management system should be investigated in order to estimate resources required for such an effort given our City's unique characteristics and work completed to date. Direct staff to issue a Request for qualifications in order to investigate program development possibilities and required funding.
4. IMMEDIATE: Direct staff to identify funding for a contract to assess and secure the necessary permits required to perform maintenance of current drainage channels (estimated contract cost: $150,000).
5. SHORT-TERM: Make funding the Corrugated Metal Pipe Program a priority ($5.8 million a year for five years).
6. SHORT-TERM: Consider funding the Hilltop Drainage Project from the Priority 1 Tier of the drainage project recommendations (previously DR-134, estimated cost $1.8 million).

DECISION MAKER CONFLICT

Drainage Report Actions:
Staff has reviewed the property holdings of the City Council and has found a conflict exists, in that Council Member McCann has property holdings within 500 feet of the boundaries of properties which are the subject of the action regarding the Drainage Project Priority List.

Pavement Action Transferring Monies from STM 354 and STL309 into STL238:
Staff has reviewed the decision contemplated by this action and has determined that the decision concerns repairs, replacement, or maintenance of existing streets or similar facilities and, therefore, there is not a material financial effect of the decision on the property holdings of the City Council Members pursuant to California Code of Regulations sections 18704.2(b)(2) and 18705.2(b)(1). However, this action involves the transfer of monies from STM354, the North Broadway Basin Reconstruction Project, and STL309, the 4th Avenue Reconstruction Between Davidson and SR54 Project. Staff has reviewed the property holdings of the City Council Members with regard to STM354 and STL309 and has found a conflict exists, in that Council Member Rindone has property holdings within 500 feet of the boundaries of these properties.

Revenue Discussion:
Staff has reviewed the decision contemplated by this action and has determined that it is not site specific and consequently the 500 foot rule found in California Code of Regulations section 18704.2(a)(1) is not applicable to this decision.

FISCAL IMPACT

None of tonight's recommended actions have an impact to the General Fund. One Potential Next Step from the list above creates a potential direct impact on the General Fund—that is the direction to identify funding for a proposed contract to assess

environmental issues and secure the necessary permits required to perform maintenance activities on current drainage channels (estimated cost of $150,000).

As noted above, current allocated funding is not sufficient to meet ongoing and worsening needs; therefore, without an increase in funding the City will continue to fall behind in this area of responsibility. Additional funding will require a greater allocation of general funds to infrastructure and/or new or enhanced revenue streams.

Additional immediate fiscal impacts involve the transfer of already appropriated funding within the CIP budget in order to invest a significant amount of funding into pavement management before the new, more stringent Transnet extension requirements begin in FY 2009.

Specifically, a pavement management program of $11,504,665 million in FY 2007 and $9.5 million in FY 2008 is recommended. This would be accomplished by transferring $2.0 million from the available balance of the North Broadway Basin Reconstruction Project (STM354) and $5.0 million from the available balance of the 4th Avenue Reconstruction between Davidson & SR54 Project (STL309) into Pavement Rehabilitation Program – Future Allocations (STL238).

ATTACHMENTS

Attachment 1: Infrastructure Asset Management Template
Attachment 2: Report on Drainage Deficiencies in Chula Vista
Attachment 3: City's Capital Improvements Program (CIP) and operations activities from FY 2002 through FY 2006
Attachment 4: StreetSaver® Decision Tree

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Chula Vista Infrastructure System
Statue, Condition, Value

ATTACHMENT 1

FACILITY	GASB 34	INVENTORY	REPLACEMENT VALUE	CONDITION*						TOTAL UNMET NEED**	ANNUAL UNMET NEE
				VG	G	F	P	VP	TBD		
PAVEMENT											
Improved Streets	X	# lane miles	$	%	%	%	%	%	X	$	$
Alleys		# and lane miles	$	%	%	%	%	%		$	$
Parking Lots		#	$	%	%	%	%	%		$	$
			Total $							$	$
SIDEWALK SYSTEM											
Sidewalks	X	sq yds	$	%	%	%	%	%		$	$
Curbs	X	miles	$	%	%	%	%	%		$	$
Corners				%	%	%	%	%		$	$
Improved Corners	X	#	$	%	%	%	%	%		$	$
Coners w/ Ramps	X	#	$	%	%	%	%	%		$	$
Unimproved Corners		#	$	%	%	%	%	%		$	$
			Total $							$	$
BICYCLE NETWORK											
Bikeways		miles	Inc w/ pavement	%	%	%	%	%		$	$
STRUCTURES											
Bridges	X	#	$	%	%	%	%	%		$	$
Retaining Walls	X	#	$	%	%	%	%	%		$	$
Stairways	X	#	$	%	%	%	%	%		$	$
Guardrails	X	Miles	$	%	%	%	%	%		$	$
Bay Wall	X	Feet	$	%	%	%	%	%		$	$
			Total $							Total $	Total $
TRAFFIC SIGNALS											
Hardware	X	#	$	%	%	%	%	%		$	$
Controllers	X	#	$	%	%	%	%	%		$	$
Other Equipment	X	#	$	%	%	%	%	%		$	$
ITS Equipment		TBD	$	%	%	%	%	%		$	$
			Total $							Total $	Total $
TRAFFIC CALMING											
Devices	X	#	$	%	%	%	%	%		$	$
			Total $							Total $	Total $
STREETLIGHTS											
City Own & Maintain	X	#	$	%	%	%	%	%		$	$
Private**	X	#	$	%	%	%	%	%		$	$
			Total $							Total $	Total $
STREET SIGNS											
Street Name	X		$	%	%	%	%	%		$	$
Illum Street Name	X		$	%	%	%	%	%		$	$
Parking	X		$	%	%	%	%	%		$	$
Traffic Control	X		$	%	%	%	%	%		$	$
Stop Signs Only	X		$	%	%	%	%	%		$	$
Guide Signs	X		$	%	%	%	%	%		$	$
Sign Mounts	X		$	%	%	%	%	%		$	$
			Total $							Total $	Total $
PAVEMENT MARKINGS											
Center Lines		Pass miles	$	%	%	%	%	%		$	$
Traffic Lane Lines		Pass miles	$	%	%	%	%	%		$	$
Bike Lane Lines		Pass miles	$	%	%	%	%	%		$	$
Edge Lines		Pass miles	$	%	%	%	%	%		$	$
Crosswalks		#	$	%	%	%	%	%		$	$
Stop Bars		#	$	%	%	%	%	%		$	$
Symbols & Words		#	$	%	%	%	%	%		$	$
Island Markings		#	$	%	%	%	%	%		$	$
Parking		#	$	%	%	%	%	%		$	$
			Total $							Total $	Total $
PARKING METERS											
Double	X	#	$	%	%	%	%	%		$	$
Single	X	#	$	%	%	%	%	%		$	$
			Total $							Total $	Total $
SEWER											
Pipe		Miles	$	%	%	%	%	%		$	$
Pump Stations		#	$	%	%	%	%	%		$	$
			Total $							Total $	Total $
STORM DRAINAGE											
Drainage System		Miles	$	%	%	%	%	%		$	$
Corrugated Metal Pipe		miles	$	%	%	%	%	%		$	$
Structure		#	$	%	%	%	%	%		$	$
			Total $							Total $	Total $
BUILDINGS											
City Hall Campus		Sq ft	$	%	%	%	%	%		$	$
Public Works		Sq ft	$	%	%	%	%	%		$	$
(Complete List of Buildings)		Sq ft	$	%	%	%	%	%		$	$
			Total $							Total $	Total $
PARKS											
(Enter list of Parks)		Acres	$	%	%	%	%	%		$	$
			Total $							Total $	Total $
OPEN SPACE		Acres	$	%	%	%	%	%		$	$
			Total $							Total $	Total $
FACILITIES SUBTOTAL		#	$							$	$
RIGHT-OF-WAY SUBTOTAL		MILES	$							$	$
ACRES SUBTOTAL		ACRES	$							$	$
TOTAL			$							$	$

Report on Drainage Deficiencies in Chula Vista

March, 2007

CITY OF CHULA VISTA

I. INTRODUCTION

On July 20, 1993 a Citywide drainage report was presented to the City Council as an attachment to the 1992 Growth Management Oversight Committee (GMOC) report. This document reviewed areas where drainage concerns had been reported, presented a list of drainage priorities, discussed potential revenue sources and presented a program for improvement.

The purpose of the current report is to brief the City Council on current drainage priorities with an emphasis on problems in western Chula Vista. This will be accomplished through the following steps:

1. Reviewing previous Citywide drainage reports to determine which of their recommendations are still relevant;

2. Reviewing the current condition of City drainage facilities to identify areas of concern for flooding;

3. Providing a revised priority list of drainage projects (deficiencies) which should be included in the City's Capital Improvement Program over the next ten years (minimum);

4. Recommending future actions which should be taken in order to correct these deficiencies

II. BACKGROUND AND HISTORY

The City's first major Citywide drainage study was prepared in 1964 by Lawrence, Fogg, Florer and Smith, Civil Engineers as a supplement to the City's General Plan. This study (also known as the Fogg Report) identified 85 problem drainage areas and proposed facilities for their correction. Since it was based on the City's General Plan, the estimated flows included the future development then planned for the City. This consultant subsequently performed a study covering the Montgomery area in 1969.

On April 2, 1985 staff presented a report to Council entitled, "Report Regarding the Phasing of Future Drainage Projects". This report reviewed the Fogg study and determined that 45 of the 85 drainage projects identified in the earlier study had been completed. Staff identified 46 projects needed throughout the City with an estimated cost of $9,062,000.

In May 1992 City staff prepared the document entitled, "Report on Flooding and Proposed Corrective Facilities." This report summarized the results of previous studies, compiled lists of citizens' drainage complaints, presented a Prioritized Drainage Deficiency List, proposed corrective measures which

would relieve flooding in a majority of the City's problem areas, included general cost estimates and discussed funding sources. This report was presented to Council on July 20, 1993, when a public hearing was held to consider the City's Growth Management Oversight Commission's (GMOC) 1992 Annual Report. A total of 37 priority projects were identified at a total estimated cost of $13,561,000. The GMOC recommended that sufficient funding be provided to complete the recommended improvements over a 20-year time span. The GMOC also expressed concern that the extensive development in eastern Chula Vista would contribute to drainage problems in western Chula Vista, and recommended that this situation be closely monitored. Council voted to approve staff's motion to accept the GMOC's recommendations and direct staff to undertake actions necessary to implement those recommendations.

The drainage projects identified in the 1992 report are shown on Table 1, "1992 Priority List of Drainage Deficiencies for the City of Chula Vista." The locations, recommended improvements and current status are included. Only one remaining project is east of I-805, which is at Bonita Road near Allen School Road. These recommendations do not include miscellaneous pipe repair and replacement projects at various locations Citywide. It also does not include street projects that may have a minor drainage component.

In conjunction with the current General Plan Update, the City hired PBS&J in October 2002 to prepare a new Drainage Facilities Master Plan. This plan was completed in October 2004. The following work was performed as part of this plan:

1. Updated the City's GIS database to include locations, sizes, lengths and flow lines for approximately 8000 existing pipe and box culvert segments and 4000 open channel segments, as well as locations of catch basins, cleanouts, inlets or outlets;

2. Hydrologic/ hydraulic computer analysis of the 21 major drainage basins in the City;

3. Using as-built plans, updated the City's GIS database to include the location of the known Corrugated Metal Storm Drain Pipe (CMP) within the City, along with estimated sizing and preliminary construction costs (not including site-specific or non-construction costs) to remove and replace such pipe;

4. Identification of the known existing flooding problems within the City and a brief discussion of potential solutions.

The hydraulic analysis determines the size of pipe needed to carry the flow between nodes (points where flows enter or converge) for the 50-year and

100-year storms. This analysis was based on the most recent San Diego County Hydrology Manual, which has more conservative assumptions than the previous standards used to design the City's system. Due to these new standards, the program has identified a very large number of deficiencies that City staff feels is unrealistic. The County is currently reviewing their hydrologic assumptions, and it is estimated that final recommendations will not be available until the end of 2007. Since a reliable list of deficiencies for existing storm drain pipes cannot not be generated from the Master Plan at this time, an update of the 1992 list will still be used as a basis of our recommendations. The recommendations are therefore being made from observed deficient areas and not from a model. After the County finishes its review, the City model will be updated and this report could be amended with additional locations and priorities.

III. EXISTING CONDITIONS

Drainage deficiencies fall into several categories. These categories are as follows:

- Facilities that are in poor condition. This frequently applies to old or corroded Corrugated Metal Pipe (CMP). It can also apply to erosion in natural channels and canyons.

- Facilities that are missing. This frequently applies to areas with missing street improvements, such as curb, gutter and sidewalks. Such streets will generally not have catch basins/ curb inlets and storm drains but may have unimproved ditches alongside the road to carry drainage. This can also apply to unimproved (natural) channels.

- Facilities that are undersized. This refers to existing improvements that have inadequate capacity to handle the volume of flow. This can apply to inlets, storm drains or improved channels.

Some facilities may fit into more than one category, such as deteriorated CMP that is also undersized. The emphasis in this report will be on areas without drainage facilities or that have facilities in poor condition. These tend to be the most urgent problems. Additionally, after the County has reviewed and revised their hydrology standards and the computer analysis for the 2004 Master Plan has been revised, staff will be better prepared to make recommendations on undersized facilities.

Corrugated Metal Pipe

As previously mentioned, the 2004 Drainage Master Plan updated the City's GIS database to include the location of the known Corrugated Metal Storm

Drain Pipe (CMP) within the City based on as-built plans. The report identified approximately 730 storm drain segments, with a total 94,158 linear feet (LF) of pipe. Some of this pipe is owned and maintained privately or by the State. It was estimated that approximately 88,000 LF is owned/ maintained by the City. The preliminary hard cost to replace all of the CMP was estimated at $20,239,592. Neither soft costs (such as design and inspection costs) nor site specific costs were included.

Due to the scouring power of sand, rocks and other debris, protective coatings are quickly worn away. It is expected that a metal pipe will last between 10 and 35 years before it has decayed to a point where holes will develop. The majority of corrugated metal storm pipes in Chula Vista are over 30 years old. Since the City discontinued using CMP in the early 1980's except with the approval of the City Engineer, almost all CMP is more than 20 years old.

It can be very expensive to repair corroded CMP which has collapsed. A recent example is the arched CMP storm drain under First Avenue just south of H Street, which collapsed in February 2005. Initially a small pothole was noticed and repaired, but two days later the pothole reappeared. Further investigation showed that collapsing CMP was the cause of the hole. Over 100 feet of CMP was replaced with a concrete culvert. The repair trench was 15 to 20 feet wide, which forced the rerouting of utilities and required First Avenue to be closed for several months.

It is therefore recommended that the City take a proactive approach and eventually replace all CMP with Reinforced Concrete Pipe (RCP) or High Density Polyethylene Pipe (HDPE) or to line the inside of CMP that has not yet failed with structural liners. However, it would be too expensive to replace or line all of the CMP at one time. In order to determine priorities for CMP rehabilitation/ replacement, the Council awarded a contract for televising the City's CMP to Hirsh & Company on March 22, 2005. This has been funded through Capital Improvement Program (CIP) project DR164, "CCTV CMP Rehab Program Phase I".

Hirsh & Company performed an internal video inspection of about 62,000 feet of storm drain pipes and 1000 associated access points (catch basins, cleanouts and outlets). Their engineers reviewed these videos while performing an engineering analysis of the current condition of the City's facilities. Recommended repairs were detailed and prioritized based on the condition of the pipelines and site-specific construction cost estimates were developed for each pipeline and associated access points.

During the course of the field investigation, 31 pipe segments were identified as being in need of urgent repair. These are pipelines that have failed or are

blocked with debris. Several CIP projects have been initiated to perform this work. These include:

DR-165: CMP Rehabilitation, four locations, awarded 11/22/05 and 6/13/06, approx. $242,000 construction cost, $327,000 total authorized
DR-170: CMP Rehabilitation, two locations, awarded 3/7/06, approx. $165,000 construction cost, $246,500 total authorized
GG-188: Emergency CMP Replacement at H Street and Shasta Street, final cost approx. $561,500, approved by Council 6/13/06

In addition to the 62,000 feet of inspected storm pipes, approximately 11,500 feet of CMP were not inspected due to access issues. These issues included damaged pipe, paved over or buried access points and cleanouts that were never installed. An additional 13,000 feet of CMP pipe were discovered that were not shown on record drawings or were not indicated as being CMP.

Flooded Areas

In conjunction with preparation of the Drainage Master Plan, Public Works Operations staff identified the locations in the City with the most frequent flooding problems. A list of 24 locations, with accompanying photographs, was presented in the Master Plan. These locations are itemized on Table 2, "Existing Flooded Areas 2004". Two additional locations recently observed by our Public Works Operations staff have been added to the list.

As can be seen, the majority of these problems are in areas which have no existing improvements. Some of these problems are along streets which do not have curbs and gutters. This applies to the following locations:

- Location #8: Twin Oaks Ave. between Naples St. and Emerson

- Location #24: Elm Ave. between Emerson St. and Oxford Ave.

Both of these projects are in the Castle Park area. Under the Western Chula Vista Infrastructure Financing Program, the residents of Castle Park have been offered the opportunity to establish Assessment Districts for street improvements with most of the costs to be covered by the City. As part of the design of street improvements for areas with established districts, the City will include design of any necessary drainage improvements. The cost of constructing storm drains would not be included in the amounts assessed to the homeowners.

Channel and outlet maintenance problems are the major causes of flooding in the following locations:

- Location #6: Intersection of L Street and Industrial Blvd.

- Location #14: Southeast of Main St. and Oleander Ave.
- Location #15: Heritage Road and Entertainment Circle
- Location #20: South of Del Mar Ave. and Madrona St.
- Location #25: North of East J Street between Hilltop Drive and Carla Ave.
- Location #26: Telegraph Canyon Channel at Paseo Ladera

One of the problems with maintaining natural channels is the need to acquire permits from the Regional Water Quality Control Board, the California Department of Fish and Game, the U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers prior to doing maintenance work. Obtaining these permits is a time-consuming process which delays the work and contributes to flooding hazards.

1992 Drainage Priorities

As previously discussed, the May 1992 drainage report included a Prioritized Drainage Deficiency List which presented strategies to relieve flooding in a majority of the problem areas in the City known at that time. Since 1992, *sixteen* of these projects have been completed – or partially completed, in the case of *Priority #26 (Telegraph Canyon Channel)*, which has several components. Three additional projects have been included in the City's Capital Improvement Program (CIP). The remaining projects generally involve constructing storm drain improvements in areas without existing improvements, or only with natural drainage swales or channels. Only *three* of the remaining project locations involve increasing the capacity of existing storm drains.

The original estimated cost to construct these projects was $13,561,000. This did not include construction estimates for the Peppertree area east of Hilltop Drive and the channel upstream of Eucalyptus Park because it was thought that a more detailed drainage study would be necessary to determine the scope of these projects. Based on these estimates, the cost to construct the remaining projects in 1992 dollars would be $7,046,000. The revised cost would be approximately $14,303,400, using the ENR Index to escalate this to the beginning of 2005. Note that the original estimates were for the drainage improvements only and they did not include relocation of utilities or restoration of surface improvements. The cost of compliance with new NPDES or other environmental requirements could also increase these estimates.

Erosion in Canyons

After the heavy rains in winter 2004-05, City staff noted significant erosion in two drainage basins/ canyons. One of these basins is Long Canyon, also referred to as Bonita Long Canyon. This canyon/ drainage basin generally extends from Corral Canyon Road and East H Street at the upstream end to the intersection of Bonita Road and Otay Lakes Road at the downstream end. A dam is located at Canyon Drive. Most of the canyon erosion has occurred upstream of the dam, where most of the recreational trial has been closed for safety reasons. Additionally, gabion structures (large, rectangular rock-filled wire baskets) in the channel, which were installed to slow down the flow, have been damaged and are no longer functioning well.

At the downstream end, there is a concrete trapezoidal channel adjacent to the homes fronting Acacia Avenue east of Palm Drive that has been significantly damaged. The concrete is severely cracked and chunks of concrete are missing in various locations. Although there have been no reports of significant flooding damage or undermining of foundations from the property in this area, remedial work should be undertaken to prevent future problems. Since portions of this channel are within the unincorporated County area, improvements should be done in cooperation with the County.

The other canyon of concern is the Bonita Canyon/ Drainage Basin, also associated with Rancho del Rey SPA II. This canyon is located in both Chula Vista and unincorporated County territory and is generally between Terra Nova Drive and Rancho del Rey Parkway at the southerly upstream end and Bonita Road at the downstream end. In 1993 a terraced gabion structure was constructed in the canyon to slow down the flow of water and limit erosion. In 2001 it was noted that there had been extensive erosion of the channel bottom, damaging and potentially undermining the gabion structures. Additionally, deep vertical cuts were created downstream within the open space areas maintained by the City. Emergency repair work was recommended, including the construction of an access road and three drop structures. This work was performed by the McMillin Company and accepted by the City in April 2004.

During the 2004-05 rainy season, the City received numerous letters from property owners in the County at the downstream end of the canyon. These property owners have complained about silt and debris being deposited at the intersection of Willow Street and Bonita Road. This silt has also clogged the culvert at the intersection of Bonita Road and Willow Street, increasing the potential for flooding and NPDES water quality concerns. They have also asserted that the canyon erosion undermined the recreational trail, making it unsafe to use. Staff responded in March 2005 that it would be beneficial for the City to install more signs and additional fencing, and that staff is currently studying conditions within the open space area to determine appropriate

future actions. The additional fencing has since been installed along portions of the lower third of the canyon, along with additional signage.

Effect of Eastern Development on Western Chula Vista

There have been several questions regarding the effect of development in eastern Chula Vista on existing developments in western Chula Vista. The City's Subdivision Manual (latest revision, July 2002) requires developers to provide on-site storm detention facilities such that the post-development flow rate for a given design storm does not exceed pre-development flow rate at the outlet of the subdivision. However, there has been a significant impact of developments in Telegraph Canyon, such as Otay Ranch and Eastlake, on the portion of the basin in western Chula Vista. The Telegraph Canyon Drainage DIF was therefore established in 1990 to finance necessary improvements to the channel.

There are two other basins that accept flow from eastern Chula Vista. One is the Palm Canyon (Palm Road) Basin. This basin includes drainage from the Sunbow area, which eventually flows in a natural open channel through the Woodlawn Park area along Palm Road and Walnut Drive, then south of Main Street to the Otay River. There have not been any complaints about flooding of any developed properties; however, rainwater crosses Palm Road at the southern end and ponding in the road can be as much as six inches in depth. Although the quantity of flow here may be affected by development upstream, the larger problem is the lack of street or drainage improvements. However, constructing improvements would be difficult because the City has no drainage easements in this area, both Palm Road and Walnut Drive are very narrow (as little as 20 feet in width) streets in poor condition which cannot be brought up to City standards and the available survey information is unreliable. Additionally, it is more difficult to improve natural channels now due to requirements of State and Federal environmental agencies. Since the eastern portion of this basin is built out, we cannot practically establish a DIF.

The Poggi Canyon Basin also flows from east to west. However, since the drainage here flows through storm drains rather than open channels there have not been any complaints. Additionally, drainage detention basins have been constructed in order to reduce the peak flow from new developments.

IV. RECOMMENDED PRIORITIES AND ACTIONS

The proposed current drainage priorities are listed in Table 3 (Priority 1) and Table 4 (Priorities 2 through 4). They are also shown on the attached map labeled "Drainage Challenges". Some projects are in the CIP program but have not yet been constructed. The related CIP project number has been provided in the description for these projects.

Locations that were on the original 1992 list but do not currently have a demonstrated flooding problem were removed from the list. Additionally, projects that primarily relate to maintenance issues were left off the list if the best solution would not involve creation of a CIP project. Public Works staff is currently in discussion with other agencies in the San Diego region and the California Regional Water Quality Control Board (Regional Board) to streamline the process of obtaining State and Federal permits to clean natural channels.

Our priority categories are as follows. Within each category, projects were listed by alphabetical order by basin and then by location.

1. Frequent Flooding and/or High Chance of Personal Injury or Property Damage: This includes streets where traffic was significantly disrupted and where there was actual or potential serious property damage. One location in this category, the Bonita Road/ Allen Road culvert, has not yet experienced serious flooding. However, it is listed under Category #1 due to the significant damage that would be caused if it were to fail.

2. Occasional Flooding with Chance of Personal Injury or Property Damage

3. Frequent "Nuisance" Flooding: The majority of drainage problems fall under the "nuisance" category. This includes street ponding that may slow down but not impede traffic and shallow water ponding on portions of private property which does not cause any damage.

4. Occasional "Nuisance" Flooding

5. Frequent or Routine Maintenance/ Cleaning Required: These projects have not involved actual or potential property damage or personal injury. Although flooding is minimal, they frequently involve periodic maintenance of natural channels/ culverts, particularly during the rainy season. Construction of a CIP project would significantly reduce the need for maintenance. We have also included projects that should be constructed by a developer or private property owner in this category.

   The eight projects categorized as Priority 5 are itemized in Table 5. Most of these projects relate to maintenance concerns. We have determined that it would be more cost-effective to continue to perform maintenance in these locations than to construct the recommended improvements.

We have also noted projects within the 100-year flood plain, although this was not a major criterion. Most of these projects involve missing drainage improvements, and a few also involve missing street improvements. Although many of these projects have existing facilities with insufficient capacity, lack of capacity was not sufficient to include a project on this list.

The total list for Priorities 1 through 5 includes 27 projects, which are outlined in black on Figure 1. Areas that were noted on Table 2 as flooded areas are shown in blue. As shown on Tables 3, 4 and 5, staff has prepared new cost estimates for all these projects. The estimated cost for the nine Priority 1 projects is $28,800,000 in 2006 dollars. These estimates are preliminary and are therefore conservative. However, the costs include both construction costs and soft costs. Both the canyon stabilization projects (Priorities 1C and 1E) and the Telegraph Canyon Basin channel projects (Priorities 1F and 1G) could involve considerable environmental mitigation, and these costs are difficult to precisely predict.

The cost of replacing and/ or rehabilitating the CMP within the City has been reevaluated and is shown on Table 6. The total cost has been estimated at approximately $29.0 million. The pipe that has not been televised has been apportioned to each category using the same ratio as the pipe that was televised. If we subtract out the cost of lining the pipe that is currently in good condition (approximately $2.7 million), the remaining cost is $26.3 million. Since this pipe should ideally be replaced/ rehabilitated within five years, it should be considered Priority 1.

Currently, the City is permitted to enter natural channels without a permit in order to remove debris, trash and non-native vegetation if the work is done by hand and heavy equipment is not used. The City can also obtain an emergency permit to enter a channel with heavy equipment on the same day if there is an immediate flooding hazard. However, the Regional Board will not agree to issuance of a blanket permit to cover the maintenance of channels throughout the County.

The County of San Diego currently has a five-year permit for maintenance of 20 channel reaches through use of a "mitigation bank" – areas which have been reclaimed with natural vegetation which can be drawn on to compensate for natural vegetation removed from the channels. The City is considering applying for a similar type of permit. A consultant to the City has identified mitigation areas in twelve drainage channels. Public Works Operations staff is in the process of identifying critical reaches within the City's channels.

V. FUNDING SOURCES

Various types of funding have been used in the past to construct drainage improvements. These sources include the following:

Storm Drain Fee

This fee was established in July 1991 by Ordinance 2438 in order to fund implementation of the City's National Pollutant Discharge Elimination System (NPDES) program. It is collected as a supplemental fee on City residents' sewer bills. This ordinance also permits use of these funds for cleaning and

maintaining drainage facilities. The fee for single family residences is $0.70 per month. This fee has been used in the past to fund certain drainage CIP projects. However, the City's NPDES program has been expanding due to the City's growth and additional State requirements. The City would need to meet the requirements of Proposition 218 in order to raise this fee. An additional one-time inspection fee has been implemented which is payable with building permits to cover costs of performing storm water compliance inspections during construction. It is not anticipated that there will be much funding available for financing drainage projects in the near future.

Telegraph Canyon Drainage Development Impact Fee (DIF)

This fee was established by Council on August 7, 1990 by adoption of Ordinance 2384. The ordinance also included adoption of the Telegraph Canyon Drainage Plan, dated June 1990. As the Drainage Plan states, the existing channel west of I-805 was a natural earthen creek bed adjacent to developed areas that would be insufficient to accommodate the increased channel flows from upstream development, so new developers were required to pay $3922 per acre to fund basin improvements. This fund should therefore be the main source for funding the remaining improvements to the Telegraph Canyon Channel.

Gas Tax and TransNet Funding

These funding sources are intended for the planning, maintenance, construction and improvement of public streets and highways. The enabling legislation for these funding sources does not address storm drain improvements. However, in the past these funds have been used for storm drain improvements constructed in conjunction with street improvements in order to reduce street flooding.

Western Chula Vista Financing Program

The City Council approved this financing plan for the construction of improvements in Chula Vista with the adoption of the 2004-2005 budget. This financing plan included a $9 million bond issue to be repaid from the Residential Construction Tax revenues and a $11.9 million loan through the U.S. Department of Housing and Urban Development to be repaid through the City's Community Development Block Grant entitlement. A total of $5.4 million in drainage projects was originally anticipated to be funded through this program. This includes the following:

- Emerson Street drainage Improvements
- CMP replacement ($2.5 million)
- Drainage improvements east of Second Ave.

Community Development Block Grant (CDBG)

These funds are received from the U.S. Department of Housing and Urban Development and can be used for capital improvement projects that are located within areas that meet the HUD low income criteria. This has been a

major source of funding for drainage projects in western Chula Vista in the past, and it is anticipated that it will continue to be used in the future. However, it is anticipated that funding will be reduced in Fiscal Year 2006-07 once debt service commences on the Western Chula Vista Financing Program.

Residential Construction Tax (RCT)

These funds are paid with the construction of residential units at the time that building permits are issued. These funds can be used for infrastructure improvements Citywide and have been a major source of funding for drainage projects. However, it is anticipated that funding will be reduced in Fiscal Year 2006-07 to $600,000 per year once debt service commences on the Western Chula Vista Financing Program.

Future Legislation

A major problem is the depletion of the City's traditional sources of revenue for drainage projects as the City's needs increase. Council is encouraged to support new legislation which would increase revenues for drainage projects. ACA13 is one such bill. This legislation would amend Article XIII of the State constitution to exempt fees and charges related to flood control, stormwater drainage or surface water drainage, from the public hearing and balloting requirements imposed by Proposition 218, including financing capital costs or maintenance and operation expenses. If the bill is approved by the legislature, it would need to be placed on the next Statewide ballot. Mayor Padilla submitted a letter of support in June 2005 to Assembly Member Tom Harman. It is recommended that the City continue to support this bill in coordination with other cities in the County.

Grants and Alternative Funding

The City's Grants Coordinator has been researching availability of different types of funds that may be available for drainage resources. For the canyons, recreational trails grants may be used to rehabilitate the horse trails that have eroded and are closed to the public. Funding sources pertaining to water quality may be applicable, since reduction in canyon erosion would also reduce the quantity of sediment downstream. However, there are few grants that pertain specifically to flooding issues. One exception is the Urban Streams Restoration Grant, which funds flood control projects within urban creeks/ channels.

Another type of funding relates to Federal earmarks. These are projects that are sponsored by Federal legislators and funded directly by Congressional action. The City has recently received earmarked funds for several projects related to transportation, such as the Heritage Road Bridge. In addition, the City has recently included drainage projects in its recent proposal for Federal earmarks.

Low interest Federal loans can also be used to fund projects. However, loans need to be repaid, and the traditional sources for funding drainage projects will be used to repay the HUD loan in the upcoming years.

VI. CONCLUSION

City staff has included funding for a study for the Bonita and Long Canyon Basins for the Fiscal Year 2006-07 Capital Improvement Program, which are both top priority projects. This will be the first step in solving the erosion problem in these canyons.

Several other ongoing efforts affecting drainage issues are anticipated to continue into the future. This would include the discussions between the Regional Board and other agencies in the San Diego region regarding permits to enter and clean natural channels. The City's Grants Manager will continue to research funding sources relating to drainage issues. Engineering and Public Works Operations staff will continue to work together to identify future drainage deficiencies, incorporate them into the City's database and devise strategies to correct the most serious deficiencies.

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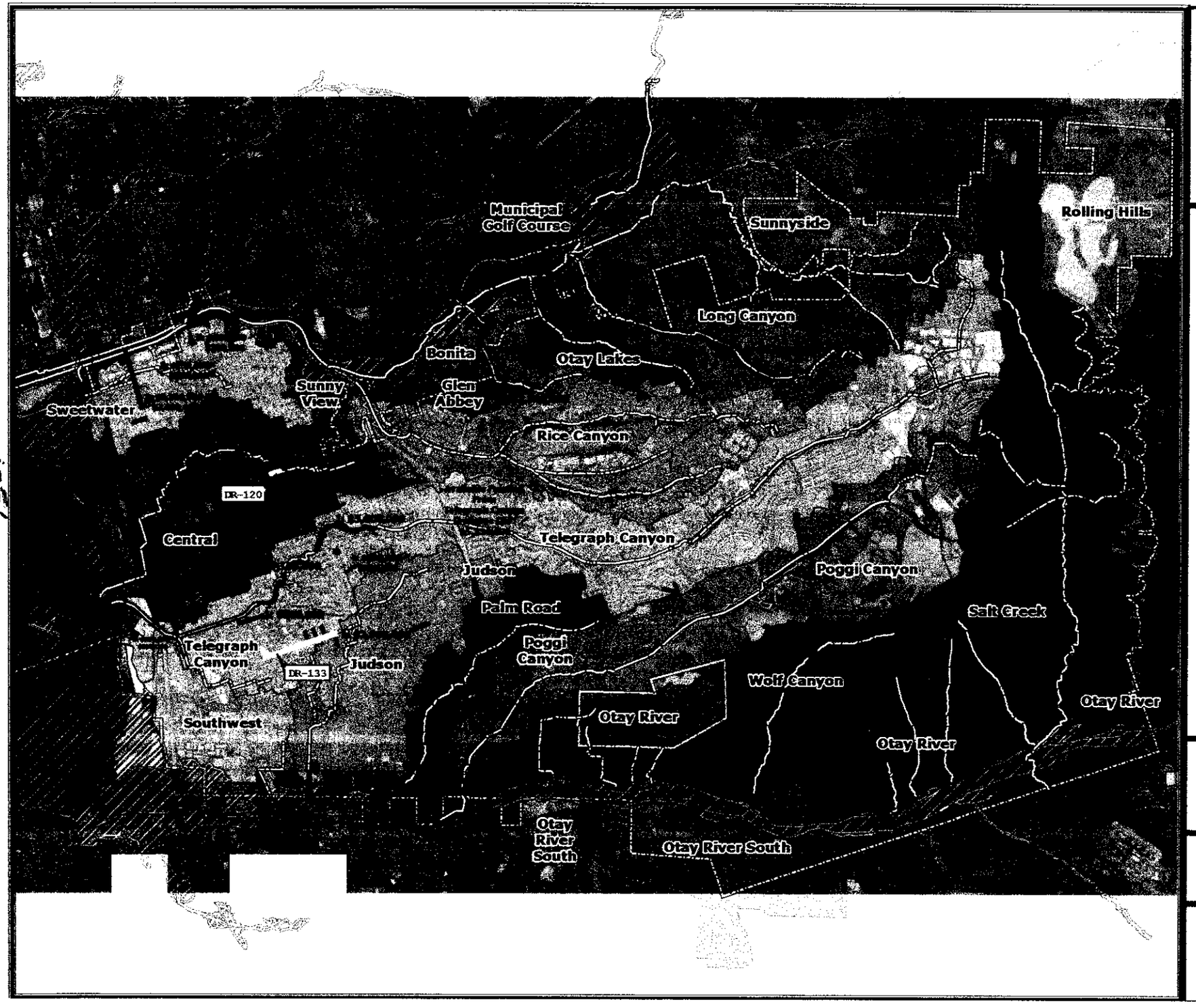

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City of Chula Vista

DRAINAGE CHALLENGES

Engineering Department
Infrastructure Services Division

- DRAFT -

- 100 Year Flood Plain
- Reported Flooded Area
- Drainage Priorities
- Priority Rank and Preliminary Cost Estimate
- Storm Water - Major Drainage Way
- DR-133 Current Drainage CIP Projects

Storm Water Basins

- Bonita
- Central
- Glen Abbey
- Judson
- Long Canyon
- Municipal Golf Course
- Otay Lakes
- Otay River
- Otay River South
- Palm Road
- Poggi Canyon
- Rice Canyon
- Rolling Hills
- Salt Creek
- Southwest
- Sunny Vista
- Sweetwater
- Telegraph Canyon
- Wolf Canyon

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CITY OF CHULA VISTA
GEOGRAPHIC INFORMATION SYSTEM
April 2, 2007

TABLE 1

1992 PRIORITY LIST OF DRAINAGE DEFICIENCIES FOR THE CITY OF CHULA VISTA

(Deficiencies as identified in Fogg 1964, Fogg 1969, and Leedshill-Herkenhoff drainage deficiency studies)

NOTE: This table was typed based on a reduced copy of a report printed in 1992.

Priority	Deficiency No.	Drainage Basin	Location	Recommended Improvements	Current Status (July 2005)
1	8	Central	e/o Oaklawn Avenue n/o H Street	Install RCB	**RCB has been installed**
2	14A	Central	Second Avenue crossing	Install 110' of RCP	**RCP installed. Between G Street and Alvarado Street**
3	14B	Central	First Avenue. Murray Street to s/o "H" Street	Install 2 cleanouts, 3 inlets, and 2100' of RCP	No improvements after 1992 have been done
4		Otay River Tributary / Southwest Basin	Palm Avenue, Otay Valley Road to Otay Boulevard	Install 4 inlets, 2 cleanouts, 2000' of RCP and headwall	Location unclear
5.		Central	Hilltop Drive, "I" Street to Whitney Street, & Hilltop Drive, s/o "H" Street to Shasta Street	Install 5 Inlets, 3 cleanouts, 500' of RCP, and modify 1 box	No improvements have been done. CIP project DR134 will address this location.
6	40	Telegraph	Third Avenue & Emerson Street to 900' west	Add 30' RCP parallel to existing 24" RCP (800 L.F.)	Existing 24" RCP. No parallel RCP has been installed.
7	10	Central	Broadway, Madrona Street to s/o "G" Street	Install 1 inlet and of RCP	**RCP has been installed**
8.A	50	Judson	Glenhaven Way, First Avenue to channel	Install large diameter RCP	**RCB has been installed**
8. B.	51	Judson	Tobias Drive to main channel	Line channel (920 L.F.)	**Completed**
8. C	52	Judson	Tobias Drive to First Avenue channel	Line channel (120 L.F.)	**Completed**
8. D	53	Judson	Tobias Drive Culvert	Construct 8'x3' RCB	**Completed**
8. E	49	Judson	Crossings b/w Naples Street & Glenhaven Way	Large diameter RCP and five street crossings (cross-gutters)	**Five RCB crossings are shown at Naples Street, Dixon Street, First Avenue, Emerson Street, & Oxford Street.**
9		Telegraph Canyon	Fifth Avenue, Westby Street to Telegraph Canyon.	Remove existing CMP and replace with 500' of RCP; replace 4 driveways	**HDPE & RCP installed in 2003 as part of CIP DR137**
10A.	46	Judson	100' s/o Oxford Street to	Install approximately 700 L.F. of RCP to	**CIP project AO-078 matches**

Priority	Deficiency No.	Drainage Basin	Location	Recommended Improvements	Current Status (July 2005)
			Kennedy Street	Kennedy Street	**closely the location described. This CIP project installed in 1992, 1400 LF of 30" RCP in Oxford Street from Second Avenue to Del Mar Avenue and then 350 LF south to connect to existing CMP, just north of Kennedy Street.**
10.B	47	Judson	Oxford Street to 100' South	Install approximately 100 L.F. of RCP to develop area	Location unclear
10.C	48	Judson	Oxford Street Channel	Install approximately 200 L.F. of RCP	Location unclear
11.A	43	Southwest	Hollister Street	Install 250' RCP and line 1500' of channel to Otay River	**RCB installed e/o RR tracks as part of CIP ST961 in 1999**
11. B	44	Southwest	Main Street, Broadway to Hollister Street	Underground storm drain system to remove water from street (1100 L.F.)	**Storm drain installed as part of CIP ST961 in 1999**
12.		Sunny Vista	Pepper Tree area, east of Hilltop Drive	More time required to perform comprehensive hydrology and hydraulic study	Location unclear
13.		Telegraph Canyon	Oxford Street, w/o Oxford Court to 300' west	Install various improvements, possibly catch basins at each side of the street	No improvements have been done after 1992.
14.		Telegraph Canyon	Second Avenue, Moss Street to Naples Street	Install curb and gutter (3000 L.F.) (1500 LF each side of Second Avenue)	**Curb and gutter installed**
15.		Judson	Montgomery Street, w/o Fresno Street	Install curb and gutter (1200 L.F.) (1200 LF of street)	**Curb and gutter installed**
16	13	Central	Third Avenue, "I" Street to Shasta Street	Install 2 cleanouts, I inlet, and 850' of RCP	**Improvements have been done**
17		Judson	w/o Third Avenue, Quintard Street to south	Install 4 inlets, I cleanout, and 000' RCP	**Two existing inlets. Street improvements have been done as part of CIP STL285 in 2004. No new inlets were installed.**
18	1	Sweetwater	Broadway, Sweetwater River to 'D" Street, "D" Street, Broadway to Smith Avenue	Install 3 cleanouts, 4 inlets, and 2250' of RCP	No improvements done. CIP project in design (STM354)
19.	41	Telegraph Canyon	Emerson Street drainage system	Underground existing single/pipe culvert drainage system (1000 L.F.)	1200 LF RCP b/w Third Avenue & Fourth Avenue installed. CIP project DR133 in design will address Elm

25-1

Priority	Deficiency No.	Drainage Basin	Location	Recommended Improvements	Current Status (July 2005)
					Avenue to Third Avenue & west of Fourth Avenue to south of Weisser Way.
20	54	Judson	Oxford Street, Alpine Avenue to Olsen Drive	Install 1 inlet and 700' of RCP	**In 2003 under CIP project DR931, 835 LF of 18" RCP were installed in Oxfrod Street from Alpine Avenue to Elm Avenue. One curb inlet, one catch basin & 380 LF RCP in Elm Avenue & 455 LF RCP in Oxford Street.**
21.		Sweetwater	Upstream of Eucalyptus Park	Enlarge main channel upstream of 4th Ave. and use park for detention.	No improvements have been done after 1992. **DID NOT FIND EVIDENCE OF FLOODING**
22. A	6	Sweetwater	"E" Street, 300' w/o First Avenue to First Avenue, First Avenue, "E" Street to Davidson Street	Install 1 cleanout, 2 outlets, and 1100' or RCP	No improvements have been done. **DID NOT FIND EVIDENCE OF FLOODING**
22.B	7	Sweetwater	1st. Avenue, from Davidson Street to "F" Street	Install I cleanout, 1 inlet and 850' of RCP	No improvements have been done. **DID NOT FIND EVIDENCE OF FLOODING**
23	42	Judson	Orange Avenue, Fourth Avenue to Palomar Street	Underground storm drain system to remove water from street (2000 L.F.)	No improvements have been done. **DID NOT FIND EVIDENCE OF FLOODING**
24	5	Central	"E" Street Garrett Avenue to Third Avenue	Install 1 Inlet and 650' of RCP	No improvements have been done. **DID NOT FIND EVIDENCE OF FLOODING**
25A	20	Telegraph Canyon	Fourth Avenue to Third Avenue channel	Line channel or use natural channel with grade control (100 L.F.)	No improvements have been done.
25.B	21	Telegraph Canyon	Third Avenue culvert	Remove existing facilities and construct RCB (500 L.F.)	No improvements have been done after 1992.
25. C	22	Telegraph Canyon	Third Avenue to "L" Street channel	Line channel or use natural channel with grade control (l00 L.F.)	No improvements have been done.
25. D	23	Telegraph Canyon	"L" Street culvert	Remove existing facilities and replace RCB (130 L.F.)	No improvements have been done after 1992.
25A-25D		Telegraph Canyon	Fourth Avenue to Third Avenue channel, and L Street	Drainage study needed as initial step to determine improvements needed. Flooding due to lack of downstream culvert capacity.	No improvements have been done after 1992

Priority	Deficiency No.	Drainage Basin	Location	Recommended Improvements	Current Status (July 2005)
				CIP project DR-167 created to perform comprehensive hydrology and hydraulic study. Easement may be needed	
26.A	25	Telegraph Canyon	"L" Street to Second Avenue channel	Line channel or use natural channel with grade control (1500 L.F.)	**Concrete channel constructed from Sierra Way to K Street as part of CIP DR118 in 2000.**
26. B	26	Telegraph Canyon	Second Avenue culvert	Remove existing facilities and construct RCB (100 L.F.)	**Improvements constructed as part of CIP DR118 in 2000**
26.C	28	Telegraph Canyon	Second Avenue to Country Club Drive Channel	Line channel or use natural channel with grade control (1450 L.F.)	**Concrete channel constructed from Sierra Way to K Street as part of CIP DR118 in 2000.**
26. D	29	Telegraph Canyon	Country Club Drive Culvert	Replace existing RCB with larger RCB	No improvements have been done
26. E	30	Telegraph Canyon	Country Club Drive to 1st Ave. Channel	Construct RCB (200 L.F.)	No improvements have been done
27	31	Telegraph Canyon	First Avenue culvert	Add parallel RCB to existing RCB (150 L.F.)	No improvements have been done
28	9	Central	Roosevelt Street, Fourth Avenue to Broadway	Install 3 cleanouts, 4 inlets, 2000' of RCP, and line ditch.	**Improvements have been done**
29		Telegraph Canyon	Hilltop Drive, s/o "L" Street	Underground existing swale – install 1 cleanout and 350' of RCP	No improvements have been done
30	66	Otay Lakes / Municipal Golf Course	Bonita Road to Allen School Lane	Remove existing 30' CMP and replace with 72" RCP (100 L.F.)	**Improvements have been done on Otay Lakes Road from south of Allen School Lane to Bonita Road**
31		Central	Madrona Street, e/o Third Avenue	Secure inlets and allow street to flood. Dry lane maintained	Recommendations unclear. **Only maintenance needed.**
32	4	Central	"E" Street, Fourth Avenue to Garrett Avenue	Install I cleanout, 2 inlets, and 150' of RCP	No improvements have been done
33		Sunny Vista	"E" Street, w/o I-805	Enlarge curb inlet	**Improvements have been done. By Denny's driveway**
34	3	Sweetwater	Flower Street, Jefferson Avenue to Broadway	Install 1 inlet and 150' of RCP	No improvements have been done.
35		Central	e/o Elm Avenue, "J" Street to Kearney Street	Re-grade ad pave alley; install I inlet, 3 cleanouts and 1500' RCP	No improvements have been done

55-1

Priority	Deficiency No.	Drainage Basin	Location	Recommended Improvements	Current Status (July 2005)
36	38	Telegraph Canyon	"J" Street to Telegraph Canyon Creek	Install I cleanout, 2 inlets, 850' of RCP, and 300' lined ditch	No improvements have been done. **Only maintenance needed.**
37	34	Telegraph Canyon / Central	"J" Street, Myra Avenue to Hilltop Jr. High	Install 2 cleanouts, 2 inlets and 100' of RCP	No improvements have been done. **Only maintenance needed.**

Blue text: Completed projects
Black text: Proposed projects or existing flooding problems.

25-1

EXISTING FLOODED AREAS 2004

TABLE 2

Based on observations by Public Works Operations Staff

#	Location	Observed Situation	Possible Solution
1	Intersection of Glover Ave. with Trousdale St. & Via Bissolotti	The existing facilities do not collect street flows	Construct new facilities which tie into system at Via Bissolotti or end of Glover
2	Intersection of Third Ave. & Seavale St.	Drainage ponds at low points in street	Construct new catch basins and tie into storm drain on SW side of Third Ave.
3	Intersection of Sierra Way & Country Club Drive	Drainage ponds at low point in street	Construct new catch basin and tie into culvert where Country Club Dr. crosses the street west of First Ave.
4	Slope near intersection of Calle Mesita & Camino del Cerro Grande	Storm drain terminates mid-slope and causes slope erosion	Continue storm drain to bottom of slope. Current CIP DR-168
5	Near intersection of Villas Court & Bonita Road	Concrete ditch is overgrown, flows cannot enter storm drain	Construct cleanout and replace downstream end of ditch with a pipe
6	Intersection of L Street & Industrial Blvd. adjacent to railroad track	Flooding near headwall	Determine if ditch lacks sufficient conveyance capacity
7	Bay Blvd. between Ada St. & Palomar St.	Street flooding due to lack of capacity in ditches, possible tidal backwater	Increase capacity of ditches and culverts
8	Twin Oaks between Naples & Emerson	Street flooding due to lack of catch basins and no street improvements	Street grading and construction of a storm drain system. Possible tie-in at Oxford St. or Third Ave. north of Naples St.
9	100 Block of East Olympia	Debris from slope deposited on street from curb outlet	Construct erosion control BMPs on slope. Project completed
10	North end of Press Lane, ditch between Press Lane & Glover Ave.	Street flooding and lack of ditch capacity	Construct catch basin at end of Press Lane and tie into existing system draining to ditch, clean out ditch
11	Bonita Road & Willow St.	Culvert frequently clogs due to sedimentation from canyon and backwater from Sweetwater River	Reconstruct crossing as single box culvert, redirect flow; further analysis needed
12	F Street between Broadway & Woodlawn	Street flooding	Existing drainage system may be inadequate. Current CIP DR-160
13	Intersection of D Street & Broadway	Street flooding – area is tributary to 53 urbanized acres	Construct new storm drain system and catch basins
14	South of Main St. & Oleander, west of Auto Park Drive	Flooding, insufficient capacity in ditch	Extend culvert from Main St. to river and add catch basins if needed
15	Intersection of Heritage Road & Entertainment Circle	Street flooding; outlet at river clogs, erosion from upstream runoff that flows off the street	Grade an opening to river at outlet; stabilize soils with BMPs; handle upstream flows through placing fill , extending the curb or installing a catch basin

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EXISTING FLOODED AREAS 2004

TABLE 2

Based on observations by Public Works Operations Staff

#	Location	Observed Situation	Possible Solution
16	South of intersection of Main St. & Reed Court	Ditch adjacent to Reed Court has no outlet	Construct headwall where ditch ends and new storm drain to Otay River, or replace CMP and extend new culvert to river
17	Between buildings south of Fresno Ave. & Main Street	Erosion along channel banks, water ponds at outlet south of Fourth Ave. and Beyer Way	Excavate channel to provide additional capacity, stabilize channel sides, place fill downstream of culvert
18	Storm drain between Vance Street & Minot Ave.	Outlet to pipe appears to be buried	Construct new storm drain, catch basin and outlet
19	Intersection of Roosevelt St. & Fourth Ave.	Street flooding due to lack of catch basin at low point	Construct new curb inlet near corner at north side of Roosevelt if possible, tie into westerly storm drain
20	South of Del Mar Ave. & Madrona St.	Grate clogs at outlet of 48-inch culvert, causing backup of water	Install debris screens on upstream curb inlets
21	Channel upstream of box culvert south of Acacia Ave. & Fallbrook Court	Flooding due to lack of channel capacity	Widen existing channel; provide riprap or other stabilization on slopes
22A	Intersection of Third Ave. & L St.: L Street Culvert	Flooding due to lack of culvert and channel capacity, but there are constrictions downstream	Widen channel upstream of culvert and protect sides with rip-rap, repair sidewalk, may need to increase culvert size – analyze complete system first
22B	Channel southeast of intersection of Third Ave. & L Street	Erosion on banks and flooding due to lack of downstream culvert capacity	Grade channel banks and provide riprap, construct new headwalls at San Diego Country Club, provide detention basin if feasible
22C	Intersection of Third Ave. & L Street: Third Ave. culvert	Flooding upstream of culvert due to lack of culvert capacity, downstream flooding due to lack of channel capacity caused by erosion	Replace CMP with new culvert, expand channel and provide riprap
23	Hilltop Park upstream of First Ave. & Millan Court	Flooding and erosion of channel through park and downstream	Construct channel with adequate capacity; replace undermined concrete bank with riprap
24	Elm Ave. between Emerson St. & Oxford Ave.	Flooding of street due to lack of catch basins and street improvements, minimal street slope	Grade street and ditch, construct new catch basins and storm drain system tying in to Oxford St. or Alpine Ave.
25	North of East J Street between Hilltop Dr. and Carla Ave.	Flooding of downstream properties due to blocking of drainage easement by fences	Have fencing removed; clear and regrade easement to channelize flow
26	Telegraph Canyon Channel at Paseo Ladera	Flooding due to overgrown vegetation in natural channel	City must obtain permits from USACE, and other federal and state agencies before cleaning channel.

J:\ENGINEER\ADVPLAN\DRAINAGE\[EXISTING FLOODED AREAS 2004-T2.XLS]TABLE 2

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TABLE 3
PRIORITY 1

2006 Priority	1992 Priority	LOCATION Sorted in ascending order by by basin name	Recommended Improvements	Comments	100-Year Flood Area	CATEGORY 1		EXISTING CONDITIONS: Missing Drainage Improvements	EXISTING CONDITIONS: Missing Street Improvements	EXISTING CONDITIONS: Deficient Condition (Drainage Improvements)	EXISTING CONDITIONS: Deficient Capacity (Drainage Improvements)	Preliminary Cost Estimate
1 A		Bonita Basin - Bonita Road and Allen School Road.	Replace existing culvert.	PCC culvert deteriorating. Soffit reinforcing steel exposed.		✔	NF			✔		$500,000
1 B		Bonita Basin - Canyon from Terra Nova Drive to Bonita Road	Further analysis needed. Study recommended for entire canyon to determine improvements needed.	Erosion of channel bottom and sides; damage to gabion structures and recreational trail. Culvert at Bonita Road and Willow Street frequently clogs due to sedimentation from canyon and backwater from Sweetwater River.	✔	✔	F	✔				$3,900,000
1 C		Central Basin - east of Second Avenue and north of H Street	Construct RCB east and west of Second Avenue	CIP project DR-120 in design. Currently funded		✔	F	✔				$1,500,000 Funded: $1,500,000
1 D		Central Basin - Hilltop Drive, Hilltop Drive, s/o "H" Street to Shasta Street.	Install Inlets, cleanouts, and RCP	CIP project DR-134 was partially funded; some preliminary work was done. Project was delayed in FY2005 due to lack of funding to complete.		✔	F	✔			✔	$1,800,000
1 E		Long Canyon Basin - Canyon from Corral Canyon Road and East H Street to channel.	Study needed for entire canyon.	Erosion at canyon sides and bottom and hiking trail.		✔	NF	✔				$4,600,000
1 F	26E	Telegraph Canyon Basin - Country Club Drive Culvert, channel, and First Avenue culvert, and Hilltop Park upstream of First Avenue and Millan Court, and east of Hilltop Drive south of Telegraph Canyon Road	Replace existing Country Club Drive RCB with larger RCB, construct RCB in channel, and add RCB at First Avenue crossing. Construct channel with adequate capacity; replace undermined concrete bank with rip-rap.	Flooding and erosion of channel through park and downstream. Easements may be needed north of Country Club Drive and east of Hilltop Drive & south of Telegraph Canyon Road		✔	NF	✔			✔	$5,600,000
1 G	25 A-D	Telegraph Canyon Basin - Fourth Avenue to Third Avenue channel, and L Street culvert.	Drainage study needed as initial step to determine improvements needed.	Flooding due to lack of downstream culvert and channel capacity. CIP project DR-167 created to perform comprehensive hydrology and hydraulic study. Easements may be needed.	✔	✔	F	✔		✔	✔	$7,100,000
1 H	6	Telegraph Canyon Basin - Third Avenue & Emerson Street to 900' west; Emerson Street drainage system.	Add 30' RCP parallel to existing 24" RCP (800 LF). Existing 30" CMP in Emerson Street from Del Mar Avenue to Third Avenue to be replaced with RCP. Recommended that construction be done in conjunction with street improvements on Emerson Street if possible.	CIP project DR-133 in design. Existing 24" RCP west of Third Avenue is undersized. CIP project will improve system from Del Mar Avenue to south of Weisser Street (west of Fourth Avenue). Currently funded.		✔	F	✔			✔	$2,900,000 Funded: $2,900,000
1 I		Telegraph Canyon Basin - Moss Street and Fifth Avenue	Drainage improvements needed along Moss Street from Fourth Avenue to Fifth Avenue. Street improvements are also needed.	Flooding of private property on the southeast corner of Fifth Avenue and Moss Street.		✔	F	✔	✔			$900,000

TOTAL:	$28,800,000
FUNDED PROJECTS:	$4,400,000
FUNDING NEEDED:	$24,400,000

CATEGORIES:

1 Frequent flooding and/or high chance of personal injury or property damage: Major flooding to roadways or flooding that causes homes or business to be evacuated

NF: NO FLOODING
F: FLOODING

5-1

TABLE 4 / PRIORITIES 2 -4

TOTAL PRELIMINARY COST ESTIMATE FOR PRIORITIES 2 THROUGH 4: RANGE FROM $6,000,000 TO $9,000,000

2006 Priority	1992 Priority	Location Sorted in ascending order by priority and then by basin name within priority group	Recommended Improvements	Comments	100-Year Flood Area	2	3	4	EXISTING CONDITIONS Missing Drainage Improvements	Missing Street Improvements	Deficient Condition (Drainage Improvements)	Deficient Capacity (Drainage Improvements)	Cost Estimate Range
2 A		Bonita Basin - CMP culvert crossing Bonita Road at Willow Street	Reconstruct crossing as reinforced concrete box culvert, redirect flow. Construct may coincide wuth the Willow Street Bridge project currently in design.	Culvert at Bonita Road and Willow Street frequently clogs due to sedimentation from canyon and backwater from Sweetwater River.		✔ F					✔	✔	$800,000-$1,200,000
2 B		Central Basin - F Street between Broadway and Woodlawn Avenue.	To be addressed by CIP project DR-160.	Street flooding. Existing drainage system may be inadequate.		✔ F						✔	$580,000-$800,000
2 C	5	Central Basin - Hilltop Drive, "I" Street to Whitney Street	Install Inlets, cleanouts, and RCP			✔ F			✔			✔	$500,000 to $800,000
2 D	18	Sweetwater Basin - Broadway, Sweetwater River to "D" Street; "D" Street, Broadway to Smith Avenue: Flower Street, Jefferson Avenue to Broadway	Install 4 cleanouts, 6 inlets, and 2250' of RCP; install 1 inlet and 150' of RCP.	CIP project in design (STM354). Revised project scope recommended to address only stormdrain and pavement from "C" Street to "D" Street. Remainder of preliminary allocated funding ($2M) redirected to pavement management.		✔ F			✔	✔			$2,300,000-$2,800,000
2 E		Telegraph Canyon Basin - South branch	Drainage study to determine adequacy of Telegraph Canyon Channel south bnranch.			✔ F					✔	✔	$250,000-$500,000
3 A		Central Basin - Intersection of Roosevelt Street and Fourth Avenue.	Construct new curb inlet near corner at north side of Roosevelt if possible, tie into westerly storm drain.	Street flooding due to lack of catch basin at low point.			✔ F		✔				$60,000-$150,000
3 B		Central Basin - Storm drain between Vance Street and Minot Avenue	Construct new storm drain, catch basin and outlet.	Outlet to pipe appears to be buried.			✔ F		✔				$200,000-$450,000
4 A		Judson Basin - South of intersection of Main Street and Reed Court	Construct headwall where ditch ends and new storm drain to Otay River, or replace CMP and extend new culvert to river.	Ditch adjacent to Reed Court has no outlet.				✔ F	✔	✔			$1,200,000-$1,500,000
4 B	4	Southwest Basin - Palm Avenue, Otay Valley Road to Otay Boulevard.	Install 4 inlets, 2 cleanouts, 2000' of RCP and headwall.		✔			✔ F	✔	✔			$300,000-$500,000
4 C	29	Telegraph Canyon Basin - Hilltop Drive, south of "L" Street.	Re-design existing swale - install 1 cleanout and 350' of RCP.					✔ F	✔			✔	$100,000-$200,000

CATEGORIES:

1 Frequent flooding and/or high chance of personal injury or property damage: Major flooding to roadways or flooding that causes homes or business to be evacuated
2 Occasional flooding with chance of personal injury and/or property damage
3 Frequent "nuisance" flooding
4 Occasional "nuisance" flooding. Public eyesore

09-1

PRIORITY 5

RANGE OF PRELIMINARY COST ESTIMATE FOR PRIORITY 5 GROUP: $1,300,00 TO $2,500,000

2006 Priority	1992 Priority	Location Sorted in ascending order by basin name within priority group	Recommended Improvements	Comments	EXISTING CONDITIONS 100-Year Flood Area	CATEGORY 5		Missing Drainage Improvements	Missing Street Improvements	Deficient Condition (Drainage Improvements)	Deficient Capacity (Drainage Improvements)	Cost Estimate
5 A	35	Central Basin - east of Elm Avenue, "J" Street to Kearney Street.	Re-grade and pave alley; install I inlet, 3 cleanouts and 1500' RCP.			✔	F	✔	✔			$700,000- $1,100,000
5 B		Judson Basin - Between buildings south of Fresno Avenue and Main Street.	Excavate channel to provide additional capacity, stabilize channel sides, place fill downstream of culvert.	Erosion along channel banks, water ponds at outlet south of Fourth Avenue and Beyer Way.		✔	NF	✔	✔			
5 C		Municipal Golf Course Basin - Jogging trail north of the Otay Lakes Road & Bonita Road intersection.	Re-grade channel. Install small diameter pipe(s) to eliminate low flow drainage. May consider a pedestrian & golf cart bridge	Water ponds at culvert outlet from Otay Lakes Road under Bonita Road.	✔	✔	F				✔	$30,000- $150,000
5 D		Palm Road Basin - North of Main Street	Improvements will be required with any future development	Ponding at low point of unimproved street.		✔	F	✔	✔			
5 E		Sweetwater Basin - Intersection of Glover Avenue with Trousdale Street and Via Bissolotti	Construct new facilities that tie into system at Via Bissolotti or end of Glover Avenue.	The existing facilities do not collect street flows.	✔	✔	F	✔	✔		✔	$150,000- $300,000
5 F		Sweetwater Basin - Intersection of Third Avenue and Seavale Street.	Construct new catch basins and tie into storm drain on southwest side of Third Avenue.			✔	F	✔				$150,000- $300,000
5 G		Sweetwater Basin - North end of Press Lane, ditch between Press Lane and N Glover Avenue.	Construct new ditch and catch basin at end of Press Lane and tie into existing system draining to new ditch.	Lack of ditch capacity.	✔	✔	NF	✔	✔		✔	$250,000- $350,000
5 H		Municipal Golf Course Basin - Between 3550 & 3555 Desert Inn Way, from cul-de-sac northerly to channel parallel to Sweetwater Road.	Reconstruct existing brow ditch	Existing ditch bewtween properties holds water. May need to re-grade and reconstruct ditch.	✔	✔	NF			✔		$30,000 - $60,000

CATEGORIES:

5 Frequent or routine maintenance/cleaning required. No actual property damage or personal injury

NF: NO FLOODING
F: FLOODING

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TABLE 6

CMP REPLACEMENT COST

Categories	Original Est.	Added Pipe	Soft Costs	Total
Current CIP				$2,900,000
Requiring Immediate Attention *	$761,470	$383,781	$383,781	$767,562
Additional Inspection				$860,000
Recommended within one year	$4,778,150	$2,408,188	$7,186,338	$14,372,675
Recommended within three years	$2,124,850	$1,070,924	$3,195,774	$6,391,549
Recommended within five years	$326,375	$164,493	$490,868	$981,736
Line remainder of pipe (13,338 LF)				2,667,600
Total Estimated Cost	$7,990,845	$4,027,386	$11,256,761	$28,941,122

*** This line item only gives the total for the added pipe. The rest is under Current CIP.**

TABLE 1

FIVE YEAR HISTORY OF CAPITAL FUND REVENUES AND APPROPRIATIONS (Does not include Non-Infrastructure funding sources such as PAD Fees or PFDIF)

CDBG (Does not include program revenue or expenditures)

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	$1,002,889	$1,156,316	$1,095,315	$1,140,000	$1,101,902	$5,496,422
Capital Appropriations						
Drainage Projects	$391,000	$417,135	$648,500	$525,000	$267,500	$2,249,135
Street Projects	$57,000	$225,000	$341,000	$615,000	$429,402	$1,667,402
Traffic Projects	$0	$0	$0	$0	$25,000	$25,000
Parks Projects	$206,794	$259,000	$0	$0	$380,000	$845,794
Library Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$0	$0	$0	$0	$0	$0
Redevelopment Projects	$312,607	$0	$0	$0	$0	$312,607
Public Safety Projects	$0	$0	$105,815	$0	$0	$105,815
General Government Projects	$35,488	$255,181	$0	$0	$0	$290,669
Total Capital Appropriations	**$1,002,889**	**$1,156,316**	**$1,095,315**	**$1,140,000**	**$1,101,902**	**$5,496,422**

GAS TAX

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	$3,883,726	$3,650,278	$3,732,758	$4,010,260	$4,046,906	$19,323,928
Capital Appropriations						
Drainage Projects	$0	$0	$13,459	$0	$36,440	$49,899
Street Projects	$793,000	-$8,920	$156,797	$641,000	$419,545	$2,001,422
Traffic Projects	$84,500	$8,920	$20,000	$147,000	$330,000	$590,420
Parks Projects	$50,000	$0	$0	$0	$0	$50,000
Library Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$0	$0	$0	$0	$0	$0
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$0	$0	$0
General Government Projects	$58,290	$0	$27,500	$25,000	$87,820	$198,610
Total Capital Appropriations	**$985,790**	**$0**	**$217,756**	**$813,000**	**$873,805**	**$2,890,351**
Total Operations Appropriations	**$3,251,350**	**$3,206,067**	**$3,102,012**	**$3,176,211**	**$3,858,091**	**$16,593,731**
Total Appropriations	**$4,237,140**	**$3,206,067**	**$3,319,768**	**$3,989,211**	**$4,731,896**	**$19,484,082**

ATTACHMENT 3

GENERAL FUND

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	N/A	N/A	N/A	N/A	N/A	$0
Capital Appropriations						
Drainage Projects	$0	$210,000	$0	$0	$0	$210,000
Street Projects	$908,000	$0	$0	$0	$0	$908,000
Traffic Projects	$0	$0	$0	$0	$0	$0
Parks Projects	$0	$2,270,000	$0	$0	$0	$2,270,000
Library Projects	$0	$0	$0	$450,000	$0	$450,000
Sewer Projects	$0	$0	$0	$0	$0	$0
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$5,102,000	$1,638,385	$2,595,198	$120,840	$27,851	$9,484,274
General Government Projects	$54,665	$1,593,680	$956,585	$474,301	$857,360	$3,936,591
Total Capital Appropriations	**$6,064,665**	**$5,712,065**	**$3,551,783**	**$1,045,141**	**$885,211**	**$17,258,865**
Debt Service Obligations						
Drainage Projects	$0	$0	$0	$0	$0	$0
Street Projects	$0	$0	$0	$0	$0	$0
Traffic Projects	$0	$0	$0	$0	$0	$0
Parks Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$0	$0	$0	$0	$0	$0
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$727,750	$2,024,769	$2,752,519
General Government Projects	$54,257	$56,767	$596,076	$573,261	$581,805	$1,862,166
Total Debt Service Obligations	**$54,257**	**$56,767**	**$596,076**	**$1,301,011**	**$2,606,574**	**$4,614,685**
Total GF Capital Appropriations	**$6,118,922**	**$5,768,832**	**$4,147,859**	**$2,346,152**	**$3,491,785**	**$21,873,550**

JOBS TO HOUSING GRANT FUNDS

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	$0	$0	$0	$1,580	$1,652,061	$1,653,641
Capital Appropriations						
Drainage Projects	$0	$0	$0	$0	$0	$0
Street Projects	$0	$0	$1,662,831	$0	$0	$1,662,831
Traffic Projects	$0	$0	$0	$0	$0	$0
Parks Projects	$0	$0	$0	$0	$0	$0
Library Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$0	$0	$0	$0	$0	$0
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$0	$0	$0
General Government Projects	$0	$0	$0	$0	$0	$0
Total Capital Appropriations	**$0**	**$0**	**$1,662,831**	**$0**	**$0**	**$1,662,831**
Total Operations Appropriations	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Total Appropriations	**$0**	**$0**	**$1,662,831**	**$0**	**$0**	**$1,662,831**

POGGI CANYON SEWER DIF

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	$651,809	$401,812	$739,432	$352,441	$513,201	$2,658,695
Capital Appropriations						
Drainage Projects	$0	$0	$0	$0	$0	$0
Street Projects	$0	$0	$0	$0	$0	$0
Traffic Projects	$0	$0	$0	$0	$0	$0
Parks Projects	$0	$0	$0	$0	$0	$0
Library Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$800,000	$0	$839,800	$306,200	$0	$1,946,000
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$0	$0	$0
General Government Projects	$0	$0	$0	$0	$0	$0
Total Capital Appropriations	**$800,000**	**$0**	**$839,800**	**$306,200**	**$0**	**$1,946,000**
Total Operations Appropriations	**$8,081**	**$8,081**	**$8,889**	**$34,776**	**$15,082**	**$74,909**
Total Appropriations	**$808,081**	**$8,081**	**$848,689**	**$340,976**	**$15,082**	**$2,020,909**

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RESIDENTIAL CONSTRUCTION TAX

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	$1,463,090	$1,478,412	$1,687,522	$1,301,313	$798,167	$6,728,504
Capital Appropriations						
Drainage Projects	$0	$645,877	$363,000	$390,000	$333,000	$1,731,877
Street Projects	$0	$218,000	$340,560	$279,167	$312,293	$1,150,020
Traffic Projects	$0	$0	$382,000	$330,780	$95,000	$807,780
Parks Projects	$1,143,849	$202,600	$350,348	$225,500	$0	$1,922,297
Library Projects	$0	$0	$100,000	$0	$50,000	$150,000
Sewer Projects	$0	$0	$0	$0	$0	$0
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$0	$0	$0
General Government Projects	$1,270,152	$55,935	$69,000	$50,000	$894,600	$2,339,687
Total Capital Appropriations	**$2,414,001**	**$1,122,412**	**$1,604,908**	**$1,275,447**	**$1,684,893**	**$8,101,661**
Total Operations Appropriations	**$195,035**	**$195,035**	**$127,272**	**$113,786**	**$152,812**	**$783,940**
Total Appropriations	**$2,609,036**	**$1,317,447**	**$1,732,180**	**$1,389,233**	**$1,837,705**	**$8,885,601**

SALT CREEK SEWER DIF

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	$2,070,900	$631,670	$305,125	$1,132,676	$1,180,930	$5,321,301
Capital Appropriations						
Drainage Projects	$0	$0	$0	$0	$0	$0
Street Projects	$0	$0	$0	$0	$0	$0
Traffic Projects	$0	$0	$0	$0	$0	$0
Parks Projects	$0	$0	$0	$0	$0	$0
Library Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$1,300,000	$3,374,596	$1,000,000	$0	$0	$5,674,596
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$0	$0	$0
General Government Projects	$0	$0	$0	$0	$275,000	$275,000
Total Capital Appropriations	**$1,300,000**	**$3,374,596**	**$1,000,000**	**$0**	**$275,000**	**$5,949,596**
Total Operations Appropriations	**$1,322**	**$1,322**	**$54,194**	**$69,883**	**$67,076**	**$193,797**
Total Appropriations	**$1,301,322**	**$3,375,918**	**$1,054,194**	**$69,883**	**$342,076**	**$6,143,393**

SEWER FUNDS (Special Sewer, Trunk Sewer, Sewer Service, Sewer Replacement)

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	$26,853,603	$31,080,179	$35,269,392	$32,494,169	$31,887,542	$157,584,885
Capital Appropriations						
Drainage Projects	$0	$0	$0	$0	$0	$0
Street Projects	$0	$0	$0	$0	$0	$0
Traffic Projects	$0	$0	$0	$0	$0	$0
Parks Projects	$0	$0	$0	$0	$0	$0
Library Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$3,724,425	$11,347,189	$3,060,600	$3,023,448	$1,241,836	$22,397,498
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$0	$0	$0
General Government Projects	$70,775	$0	$0	$25,000	$177,820	$273,595
Total Capital Appropriations	**$3,795,200**	**$11,347,189**	**$3,060,600**	**$3,048,448**	**$1,419,656**	**$22,671,093**
Total Operations Appropriations	**$24,730,831**	**$30,307,138**	**$33,918,902**	**$33,626,996**	**$31,925,209**	**$154,509,076**
Total Appropriations	**$28,526,031**	**$41,654,327**	**$36,979,502**	**$36,675,444**	**$33,344,865**	**$177,180,169**

STORM DRAIN FEE (Does Not Include NPDES Program Costs (org key 30120))

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	$621,752	$646,763	$693,142	$539,797	$551,540	$3,052,994
Capital Appropriations						
Drainage Projects	$150,000	$838,807	$0	$0	$0	$988,807
Street Projects	$0	$0	$0	$0	$0	$0
Traffic Projects	$0	$0	$0	$0	$0	$0
Parks Projects	$0	$0	$0	$0	$0	$0
Library Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$0	$0	$0	$0	$0	$0
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$0	$0	$0
General Government Projects	$0	$0	$0	$0	$0	$0
Total Capital Appropriations	**$150,000**	**$838,807**	**$0**	**$0**	**$0**	**$988,807**
Total Operations Appropriations	**$437,487**	**$470,131**	**$673,998**	**$605,688**	**$603,125**	**$2,790,429**
Total Appropriations	**$587,487**	**$1,308,938**	**$673,998**	**$605,688**	**$603,125**	**$3,779,236**

TDA/BICYCLE FACILITIES

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	$105,475	$54,955	$114,847	$14,937	$96,714	$386,928
Capital Appropriations						
Drainage Projects	$0	$0	$0	$0	$0	$0
Street Projects	$100,500	$0	$287,384	$210,346	$206,566	$804,796
Traffic Projects	$0	$0	$0	$0	$0	$0
Parks Projects	$0	$0	$0	$0	$0	$0
Library Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$0	$0	$0	$0	$0	$0
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$0	$0	$0
General Government Projects	$0	$0	$0	$0	$0	$0
Total Capital Appropriations	**$100,500**	**$0**	**$287,384**	**$210,346**	**$206,566**	**$804,796**
Total Operations Appropriations	**$0**	**$0**	**$0**	**$0**	**$31,734**	**$31,734**
Total Appropriations	**$100,500**	**$0**	**$287,384**	**$210,346**	**$238,300**	**$836,530**

TELEGRAPH CANYON DRAINAGE DIF

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	$522,784	$556,088	$156,204	$140,435	$134,696	$1,510,207
Capital Appropriations						
Drainage Projects	$225,000	$0	$0	$0	$351,000	$576,000
Street Projects	$0	$0	$0	$0	$0	$0
Traffic Projects	$0	$0	$0	$0	$0	$0
Parks Projects	$0	$0	$0	$0	$0	$0
Library Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$0	$0	$0	$0	$0	$0
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$0	$0	$0
General Government Projects	$0	$0	$0	$0	$0	$0
Total Capital Appropriations	**$225,000**	**$0**	**$0**	**$0**	**$351,000**	**$576,000**
Total Operations Appropriation	**$8,976**	**$8,976**	**$9,313**	**$19,154**	**$8,956**	**$55,375**
Total Appropriations	**$233,976**	**$8,976**	**$9,313**	**$19,154**	**$359,956**	**$631,375**

TRAFFIC CONGESTION RELIEF FUND (PROP 42)

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	$550,650	$527,241	-$20,111	-$1,610	$703,723	$1,759,893
Capital Appropriations						
Drainage Projects	$300,000	$0	$0	$0	$0	$300,000
Street Projects	$0	$500,000	$305,926	$0	$0	$805,926
Traffic Projects	$0	$0	$0	$0	$0	$0
Parks Projects	$0	$0	$0	$0	$0	$0
Library Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$0	$0	$0	$0	$0	$0
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$0	$0	$0
General Government Projects	$0	$0	$0	$0	$0	$0
Total Capital Appropriations	**$300,000**	**$500,000**	**$305,926**	**$0**	**$0**	**$1,105,926**
Total Operations Appropriations	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Total Appropriations	**$300,000**	**$500,000**	**$305,926**	**$0**	**$0**	**$1,105,926**

TRAFFIC SIGNAL FEE (includes CMAQ funding)

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	$1,414,839	$1,338,673	$2,137,229	$1,415,669	$2,006,946	$8,313,356
Capital Appropriations						
Drainage Projects	$0	$0	$0	$0	$0	$0
Street Projects	$0	$0	$0	$0	$0	$0
Traffic Projects	$417,500	$852,580	$1,595,000	$1,255,000	$1,463,379	$5,583,459
Parks Projects	$0	$0	$0	$0	$0	$0
Library Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$0	$0	$0	$0	$0	$0
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$0	$0	$0
General Government Projects	$0	$0	$0	$0	$0	$0
Total Capital Appropriations	**$417,500**	**$852,580**	**$1,595,000**	**$1,255,000**	**$1,463,379**	**$5,583,459**
Total Operations Appropriations	**$23,879**	**$23,879**	**$158,921**	**$28,721**	**$24,219**	**$259,619**
Total Appropriations	**$441,379**	**$876,459**	**$1,753,921**	**$1,283,721**	**$1,487,598**	**$5,843,078**

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TRANSNET

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	$5,139,162	$2,309,828	$4,402,336	$7,479,065	$4,560,635	$23,891,026
Capital Appropriations						
Drainage Projects	$0	$0	$0	$0	$0	$0
Street Projects	$8,297,140	$1,800,000	$3,870,000	$7,157,939	$4,650,000	$25,775,079
Traffic Projects	$0	$0	$0	$0	$0	$0
Parks Projects	$0	$0	$0	$0	$0	$0
Library Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$0	$0	$0	$0	$0	$0
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$0	$0	$0
General Government Projects	$0	$0	$0	$25,000	$50,000	$75,000
Total Capital Appropriations	**$8,297,140**	**$1,800,000**	**$3,870,000**	**$7,182,939**	**$4,700,000**	**$25,850,079**
Total Operations Appropriations	**$0**	**$29,000**	**$2,136**	**$0**	**$0**	**$31,136**
Total Appropriations	**$8,297,140**	**$1,829,000**	**$3,872,136**	**$7,182,939**	**$4,700,000**	**$25,881,215**

TRANSPORTATION DEVELOPMENT IMPACT FEE

	FY 2002 FY 2002	FY 2003 FY 2003	FY 2004 FY 2004	FY 2005 FY 2005	FY 2006 FY 2006	Five Year Totals Five Year Totals
Revenues	$10,652,285	$5,535,308	$2,892,886	$18,379,568	$5,274,305	$42,734,352
Capital Appropriations						
Drainage Projects	$0	$0	$0	$0	$0	$0
Street Projects	$9,332,000	$2,714,621	$3,500,000	$4,923,116	$1,950,000	$22,419,737
Traffic Projects	$527,500	$213,000	$1,000,000	$200,000	$250,000	$2,190,500
Parks Projects	$0	$0	$0	$0	$0	$0
Library Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$0	$0	$0	$0	$0	$0
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$0	$0	$0
General Government Projects	$96,472	$162,000	$27,500	$254,600	$15,000	$555,572
Total Capital Appropriations	**$9,955,972**	**$3,089,621**	**$4,527,500**	**$5,377,716**	**$2,215,000**	**$25,165,809**
Total Operations Appropriations	**$1,455,025**	**$3,370,110**	**$1,812,962**	**$1,129,911**	**$1,438,851**	**$9,206,859**
Total Appropriations	**$11,410,997**	**$6,459,731**	**$6,340,462**	**$6,507,627**	**$3,653,851**	**$34,372,668**

WESTERN CHULA VISTA FINANCING PROGRAM

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Five Year Totals
Revenues	$0	$0	$0	$9,000,000	$0	$9,000,000
Capital Appropriations						
Drainage Projects	$0	$0	$0	$565,000	$2,363,844	$2,928,844
Street Projects	$0	$0	$0	$0	$0	$0
Traffic Projects	$0	$0	$0	$0	$0	$0
Parks Projects	$0	$0	$0	$1,952,121	$1,859,998	$3,812,119
Library Projects	$0	$0	$0	$0	$0	$0
Sewer Projects	$0	$0	$0	$0	$0	$0
Redevelopment Projects	$0	$0	$0	$0	$0	$0
Public Safety Projects	$0	$0	$0	$0	$0	$0
General Government Projects	$0	$0	$0	$0	$0	$0
Total Capital Appropriations	**$0**	**$0**	**$0**	**$2,517,121**	**$4,223,842**	**$6,740,963**
Total Operations Appropriations	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Total Appropriations	**$0**	**$0**	**$0**	**$2,517,121**	**$4,223,842**	**$6,740,963**

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Total Capital Appropriations (All Funding Sources)

Project Type	Total Capital Appropriations	Capacity Increasing Appropriations	Total Rehab/Renov. Appropriations
Drainage Projects	$9,034,562	$0	$9,034,562
Street Projects	$57,195,213	$25,419,737	$31,775,476
Traffic Projects	$9,197,159	$2,190,500	$7,006,659
Parks Projects	$8,900,210	$0	$8,900,210
Library Projects	$600,000	$0	$600,000
Sewer Projects	$30,018,094	$17,257,824	$12,760,270
Redevelopment Projects	$3,065,126	$0	$3,065,126
Public Safety Projects	$11,452,255	$0	$11,452,255
General Government Projects	$7,944,724	$0	$7,944,724
Totals	$137,407,343	$44,868,061	$92,539,282

Total Direct Operational Appropriations (All Funding Sources)

Drainage Projects	$1,345,041
Street Projects	$14,096,224
Traffic Projects	$0
Parks Projects	$0
Library Projects	$0
Sewer Projects	$25,163,960
Redevelopment Projects	$0
Public Safety Projects	$0
General Government Projects	$0
Totals	$40,605,225

Total All Rehabilition/Renovation/Maintenance Appropriations (All Funding Sources)

Drainage Projects	$10,379,603
Street Projects	$45,871,700
Traffic Projects	$7,006,659
Parks Projects	$8,900,210
Library Projects	$600,000
Sewer Projects	$37,924,230
Redevelopment Projects	$3,065,126
Public Safety Projects	$11,452,255
General Government Projects	$7,944,724
Totals	$133,144,507

CITY OF CHULA VISTA

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Preventive Maintenance Decision Tree

PMS1018

Decision Tree	Functional Class	Surface Type			
1	Arterial	AC			
	Treatment	Description	Cost	Yrs. Between Seals	Number of Sequential Seals
	Crack Treatment	DO NOTHING	$0.00/Li. Ft.	99	---
	Surface Treatment	CHIP SEAL W/FLUSH COAT	$6.50/Sq. Yd.	5	---
	Restoration Treatment	DO NOTHING	$0.00/Sq. Yd.	---	2
2	Arterial	AC/AC			
	Treatment	Description	Cost	Yrs. Between Seals	Number of Sequential Seals
	Crack Treatment	DO NOTHING	$0.00/Li. Ft.	99	---
	Surface Treatment	CHIP SEAL W/FLUSH COAT	$6.50/Sq. Yd.	5	---
	Restoration Treatment	DO NOTHING	$0.00/Sq. Yd.	---	2
3	Arterial	AC/PCC			
	Treatment	Description	Cost	Yrs. Between Seals	Number of Sequential Seals
	Crack Treatment	DO NOTHING	$0.00/Li. Ft.	99	---
	Surface Treatment	CHIP SEAL W/FLUSH COAT	$6.50/Sq. Yd.	5	---
	Restoration Treatment	DO NOTHING	$0.00/Sq. Yd.	---	2
5	Arterial	PCC			
	Treatment	Description	Cost	Yrs. Between Seals	Number of Sequential Seals
	Crack Treatment	SEAL CRACKS	$1.50/Li. Ft.	5	---
	Surface Treatment	DO NOTHING	$0.00/Sq. Yd.	99	---
	Restoration Treatment	DO NOTHING	$0.00/Sq. Yd.	---	100
6	Collector	AC			
	Treatment	Description	Cost	Yrs. Between Seals	Number of Sequential Seals
	Crack Treatment	DO NOTHING	$0.00/Li. Ft.	99	---
	Surface Treatment	CHIP SEAL W/FLUSH COAT	$6.50/Sq. Yd.	5	---
	Restoration Treatment	DO NOTHING	$0.00/Sq. Yd.	---	2
7	Collector	AC/AC			
	Treatment	Description	Cost	Yrs. Between Seals	Number of Sequential Seals
	Crack Treatment	DO NOTHING	$0.00/Li. Ft.	99	---
	Surface Treatment	CHIP SEAL W/FLUSH COAT	$6.50/Sq. Yd.	5	---
	Restoration Treatment	DO NOTHING	$0.00/Sq. Yd.	---	2
8	Collector	AC/PCC			
	Treatment	Description	Cost	Yrs. Between Seals	Number of Sequential Seals
	Crack Treatment	DO NOTHING	$0.00/Li. Ft.	99	---

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Preventive Maintenance Decision Tree

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Decision Tree	Functional Class	Surface Type			
	Surface Treatment	CHIP SEAL W/FLUSH COAT	$6.50/Sq. Yd.	5	---
	Restoration Treatment	DO NOTHING	$0.00/Sq. Yd.	---	2
10	Collector	PCC			
	Treatment	Description	Cost	Yrs. Between Seals	Number of Sequential Seals
	Crack Treatment	SEAL CRACKS	$1.50/Li. Ft.	5	---
	Surface Treatment	DO NOTHING	$0.00/Sq. Yd.	99	---
	Restoration Treatment	DO NOTHING	$0.00/Sq. Yd.	---	100
11	Residential/Local	AC			
	Treatment	Description	Cost	Yrs. Between Seals	Number of Sequential Seals
	Crack Treatment	DO NOTHING	$0.00/Li. Ft.	99	---
	Surface Treatment	CRACK SEAL AND REAS	$3.00/Sq. Yd.	7	---
	Restoration Treatment	DO NOTHING	$0.00/Sq. Yd.	---	2
12	Residential/Local	AC/AC			
	Treatment	Description	Cost	Yrs. Between Seals	Number of Sequential Seals
	Crack Treatment	DO NOTHING	$0.00/Li. Ft.	99	---
	Surface Treatment	CRACK SEAL AND REAS	$3.00/Sq. Yd.	7	---
	Restoration Treatment	DO NOTHING	$0.00/Sq. Yd.	---	2
13	Residential/Local	AC/PCC			
	Treatment	Description	Cost	Yrs. Between Seals	Number of Sequential Seals
	Crack Treatment	DO NOTHING	$0.00/Li. Ft.	99	---
	Surface Treatment	CRACK SEAL AND REAS	$3.00/Sq. Yd.	7	---
	Restoration Treatment	DO NOTHING	$0.00/Sq. Yd.	---	2
15	Residential/Local	PCC			
	Treatment	Description	Cost	Yrs. Between Seals	Number of Sequential Seals
	Crack Treatment	SEAL CRACKS	$1.50/Li. Ft.	5	---
	Surface Treatment	DO NOTHING	$0.00/Sq. Yd.	99	---
	Restoration Treatment	DO NOTHING	$0.00/Sq. Yd.	---	100
16	Other	AC			
	Treatment	Description	Cost	Yrs. Between Seals	Number of Sequential Seals
	Crack Treatment	DO NOTHING	$0.00/Li. Ft.	99	---
	Surface Treatment	CRACK SEAL AND REAS	$3.00/Sq. Yd.	7	---
	Restoration Treatment	DO NOTHING	$0.00/Sq. Yd.	---	2
20	Other	PCC			
	Treatment	Description	Cost	Yrs. Between Seals	Number of Sequential Seals
	Crack Treatment	SEAL CRACKS	$1.50/Li. Ft.	5	---
	Surface Treatment	DO NOTHING	$0.00/Sq. Yd.	99	---

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Preventive Maintenance Decision Tree

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Decision Tree	Functional Class	Surface Type			
	Restoration Treatment	DO NOTHING	$0.00/Sq. Yd.	---	100

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Rehabilitation Decision Tree

PMS1019

Functional Class: Arterial

Decision Tree #	Surface Type: AC Condition Category	Treatment	Cost / Sq. Yard
21	Condition Category II - Good, Non-Load Related	CHIP SEAL W/FLUSH COAT	$6.50
22	Condition Category III - Good, Load Related	AC OVERLAY (2 INCHES)	$38.00
23	Condition Category IV - Poor	RAC OVERLAY	$43.00
24	Condition Category V - Very Poor	RECONSTRUCT STRUCTURE (AC)	$135.00

Decision Tree #	Surface Type: AC/AC Condition Category	Treatment	Cost / Sq. Yard
25	Condition Category II - Good, Non-Load Related	CHIP SEAL W/FLUSH COAT	$6.50
26	Condition Category III - Good, Load Related	MILL AND AC OVERLAY	$42.50
27	Condition Category IV - Poor	MILL AND RAC OVERLAY	$48.00
28	Condition Category V - Very Poor	RECONSTRUCT STRUCTURE (AC)	$135.00

Decision Tree #	Surface Type: AC/PCC Condition Category	Treatment	Cost / Sq. Yard
29	Condition Category II - Good, Non-Load Related	CHIP SEAL W/FLUSH COAT	$6.50
30	Condition Category III - Good, Load Related	MILL AND AC OVERLAY	$42.50
31	Condition Category IV - Poor	MILL AND RAC OVERLAY	$48.00
32	Condition Category V - Very Poor	RECONSTRUCT SURFACE (AC)	$135.00

Decision Tree #	Surface Type: PCC Condition Category	Treatment	Cost / Sq. Yard
37	Condition Category II - Good, Non-Load Related	SLAB REPLACEMENT	$5.75
38	Condition Category III - Good, Load Related	SLAB REPLACEMENT	$5.75
39	Condition Category IV - Poor	SLAB REPLACEMENT	$17.25
40	Condition Category V - Very Poor	RECONSTRUCT STRUCTURE (AC)	$135.00

Functional Class: Collector

Decision Tree #	Surface Type: AC Condition Category	Treatment	Cost / Sq. Yard
41	Condition Category II - Good, Non-Load Related	CHIP SEAL W/FLUSH COAT	$6.50
42	Condition Category III - Good, Load Related	CHIP SEAL W/DIGOUTS	$11.50
43	Condition Category IV - Poor	RAC OVERLAY	$43.00
44	Condition Category V - Very Poor	RECONSTRUCT STRUCTURE (AC)	$110.00

Decision Tree #	Surface Type: AC/AC Condition Category	Treatment	Cost / Sq. Yard
45	Condition Category II - Good, Non-Load Related	CHIP SEAL W/FLUSH COAT	$6.50
46	Condition Category III - Good, Load Related	CHIP SEAL W/DIGOUTS	$11.50
47	Condition Category IV - Poor	MILL AND RAC OVERLAY	$48.00
48	Condition Category V - Very Poor	RECONSTRUCT STRUCTURE (AC)	$110.00

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Rehabilitation Decision Tree

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Decision Tree #	Surface Type: AC/PCC Condition Category	Treatment	Cost / Sq. Yard
49	Condition Category II - Good, Non-Load Related	CHIP SEAL W/FLUSH COAT	$6.50
50	Condition Category III - Good, Load Related	CHIP SEAL W/DIGOUTS	$11.50
51	Condition Category IV - Poor	MILL AND RAC OVERLAY	$48.00
52	Condition Category V - Very Poor	RECONSTRUCT STRUCTURE (AC)	$110.00

Decision Tree #	Surface Type: PCC Condition Category	Treatment	Cost / Sq. Yard
57	Condition Category II - Good, Non-Load Related	SLAB REPLACEMENT	$5.75
58	Condition Category III - Good, Load Related	SLAB REPLACEMENT	$5.75
59	Condition Category IV - Poor	SLAB REPLACEMENT	$17.25
60	Condition Category V - Very Poor	RECONSTRUCT STRUCTURE (AC)	$110.00

Functional Class: Residential/Local

Decision Tree #	Surface Type: AC Condition Category	Treatment	Cost / Sq. Yard
61	Condition Category II - Good, Non-Load Related	CRACK SEAL AND REAS	$3.00
62	Condition Category III - Good, Load Related	REAS W/DIGOUTS	$8.00
63	Condition Category IV - Poor	AC OVERLAY	$34.00
64	Condition Category V - Very Poor	RECONSTRUCT STRUCTURE (AC)	$75.00

Decision Tree #	Surface Type: AC/AC Condition Category	Treatment	Cost / Sq. Yard
65	Condition Category II - Good, Non-Load Related	CRACK SEAL AND REAS	$3.00
66	Condition Category III - Good, Load Related	REAS W/DIGOUTS	$8.00
67	Condition Category IV - Poor	MILL AND AC OVERLAY	$42.50
68	Condition Category V - Very Poor	RECONSTRUCT STRUCTURE (AC)	$75.00

Decision Tree #	Surface Type: AC/PCC Condition Category	Treatment	Cost / Sq. Yard
69	Condition Category II - Good, Non-Load Related	CRACK SEAL AND REAS	$3.00
70	Condition Category III - Good, Load Related	REAS W/DIGOUTS	$8.00
71	Condition Category IV - Poor	MILL AND AC OVERLAY	$42.50
72	Condition Category V - Very Poor	RECONSTRUCT STRUCTURE (AC)	$75.00

Decision Tree #	Surface Type: PCC Condition Category	Treatment	Cost / Sq. Yard
77	Condition Category II - Good, Non-Load Related	SLAB REPLACEMENT	$5.75
78	Condition Category III - Good, Load Related	SLAB REPLACEMENT	$5.75
79	Condition Category IV - Poor	SLAB REPLACEMENT	$17.25
80	Condition Category V - Very Poor	RECONSTRUCT STRUCTURE (AC)	$75.00

Functional Class: Other

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Rehabilitation Decision Tree

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Decision Tree #	**Surface Type: AC** Condition Category	Treatment	Cost / Sq. Yard
81	Condition Category II - Good, Non-Load Related	CRACK SEAL AND REAS	$3.00
82	Condition Category III - Good, Load Related	REAS W/DIGOUTS	$8.00
83	Condition Category IV - Poor	AC OVERLAY	$34.00
84	Condition Category V - Very Poor	RECONSTRUCT STRUCTURE (AC)	$75.00

Decision Tree #	**Surface Type: PCC** Condition Category	Treatment	Cost / Sq. Yard
97	Condition Category II - Good, Non-Load Related	SLAB REPLACEMENT	$5.75
98	Condition Category III - Good, Load Related	SLAB REPLACEMENT	$5.75
99	Condition Category IV - Poor	SLAB REPLACEMENT	$17.25
100	Condition Category V - Very Poor	RECONSTRUCT STRUCTURE (AC)	$75.00

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RESOLUTION NO. 2007-_____

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CHULA VISTA APPROVING THE DRAINAGE PROJECT PRIORITY LIST AND AUTHORIZING STAFF TO SEEK SPECIAL FUNDING FOR ANY PROJECT THAT MEETS THE FUNDING CRITERIA.

WHEREAS, City of Chula Vista staff and City consultants have prepared various Drainage Master Plans and studies from 1964 to the present; and

WHEREAS, City staff has updated all available drainage information; and

WHEREAS, staff has identified approximately $32.0 million to $35.6 million in currently unfunded capital drainage projects which are listed in the Drainage Project Priority List [Drainage List], which is attached to and incorporated into this Resolution; and

WHEREAS, staff has identified another $29.0 million in currently unfunded capital corrugated metal pipe maintenance and replacement needs which are listed in the Corrugated Metal Pipe Priority Needs [CMP List], which is attached to and incorporated into this Resolution; and

WHEREAS, there is no specific funding for these types of municipal projects making them especially challenging to initiate and complete; and

WHEREAS, the City desires to undertake and successfully complete the projects contained on the current Drainage List as well as address the corrugated metal pipe priority needs in the CMP List.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Chula Vista that it approves the Drainage Project Priority List and the Corrugated Metal Pipe Priority Needs List.

BE IT FURTHER RESOLVED by the City Council of the City of Chula Vista that it authorizes staff to seek out and apply for any special funding that could help the current estimated unfunded need with the understanding that projects may be selected off the Lists outside of recommended priority order should a funding opportunity arise that matches the specific characteristics of any project included on one of the Lists.

Presented by

Scott Tulloch
City Engineer

Approved as to form by

Elisa A Cuesta

Ann Moore
City Attorney

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TABLE 3
PRIORITY 1

2006 Priority	1992 Priority	LOCATION Sorted in ascending order by by basin name	Recommended Improvements	Comments	100-Year Flood Area	CATEGORY 1		EXISTING CONDITIONS: Missing Drainage Improvements	EXISTING CONDITIONS: Missing Street Improvements	EXISTING CONDITIONS: Deficient Condition (Drainage Improvements)	EXISTING CONDITIONS: Deficient Capacity (Drainage Improvements)	Preliminary Cost Estimate
1 A		Bonita Basin - Bonita Road and Allen School Road.	Replace existing culvert.	PCC culvert deteriorating. Soffit reinforcing steel exposed.		✔	NF			✔		$500,000
1 B		Bonita Basin - Canyon from Terra Nova Drive to Bonita Road	Further analysis needed. Study recommended for entire canyon to determine improvements needed.	Erosion of channel bottom and sides; damage to gabion structures and recreational trail. Culvert at Bonita Road and Willow Street frequently clogs due to sedimentation from canyon and backwater from Sweetwater River.	✔	✔	F	✔				$3,900,000
1 C		Central Basin - east of Second Avenue and north of H Street	Construct RCB east and west of Second Avenue	CIP project DR-120 in design. Currently funded		✔	F	✔				$1,500,000 Funded: $1,500,000
1 D		Central Basin - Hilltop Drive, Hilltop Drive, s/o "H" Street to Shasta Street.	Install inlets, cleanouts, and RCP	CIP project DR-134 was partially funded; some preliminary work was done. Project was delayed in FY2005 due to lack of funding to complete.		✔	F	✔			✔	$1,800,000
1 E		Long Canyon Basin - Canyon from Corral Canyon Road and East H Street to channel.	Study needed for entire canyon.	Erosion at canyon sides and bottom and hiking trail.		✔	NF	✔				$4,600,000
1 F	26E	Telegraph Canyon Basin - Country Club Drive Culvert, channel, and First Avenue culvert, and Hilltop Park upstream of First Avenue and Millan Court, and east of Hilltop Drive south of Telegraph Canyon Road	Replace existing Country Club Drive RCB with larger RCB, construct RCB in channel, and add RCB at First Avenue crossing. Construct channel with adequate capacity; replace undermined concrete bank with rip-rap.	Flooding and erosion of channel through park and downstream. Easements may be needed north of Country Club Drive and east of Hilltop Drive & south of Telegraph Canyon Road		✔	NF	✔			✔	$5,600,000
1 G	25 A-D	Telegraph Canyon Basin - Fourth Avenue to Third Avenue channel, and L Street culvert.	Drainage study needed as initial step to determine improvements needed.	Flooding due to lack of downstream culvert and channel capacity. CIP project DR-167 created to perform comprehensive hydrology and hydraulic study. Easements may be needed.	✔	✔	F	✔		✔	✔	$7,100,000
1 H	6	Telegraph Canyon Basin - Third Avenue & Emerson Street to 900' west; Emerson Street drainage system.	Add 30' RCP parallel to existing 24" RCP (800 LF). Existing 30" CMP in Emerson Street from Del Mar Avenue to Third Avenue to be replaced with RCP. Recommended that construction be done in conjunction with street improvements on Emerson Street if possible.	CIP project DR-133 in design. Existing 24" RCP west of Third Avenue is undersized. CIP project will improve system from Del Mar Avenue to south of Weisser Street (west of Fourth Avenue). Currently funded.		✔	F	✔			✔	$2,900,000 Funded: $2,900,000
1 I		Telegraph Canyon Basin - Moss Street and Fifth Avenue	Drainage improvements needed along Moss Street from Fourth Avenue to Fifth Avenue. Street improvements are also needed.	Flooding of private property on the southeast corner of Fifth Avenue and Moss Street.		✔	F	✔	✔			$900,000

TOTAL:	$28,800,000
FUNDED PROJECTS:	$4,400,000
FUNDING NEEDED:	$24,400,000

CATEGORIES:

1 Frequent flooding and/or high chance of personal injury or property damage: Major flooding to roadways or flooding that causes homes or business to be evacuated

NF: NO FLOODING
F: FLOODING

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TABLE 4 / PRIORITIES 2 -4

TOTAL PRELIMINARY COST ESTIMATE FOR PRIORITIES 2 THROUGH 4: RANGE FROM $6,000,000 TO $9,000,000

2006 Priority	1992 Priority	Location Sorted in ascending order by priority and then by basin name within priority group	Recommended Improvements	Comments	100-Year Flood Area	EXISTING CONDITIONS 2	 3	 4	Missing Drainage Improvements	Missing Street Improvements	Deficient Condition (Drainage Improvements)	Deficient Capacity (Drainage Improvements)	Cost Estimate Range
2 A		Bonita Basin - CMP culvert crossing Bonita Road at Willow Street	Reconstruct crossing as reinforced concrete box culvert, redirect flow. Construct may coincide wuth the Willow Street Bridge project currently in design.	Culvert at Bonita Road and Willow Street frequently clogs due to sedimentation from canyon and backwater from Sweetwater River.		✔ F					✔	✔	$800,000-$1,200,000
2 B		Central Basin - F Street between Broadway and Woodlawn Avenue.	To be addressed by CIP project DR-160.	Street flooding. Existing drainage system may be inadequate.		✔ F						✔	$580,000-$800,000
2 C	5	Central Basin - Hilltop Drive, "I" Street to Whitney Street	Install inlets, cleanouts, and RCP			✔ F			✔			✔	$500,000 to $800,000
2 D	18	Sweetwater Basin - Broadway, Sweetwater River to 'D" Street; "D" Street, Broadway to Smith Avenue; Flower Street, Jefferson Avenue to Broadway	Install 4 cleanouts, 6 inlets, and 2250' of RCP; Install 1 inlet and 150' of RCP.	CIP project in design (STM354). Revised project scope recommended to address only stormdrain and pavement from "C" Street to "D" Street. Remainder of preliminary allocated funding ($2M) redirected to pavement management.		✔ F			✔	✔			$2,300,000-$2,800,000
2 E		Telegraph Canyon Basin - South branch	Drainage study to determine adequacy of Telegraph Canyon Channel south bnranch.			✔ F					✔	✔	$250,000-$500,000
3 A		Central Basin - Intersection of Roosevelt Street and Fourth Avenue.	Construct new curb inlet near corner at north side of Roosevelt if possible, tie into westerly storm drain.	Street flooding due to lack of catch basin at low point.			✔ F		✔				$60,000-$150,000
3 B		Central Basin - Storm drain between Vance Street and Minot Avenue.	Construct new storm drain, catch basin and outlet.	Outlet to pipe appears to be buried.			✔ F		✔				$200,000-$450,000
4 A		Judson Basin - South of intersection of Main Street and Reed Court.	Construct headwall where ditch ends and new storm drain to Otay River, or replace CMP and extend new culvert to river.	Ditch adjacent to Reed Court has no outlet.				✔ F	✔	✔			$1,200,000-$1,500,000
4 B	4	Southwest Basin - Palm Avenue, Otay Valley Road to Otay Boulevard.	Install 4 inlets, 2 cleanouts, 2000' of RCP and headwall.		✔			✔ F	✔	✔			$300,000-$500,000
4 C	29	Telegraph Canyon Basin - Hilltop Drive, south of "L" Street.	Re-design existing swale - install 1 cleanout and 350' of RCP.					✔ F	✔			✔	$100,000-$200,000

CATEGORIES:

1 Frequent flooding and/or high chance of personal injury or property damage: Major flooding to roadways or flooding that causes homes or business to be evacuated
2 Occasional flooding with chance of personal injury and/or property damage
3 Frequent "nuisance" flooding
4 Occasional "nuisance" flooding. Public eyesore

PRIORITY 5

RANGE OF PRELIMINARY COST ESTIMATE FOR PRIORITY 5 GROUP: $1,300,00 TO $2,500,000

2006 Priority	1992 Priority	Location Sorted in ascending order by basin name within priority group	Recommended Improvements	Comments	EXISTING CONDITIONS 100-Year Flood Area	CATEGORY 5		Missing Drainage Improvements	Missing Street Improvements	Deficient Condition (Drainage Improvements)	Deficient Capacity (Drainage Improvements)	Cost Estimate
5 A	35	Central Basin - east of Elm Avenue, "J" Street to Kearney Street.	Re-grade and pave alley; install I inlet, 3 cleanouts and 1500' RCP.			✔	F	✔	✔			$700,000- $1,100,000
5 B		Judson Basin - Between buildings south of Fresno Avenue and Main Street.	Excavate channel to provide additional capacity, stabilize channel sides, place fill downstream of culvert.	Erosion along channel banks, water ponds at outlet south of Fourth Avenue and Beyer Way.		✔	NF	✔	✔			
5 C		Municipal Golf Course Basin - Jogging trail north of the Otay Lakes Road & Bonita Road intersection.	Re-grade channel. Install small diameter pipe(s) to eliminate low flow drainage. May consider a pedestrian & golf cart bridge	Water ponds at culvert outlet from Otay Lakes Road under Bonita Road.	✔	✔	F				✔	$30,000- $150,000
5 D		Palm Road Basin - North of Main Street	Improvements will be required with any future development	Ponding at low point of unimproved street.		✔	F	✔	✔			
5 E		Sweetwater Basin - Intersection of Glover Avenue with Trousdale Street and Via Bissolotti.	Construct new facilities that tie into system at Via Bissolotti or end of Glover Avenue.	The existing facilities do not collect street flows.	✔	✔	F	✔	✔		✔	$150,000- $300,000
5 F		Sweetwater Basin - Intersection of Third Avenue and Seavale Street.	Construct new catch basins and tie into storm drain on southwest side of Third Avenue.			✔	F	✔				$150,000- $300,000
5 G		Sweetwater Basin - North end of Press Lane, ditch between Press Lane and N Glover Avenue.	Construct new ditch and catch basin at end of Press Lane and tie into existing system draining to new ditch.	Lack of ditch capacity.	✔	✔	NF	✔	✔		✔	$250,000- $350,000
5 H		Municipal Golf Course Basin - Between 3550 & 3555 Desert Inn Way, from cul-de-sac northerly to channel parallel to Sweetwater Road.	Reconstruct existing brow ditch	Existing ditch bewtween properties holds water. May need to re-grade and reconstruct ditch.	✔	✔	NF			✔		$30,000 - $60,000

CATEGORIES:

5 Frequent or routine maintenance/cleaning required. No actual property damage or personal injury

NF: NO FLOODING
F: FLOODING

TABLE 6

CMP REPLACEMENT COST

Categories	Original Est.	Added Pipe	Soft Costs	Total
Current CIP				$2,900,000
Requiring Immediate Attention*	$761,470	$383,781	$383,781	$767,562
Additional Inspection				$866,000
Recommended within one year	$4,778,150	$2,406,188	$7,186,338	$14,372,675
Recommended within three years	$2,124,850	$1,070,924	$3,195,774	$6,391,549
Recommended within five years	$326,375	$164,493	$490,868	$981,736
Fine remainder of pipe (13,338 LF)				2,667,600
Total Estimated Cost	$7,990,845	$4,027,386	$11,256,761	$28,941,122

* This line item only gives the total for the added pipe. The rest is under Current CIP.

RESOLUTION NO. 2007-_____

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CHULA VISTA REAFFIRMING ITS COMMITMENT TO THE IMPLEMENTATION OF A TRUE PAVEMENT MANAGEMENT SYSTEM.

WHEREAS, the California Streets and Highways Code requires California cities to implement a pavement management system as a condition to obtain funding from the State transportation improvement programs; and

WHEREAS, the City of Chula Vista initiated and has maintained a pavement management system since 1986 in accordance with the California Streets and Highways Code; and

WHEREAS, the most recent contract for pavement testing and management services was awarded by the City Council to Nichols Engineering [Consultant] on January 10, 2006; and

WHEREAS, the Consultant conducted an expert evaluation of the pavement surface of all City streets, ranked each street based on a Pavement Condition Index [PCI] and recommended an appropriate maintenance strategy based on street PCIs; and

WHEREAS, the current estimated citywide PCI is 79 [on a scale of 0 to 100] with the range of scores falling between 13 and 100; and

WHEREAS, there is often tremendous public pressure to select projects based upon a "worst first" strategy, where the pavements that are selected for treatment are those that are closest to failure; and

WHEREAS, a "worst first" strategy focuses on streets that cannot get worse and quickly depletes available funding while streets in acceptable condition continue to deteriorate due to lack of attention; and

WHEREAS, as a result of a "worst first" strategy, opportunities to expand the useful service life cost effectively are lost and the backlog continues to grow as once acceptable streets quickly drop into the "major rehabilitation needed" category; and

WHEREAS, the philosophy of pavement preventative maintenance represents a dramatic change in philosophy, strategy and direction for most agencies and particularly for the public; and

WHEREAS, pavement preventative maintenance programs begin with the concept that cost-effective treatments can be applied earlier in a pavement's life; and

WHEREAS, true implementation of a pavement management system is often difficult for residents to understand because relatively new streets may be seen receiving treatment whereas a street needing reconstruction may appear to be ignored; and

WHEREAS, the City of Chula Vista, like most public agencies, faces financial constraints requiring that choices be made about how to spend limited transportation dollars; and

WHEREAS, the purpose of a pavement management system is to enable the City to use its pavement dollars in the most cost-effective manner so that the overall pavement condition is as good as possible.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Chula Vista that it reaffirms its commitment to the implementation of a true pavement management system, realizing that the general public may question this approach until a wider education effort regarding cost-effective pavement management compared to the "worst first" strategy is put into practice.

Presented by

Scott Tulloch
City Engineer

Approved as to form by

Ann Moore
City Attorney

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RESOLUTION NO. 2007-_____

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CHULA VISTA TRANSFERING $4,504,665 FROM THE CURRENT PAVEMENT APPROPRIATION, $2.0 MILLION FROM THE AVAILABLE BALANCE IN THE NORTH BROADWAY BASIN RECONSTRUCTION PROJECT [STM354] AND $5.0 MILLION FROM THE AVAILABLE BALANCE IN THE 4TH AVENUE RECONSTRUCTION BETWEEN DAVIDSON & SR 54 PROJECT [STL309], FOR A TOTAL OF $11,504,665, INTO THE PAVEMENT REHABILITATION PROGRAM – FUTURE ALLOCATIONS [STL238] FOR PAVEMENT MAINTENANCE IN FY 2007.

WHEREAS, the California Streets and Highways Code requires California cities to implement a pavement management system as a condition to obtain funding from the State transportation improvement programs; and

WHEREAS, the City of Chula Vista initiated and has maintained a pavement management system since 1986 in accordance with the California Streets and Highways Code; and

WHEREAS, the most recent contract for pavement testing and management services was awarded by the City Council to Nichols Engineering [Consultant] on January 10, 2006; and

WHEREAS, the Consultant conducted an expert evaluation of the pavement surface of all City streets, ranked each street based on a Pavement Condition Index [PCI] and recommended an appropriate maintenance strategy based on street PCIs; and

WHEREAS, the current estimated citywide PCI is 79 [on a scale of 0 to 100] with the range of scores falling between 13 and 100; and

WHEREAS, the Consultant estimates that approximately $19.2 million per year will be required for the next ten years to maintain the current PCI and address the City's estimated $43 million pavement backlog; and

WHEREAS, approximately $4,504,665 remains in the current year capital program pavement appropriation; and

WHEREAS, the North Broadway Basin Reconstruction [STM354] and 4th Avenue Reconstruction between Davidson & SR54 [STL309] projects were identified outside of a pavement management system; and

WHEREAS, $2,000,000 was included in the FY 2006 appropriation, $400,000 in Transnet funding was identified for FY 2007, and $4,300,000 in Transnet funding was projected for FY 2008 for the North Broadway Basin Reconstruction [STM354]; and

WHEREAS, $2,000,000 was appropriated in FY 2006 and $3,000,000 in Transnet funding was appropriated in FY 2007 for the 4th Avenue Reconstruction between Davidson & SR54 [STL309]; and

WHEREAS, staff recommends that all streets be included in the data analyzed by the pavement management software and treated within the five-year program in which they appear; and

WHEREAS, staff recommends that the maximum available funding be applied toward pavement maintenance in FY 2007 and FY 2008; and

WHEREAS, the preliminary FY 2008 budget projection includes Transnet funding of approximately $6.0 million and anticipated Proposition B funding of approximately $3.5 million available for paving projects.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Chula Vista as follows:

1. That it approves the transfer of $21,651 of the available balance from Pavement Rehabilitation [STL293] into Pavement Rehabilitation Program – Future Allocations [STL238] for pavement maintenance.

2. That it approves the transfer of $22,214 of the available balance from Local Street Pavement Rehabilitation [STL300] into Pavement Rehabilitation Program – Future Allocations [STL238] for pavement maintenance.

3. That it approves the transfer of $1,387,400 of the available balance from Pavement Rehabilitation [STL310] into Pavement Rehabilitation Program – Future Allocations [STL238] for pavement maintenance.

4. That it approves the transfer of $973,400 of the available balance from Pavement Rehabilitation 05/06 [STL315] into Pavement Rehabilitation Program – Future Allocations [STL238] for pavement maintenance.

5. That it approves the transfer of $2,100,000 of the available balance from Pavement Rehabilitation 06-07 [STL316] into Pavement Rehabilitation Program – Future Allocations [STL238] for pavement maintenance.

6. That it approves the transfer of $2.0 million of the available balance from the North Broadway Basin Reconstruction Project [STM354], and $5.0 million of the available balance from the 4th Avenue Reconstruction between Davidson & SR54 Project [STL309], for a combined total of $11,504,665, into Pavement Rehabilitation Program – Future Allocations [STL238], for pavement maintenance.

BE IT FURTHER RESOLVED by the City Council of the City of Chula Vista that it preliminarily approves including Transnet funding of approximately $6.0 million and anticipated Proposition B funding of approximately $3.5 million in Pavement Rehabilitation Program – Future Allocations [STL238] for pavement maintenance in FY 2008.

Presented by

Scott Tulloch
City Engineer

Approved as to form by

Elisa A Cusato

Ann Moore
City Attorney

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