City of RANCHO PALOS VERDES

MEMORANDUM

TO: HONORABLE MAYOR AND CITY COUNCIL MEMBERS

FROM: MICHAEL THRONE, PE, DIRECTOR OF PUBLIC WORKS

DENNIS MCLEAN, DIRECTOR OF FINANCE AND INFORMATION TECHNOLOGY

DATE: FEBRUARY 10, 2014

SUBJECT: RPV INFRASTRUCTURE MANAGEMENT WORKSHOP (SUPPORTS 2013 CITY COUNCIL GOAL No. 4, PUBLIC INFRASTRUCTURE)

REVIEWED: CAROLYNN PETRU, ACTING CITY MANAGER

Project Manager: Siamak Motahari, Senior Engineer

RECOMMENDATIONS

1. Receive a presentation on infrastructure condition.
2. Discuss various options related to the creation of a long-term public infrastructure management and financing plan and direct staff to distribute a request for proposals from qualified firms to prepare an infrastructure management plan.

BACKGROUND

Your Public Works and Finance and Information Technology departments have prepared a workshop presentation for the City Council and community on the subject of infrastructure management and financing. Public Works will present a summary infrastructure report card, which grades several categories of public improvements, and Finance will present information how funding and financing considerations are integrated into an infrastructure management plan.

DISCUSSION

Public infrastructure involves planned maintenance and repairs, occasional alteration or expansion, and in some situations rehabilitation or replacement of public improvements in order to meet the goals, needs, and expectations of the community. When a community addresses aging and deteriorating infrastructure in a practical and timely manner, it can result in significant cost savings for future residents and community members. It is recommended that a public process involving an infrastructure report card and an infrastructure management plan that includes funding and financing considerations be implemented to provide the City Council with policy choices and leadership options.

What is an Infrastructure Report Card?

An infrastructure report card is an assessment of the current condition of the existing public improvements of a community. It is a snapshot in a moment of time: it does not evaluate community needs and priorities nor is it an in-depth assessment. It is a data-driven, objective review of our public improvements that grades the existing state of the infrastructure in a city on an established scale from Exceptional ("A") to Failing ("F"). The grades are selected based on criterion developed by the American Society of Civil Engineers (ASCE) guidelines that have been consistently used for almost two decades.

The report card presented today is a summary of the grading ascertained for all known RPV public improvements. It was prepared by SA Associates, a consulting engineering firm, located in Arcadia. The President of the firm has been involved with the ASCE Infrastructure Report Cards developed for Los Angeles County and California. The report card being presented today is tailored on similar report cards prepared for the counties of Los Angeles, Orange, and San Diego. The backup documentation of the condition of each item will be available on the city's website in early March. SA Associates indicates that RPV is the only local municipality that the firm has prepared a report card and perhaps one of the first non-urban California cities to do so.

The public improvements graded include our public buildings and park sites, trails, storm water and sanitary sewer systems (including the Abalone Cove Assessment District), right-of-way and traffic control devices, and the Palos Verdes Drive South landslide.

Infrastructure Management Plan

The report card is the stepping stone for the preparation of an integrated infrastructure management plan (or IMP), which is used by cities and counties to chronicle the in-depth condition of its public infrastructure and chart an operations and financial course for the actions and funding required to maintain and preserve community public property. Such a plan addresses community needs and sustains vital services over the long term by keeping the aging and deteriorating infrastructure in good condition, thereby reducing cost and effort over the long term.

The integration of the General Plan, community needs, policy, economics, and risk makes the IMP more comprehensive than a typical 5-year capital improvement program. The IMP provides an opportunity to determine the impact of different funding

strategies/scenarios and prioritization on project delivery over the course of multiple planning decades. One of the outcomes from the preparation of the IMP is a reality-based capital improvement program.

The IMP would include detailed assessments of the long-term condition of public improvements and a comprehensive study of the community's current and future needs (including public safety and regulatory mandates) and an identification of the maintenance level required for each public asset based on community expectations. The IMP also calculates the resources and funding shortfalls and recommendations of city council policies to assist with program implementation, goal-setting, and prioritization.

Community Involvement Process

It is recommended that following the presentation of the infrastructure report card the City Council direct staff to distribute a request for proposals from qualified firms to prepare an infrastructure management plan that includes a series of study sessions and community workshops to drill-down into the condition of one infrastructure category.

FISCAL IMPACT

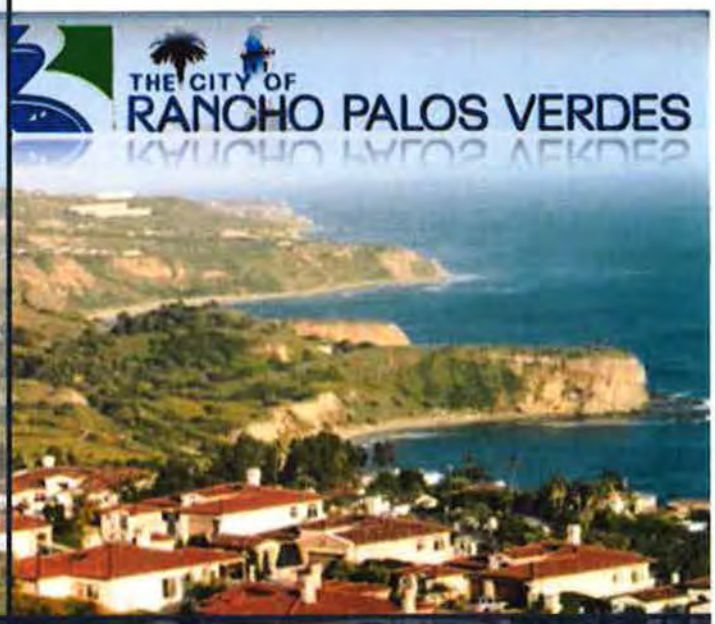
There is no immediate fiscal impact from this workshop. The cost to prepare the IMP framework and perform the first in-depth assessment of one report card category is estimated to be between $35,000 and $75,000.

CONCLUSION

The infrastructure systems of Rancho Palos Verdes should be built, maintained, and upgraded on a continuous basis for the community to thrive. These investments result in long term savings and positive growth, benefiting our present community for generations to come.

Attachment: RPV Infrastructure Report Card

THE CITY OF
RANCHO PALOS VERDES



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Infrastructure Report Card

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FOREWORD

It is with great pleasure that we present this 2013 Infrastructure Report Card to the City of Rancho Palos Verdes. Infrastructure is designed and maintained by engineers and can be defined as:

> *The basic physical and organizational structures and facilities (e.g., buildings, roads, and utilities) needed for the operation of a society or enterprise.*

This report card is an assessment of the existing condition of infrastructure in the City. It is a snapshot in a moment of time: it does not evaluate community needs and priorities nor is it an in-depth assessment. It is a data-driven, objective, professional review that grades the existing state of the infrastructure on an established scale from Exceptional (A) to Failing (F), based on the American Society of Civil Engineers (ASCE) guidelines and standard criterion.

The assessed infrastructure components in this report are: the City's Public Buildings, Park Sites, Trails, Storm Water System, Sanitary Sewer System, Abalone Cove Assessment District Sewer System, Right of Way and Traffic Devices, and Palos Verdes Drive South Landslide.

This report card suggests improvements to raise the existing infrastructure condition one grade up and to raise its grade to Exceptional ("A"). To calculate the cost estimates associated with these two upgrades, an Infrastructure Management Program (IMP) is recommended. While this report card assesses the current condition of the infrastructure, and provide recommendations to improve it, an IMP will provide a comprehensive cost estimate of the current and future needs on a long term basis, will identify the maintenance level required for each infrastructure component, will identify the resources, the funding shortfalls, and will identify prioritization of projects and expenditures.

This report card reflects a collaborative effort by SA Associates and City staff, including members of Public Works, Traffic/Right-of-Way, Water Quality, Parks and Building Facilities, and Community Development.

In spite of the current state of the economy, it is the responsibility of engineers and our fellow citizens to know the state of our infrastructure and to work towards improving it. As engineers, it is important that we inform our public on the importance of infrastructure maintenance, and encourage our colleagues in the public sector to continue to seek infrastructure funding. We should not underestimate the importance of infrastructure in our lives. It is essential to our way of life, our economy, and our health and wellbeing.

Warmest Regards,

Shahnawaz Ahmad

Shahnawaz Ahmad, P.E.
President, SA Associates
ASCE Los Angeles Section President, 2003-04
APWA Southern California Chapter President, 2003

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This Report Card provides an overview of the City, its infrastructure, as well as an evaluation of the various infrastructure components. This Report Card is broken down into the following sections:

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"You and I come by road or rail, but economists travel on infrastructure"

-Margaret Thatcher

SECTION 1: INTRODUCTION

1.1 PURPOSE

The City retained SA Associates to evaluate the condition of the City's existing infrastructure and to prepare an assessment of the existing condition of infrastructure in the City. This Report Card reflects the findings of that analysis. The grades associated with each infrastructure component help the City prioritize its infrastructural needs, help organize its decision making process, and also build a base for the preparation of the City's Infrastructure Management Program. City staff provided support and feedback to SA Associates during the preparation of this report.

1.2 CITY BACKGROUND

The City of Rancho Palos Verdes is located in the southwestern most portion of Los Angeles County. It is bounded on the northwest by the City of Palos Verdes Estates, on the east by the City of Los Angles (San Pedro), on the north by the Cities of Rolling Hills and Rolling Hills Estates, and on the south and southwest by the Pacific Ocean.

At the close of the 19th Century, the Palos Verdes Peninsula was inhabited solely by a few cattle ranchers and sheepherders. The land was mostly covered with nothing more than native vegetation. Then, for a brief period in the early 1900s, the Peninsula enjoyed prosperity not only as a cattle ranch, but also as a rich farming area. Japanese immigrant families farmed the most southern slopes, growing fields of beans, peas and tomatoes, while the manager of the cattle ranch grew barley for hay and grain on the dryer northern slopes. In 1913, Frank A. Vanderlip, president of the National Bank of New York, purchased the 16,000-acre Palos Verdes Peninsula with a vision to develop the "most fashionable and exclusive residential colony" in the nation. Unfortunately, his dream was put on hold after the Stock Market Crash, the Great Depression, and the onset of World War II. None of these setbacks, however, reduced the beauty of the Palos Verdes Peninsula, or its potential desirability as a residential area.

The city boundaries contain approximately 13.6 square miles of area and 7.5 miles of coastline. The reported population in 2000 was 41,145 and this is estimated to have increased to 42,800 in 2009.The population is not expected to increase dramatically as only a small number of vacant areas remain for development. Future developments and/or redevelopments that do occur will likely have limited impact on the overall population. The City is currently revising its General Plan and there is a strong community feeling that the semi-rural nature of the community should be preserved. Today, as a result of the foresight of its founders and residents, the City of Rancho Palos Verdes continues to offer magnificent views, open spaces, clean air, and remains an extremely desirable place to live.

Figure 1.1: City shoreline

The climate of the City is Mediterranean with average annual rainfall of 13.17 inches. The majority of this rainfall occurs during January, February, and March. The steep terrain of the City allows most of the rainfall to drain quickly with little observed surface flooding. The average temperature varies from 67º F in the winter to 80º F in the summer.

1.3 CITY INFRASTRUCTURE

The City owns and/or maintains an extensive infrastructure system consisting of sewers, storm drains, roads, parks, trails, and buildings. For this report, the following infrastructure categories/quantities were considered:

- **Public Buildings**
  17 Buildings / 68,819 Total Square Feet
- **Park Sites**
  16 Parks / 185.95 Acres
- **Trails**
  101 Preserve Trails / 29 Miles
  16 Non-Preserve Trails / 3 miles
- **Storm Water System**
  4.6 miles of storm water lines; 588 catch basins; 67 manholes; 82 culverts; 51 inlets; 200 trash excluders
- **Sanitary Sewer System**
  150 miles of sewer lines; 3,707 manholes; 17 primary lift stations
- **Abalone Cove Assessment District Sewer System**
  7.8 miles; 130 manholes; 44 grinder pumps; 4 primary lift stations
- **Right of Way and Traffic Devices**
  23,497,303 SF of AC pavement; 3,332,396 SF of concrete sidewalk; 1,084,172 ft. of curb & gutter; 627,435 SF of medians
- **Palos Verdes Drive South Landslide (and dewatering wells)**
  1.2 miles of Palos Verdes Drive South exposed to Landslide

The City maintains its infrastructure on a regular basis as part of the City's annual capital improvements. The City evaluates its infrastructure needs and plan for improvements on a priority needs basis.

SECTION 2: GRADES AND GRADING PROCESS

2.1 THE GRADING PROCESS

The grading process is performed as follows:

1. **Identify Categories**
2. **Conduct Visits & Gather Information**
3. **Identify Grading Criteria**
4. **Review Available Documents**
5. **Assign Preliminary Grade for Review by Review Committee**
6. **Assign Final Grade**

The Infrastructure Report Card Working Group (Working Group); comprised of engineers specialized in the assessed infrastructure categories, worked closely with the City staff to identify the categories to be considered in the report card. Site visits, for all categories, were conducted and photos were taken for documentation.

Information about each category was gathered, reviewed and categorized. The information included: master plans, master plan updates, studies, third party consultant reports, City staff reports, City staff presentations, survey plans, rehabilitation plans, City website, City budgets, City capital improvement plan, etc. The documents reviewed for each category are listed at the end of each category section under the heading "Sources".

After many hours of review and analysis, the Working Group assigned a preliminary grade to each category. For the buildings and the parks, individual grades were assigned for each building/park and an overall grade was calculated based on the individual grades.

The assigned grades were based on the reviewed City documents, the reports/studies prepared by third party consultants, and the findings of the site visits.

The grades and the support material were reviewed by the "Review Committee" responsible for the quality assurance/quality control of the Report Card. The review committee included professional engineers specialized in the field of infrastructure. The Review Committee comments were discussed/implemented and the final grades were assigned.

The assessment/grading was conducted for the existing facilities in the City and was based on the facilities current condition. Future plans were not taken into consideration in the grading process. However, they were considered in defining the future recommendations.

2.2 DEFINITION OF THE GRADES

The infrastructure report card utilizes grading criterion that the general public can relate to, similar to the grading used in education. This is the grading criterion used by The American Society of Civil Engineers (ASCE) in infrastructure grading.

Grade	Percentage	Definition
A	90-100%	Exceptional
B	80-89%	Good
C	70-79%	Average
D	41-69%	Poor
F	40% or Lower	Failing

SECTION 3: REPORT CARD SUMMARY

The following are summaries of the different infrastructure components and their associated grades:

Public Buildings: D

The City of Rancho Palos Verdes owns a total of 17 public facilities, located within park sites, with a total square footage of 68,819. Most of the public buildings are 25 years old or older and were purchased from school districts or transferred to the City from the federal government. The criteria of evaluation of the public buildings was based on (1) the structural/seismic condition of the building, (2) the condition of exterior and interior finishes, (3) the functionality/operability of the building's systems including electrical, plumbing, heating ventilation and air conditioning (HVAC), and firefighting, (4) safety issues, and (5) sustainability and energy saving. The Overall Grade for the public buildings is D. This shows a great need for retrofitting/renovation of the public buildings.

Park Sites: B

The city has 16 parks, 3 recreational active, 12 recreational passive, and 1 institutional educational, with a total acreage of about 186 acres. In addition to housing the City's community centers, the active parks provide sports and recreational facilities; tot lots, playgrounds, tennis courts, baseball diamonds, grassy fields, and picnic areas. Some parks also serve as trailheads for the trails system serving the cities of Rancho Palos Verdes, Rolling Hills, Rolling Hills Estates, and Palos Verdes Estates. Parks are maintained by outside vendors retained by the City under the supervision of the Public Works Department. Other park activities and rentals are managed by the Recreation and Parks Department. The City parks were assessed based on (1) the condition of the available infrastructure, (2) the condition of the existing facilities (tot lots, playgrounds, benches, picnic tables, drinking fountains, and sports facilities), and (3) the assigned parking. The assessment showed more than 70% of the parks in excellent condition. The Overall Grade for the park sites is B. It is important to mention that the current condition of the City parks is the result of the recent improvement/renovation projects. Maintaining this grade requires the continuity of these projects.

Trails: A

The City's trails network system includes: (1) 101 Preserve trails about 29 miles in length, within the approximately 1,400 acre Palos Verdes Nature Preserve (Preserve). The Palos Verdes Peninsula Land Conservancy (PVPLC) is responsible for the maintenance and repair of existing unimproved trails in the Preserve while the City is responsible for the construction of new trails and maintenance of improved trails. Preserve trails are generally maintained by volunteer crews. (2) 16 currently operating Non-Preserve Trails, about 3 miles, within the City's open spaces, managed and maintained by the City. The trails are designated for specific users. They are either pedestrian, cyclists, equestrians, a combination of any two, or multipurpose trails designated for the three types of users. The assessment of the trails was based on (1) the available access points and trail markers/signage, (2) available parking, (3) connectivity, and (4) maintenance. The assessment showed the trails in a very good condition. The Overall Grade for the trails is A.

Storm Water System: C

The City's storm water system consists of buried pipes, open channels, catch basins, inlets, and outlets strategically placed within the City to drain water from properties and roads. For the City's storm water system, the capacity, condition, operation and maintenance, and environmental sustainability of the system were evaluated for grading purposes. Age is a significant factor in the evaluation of grading since a newer

system reflects both a capacity to accept the drainage flows and the condition to carry it properly. Since most of the City's drainage facilities were constructed by the Los Angeles County Department of Public Works prior to incorporation of the City, the City's drainage capacity is lacking in certain areas. However, due to the City's investments, the storm water system provides functionality. With the completion of the McCarroll Canyon system and the San Ramon project currently under construction, the City is making strides to begin managing its many uncontrolled canyons. Thus, overall grade was determined to be C. This shows a need for improving the City's storm water system.

Citywide Sanitary Sewer System: D

The City's overall sewer system consists of sewer mainlines, laterals, manholes, lift stations, and grinder pumps. The City's sewer mainlines consist mostly of gravity pipelines constructed with vitrified clay pipe (VCP), with some force mains (pressure pipe) that transmit sewage from low elevation points. For the City's sanitary sewer system, the capacity, condition, operation and maintenance, and environmental sustainability of the system were evaluated for grading purposes. For sewer systems, age is a more significant factor in the evaluation of grading than with storm drain systems since the age of sewers typically reflects the capacity to properly transmit flows. A damaged sewer system cannot transmit flows properly, and wastewater must be transmitted and disposed of properly. Also, an older sewer system is likely to reflect inferior construction standards as well as deteriorated pipelines. Despite the age of the City's sewer system, the system provides acceptable functionality. Thus, overall grade was determined to be D. This shows a fairly strong need for improving the City's sewer system.

Abalone Cove Assessment District Sewer System: D

The City's Abalone Cove Assessment Sewer System is considered part of the sewer system in the 2009 Master Plan but for billing and maintenance purposes it is considered a separate sewer system. The Abalone Cove Assessment Sewer District System consists of sewer mainlines, laterals, manholes, grinder pumps, and 4 lift stations. For the system, the capacity, condition, operation and maintenance, and environmental sustainability were evaluated for grading purposes. Since the system was constructed in 2001 to help minimize water infiltration into the landslide area and to replace septic systems, the capacity and condition of the system were more heavily weighed. The system is constructed using polyvinyl chloride (PVC) and Polyethylene (PE) pipe, due to the active landslide, however, vitrified clay pipe (VCP) is used in some areas. Despite the threat of landslide, the system currently has good capacity and condition. However, the system is highly vulnerable to land movement and mechanical wear, and requires a high degree of maintenance, and provides slightly less than desired functionality. Thus, the overall grade was determined to be D. This shows a strong need for improving the District sewer system.

Right of Way and Traffic Devices: A

The City's right of way network consists of local streets and arterials, including pavement, medians, curb, gutter, sidewalk, street lights/signals, and right of way landscaping (i.e. median trees). In terms of length, the majority of City roadways consist of local streets (i.e. residential), as local streets comprise nearly 75% of the total length of roadways in the City. Arterials comprise 25% of the total length of roadways in the City. For the City's right of way system, the capacity, condition, operation and maintenance, and environmental sustainability of the system were evaluated for grading purposes. For right of way/street systems, the condition is perhaps the primary aspect of concern to residents and City officials, as deteriorated pavement poses a threat to the safety of not only motorists, but bicyclists and pedestrians in particular. Due to the City's strong CIP program and excellent operation and maintenance procedures, the City's streets are in great condition and provide exceptional functionality. Thus, the overall grade was determined to be A. This shows that the City's right of way system is in good condition.

Palos Verdes Drive South Landslide: D

An important portion of the City lies within a natural landslide area that is composed of several component landslides. It is mainly located at Palos Verdes Drive South, an important arterial that connects the east part of the city. The landslide affects not only surface streets and buildings, but also other infrastructure as well, including much needed utilities. The City has established mitigation infrastructure and improvements as part of efforts to slow the rate of the landslides and to minimize the likelihood of catastrophic landslide movements. This mitigation infrastructure consists of, grading, and dewatering wells in addition to drainage and sewer systems. The mitigation infrastructure was evaluated based on the capacity of the infrastructure to prevent or slow subsurface land movement, the condition of the infrastructure as it relates to operation and maintenance, and the environmental impacts as it relates to maintaining dwellings, landscapes, and utilities, and protecting the public from harm. For the City's landslide mitigation infrastructure, only the, grading, and dewatering wells were evaluated since drainage and sewer infrastructure were evaluated in previous sections. Although the individual mitigation infrastructure is proving to slow landslide movements, it does not fully meet the needs of the City and provides inadequate functionality. Thus, the overall grade was determined to be D. This shows a very strong need for improving the City's landslide mitigation infrastructure.

SECTION 4: WHY SHOULD I BE INTERESTED?

The City's infrastructure benefits all of the City's citizens as well as its visitors. The City's infrastructure is vital to not only the City's economy but also to the Palos Verdes Peninsula as a whole. In addition to its economic importance, the quality of the City's infrastructure also has significant recreational and social benefits, which include community centers, trails, and parks.

Figure 3.1: Seascape Trail at Vicente Bluff Reserve

As with any home, each infrastructure system needs to be maintained and upgraded on a continuous basis. Infrastructure system failures can cause disruptions to our daily lives, trigger slow-downs in economic activity, or even be the cause of injury and death. For example, a roadway failure could cause widespread traffic jams, disrupt access to buildings and hospitals, and could also result in fatal injury. Proper care of our cities, including maintaining our roads, upgrading storm water and sewer systems, and having regularly evaluated and maintained systems, goes a long way. These investments will benefit our present community for generations to come.

This assessment of the current condition of the City's infrastructure is an indicator on how the City is currently doing and how it should act in the future.

This report card is a tool to self-appraisal that will empower the tracking of the current trends and the forecasting of the City's future. This report card will inform the public and the policy makers, will establish community expectations, and will facilitate the policy makers in building the basis for the Infrastructure Management Program.

SECTION 5: CITY'S RECENT INFRASTRUCTURE COSTS

Annual costs needed to maintain and appropriately expand the City's infrastructure are in the tens of millions of dollars. These costs can better be considered as investments. Investment decisions are based on a priority needs basis, through reports by City staff. These decisions are mostly recommended by City staff and reviewed and approved by the City Council. The following are **average** annual investments made to each infrastructure category over the past three years:

- **Public Buildings**
  Average 2010-2013 Expenditures: $475,000/year
- **Park Sites**
  Average 2010-2013 Expenditures: $1.4 million/year
- **Trails**
  Average 2010-2013 Expenditures: $70,000/year
- **Storm Water System**
  Average 2010-2013 Expenditures: $2.5 million/year
- **Sanitary Sewer System**
  Average 2010-2013 Expenditures: $90,000/year
- **Abalone Cove Assessment District Sewer System**
  Average 2010-2013 Expenditures: $77,000/year
- **Right of Way and Traffic Devices**
  Average 2010-2013 Expenditures: $4 million /year
- **Palos Verdes Drive South Landslide (and dewatering wells)**
  Average 2010-2013 Expenditures: $700,000/year

These numbers can fluctuate over a given time period from under $100,000 to over $5 million based on the needs of the City's infrastructure. The sources of funding for the City's infrastructure come from the City's general fund, CIP reserves, State and federal grants, and inter-agency funding with neighboring cities and the County of Los Angeles.

SECTION 6: PUBLIC BUILDINGS D

The City of Rancho Palos Verdes owns a total of 17 public facilities with a total square footage of 68,819. Located within park sites, the public facilities provide gathering spaces for the general public, learning and exploration environments for the youth, and work spaces for public employees, representatives, and volunteers. The maintenance of the public buildings is the responsibility of the Public Works Department. The City's buildings are listed below:

No.	Building	Location	Area Sq. Ft
1	City Hall (Administration& Catalina wing)	Civic Center	17,530
2	Community Development Department	Civic Center	4,604
3	PVNET	Civic Center	3,083
4	Cable TV (CH-33 Studio) Building	Civic Center	1,242
5	Warhead Room / Shop	Civic Center	890
6	Sign Maintenance Building	Civic Center	880
		Sub-total Civic Center Buildings	**28,229**
7	Ladera Linda Community Building	Ladera Linda Park	3,473
8	Ladera Linda Discovery Room	Ladera Linda Park	3,398
9	Ladera Linda Multi-Purpose Room	Ladera Linda Park	3,288
10	Ladera Linda Classroom	Ladera Linda Park	3,538
11	Ladera Linda Restroom	Ladera Linda Park	5,182
		Sub-total Ladera Linda Community Center	**18,879**
12	Pointe Vicente Interpretive Center (PVIC) Museum & Gift Shop	PVIC Park	9,746
13	Fred Hesse Jr. Community Building	Hesse Park	9,040
14	Robert E. Ryan Community Building	Ryan Park	1,725
15	Abalone Cove Building	Abalone Cove Park	700
16	Eastview park (Restrooms)	Eastview park	300
17	Pelican Cove (Fishing Access) Restrooms	Pelican Cove Park	200
		Total Area for City Owned Buildings	**68,819**

Except for PVIC (shown below in **Figure 5.1**), the public buildings are 25 years old or older. Many of the buildings were purchased from school districts or transferred to the City from the federal government. Some of these building were completely renovated like PVIC and Fred Hesse buildings, and only minor improvements have been made to others since their acquisition (such as Ladera Linda buildings and City Hall Buildings).

Figure 5.1: Point Vicente Interpretive Center Museum & Gift Shop

Assessment of City Buildings

The criteria of evaluation of the public buildings was based on:

1. The structural/seismic condition of the building
2. The condition of exterior and interior finishes
3. The functionality/operability of the building's systems including electrical, plumbing, heating ventilation and air conditioning (HVAC), and fire fighting
4. Safety issues
5. Sustainability and energy saving

The compliance with Americans with Disability Act (ADA) requirements was not considered in the evaluation criteria since ADA improvements are scheduled for all City Buildings; however, the cost of these improvements should be considered when calculating the investment needs.

The assessment depended on the reports performed by consultants retained by the City (please refer to "Sources" below for a list of these reports) and the visual inspection performed by the Infrastructure Working Group. The "A" grade was assigned to the newly constructed buildings, those in excellent condition, and the other buildings were rated relative to the "A" building(s), with "F" given to those buildings that are in very poor condition.

The Civic Center and Ladera Linda buildings were mainly evaluated based on (1) the structural/seismic condition especially in the event of an earthquake, (2) the safety risks and effect on productivity caused by the condition/functionality of the building systems.

Final Grade

The Overall Grade for the public buildings is D. The overall grade was calculated as the average of the individual grades of the 17 buildings. **Figure 5.2** below provides the grades of the individual buildings:

Figure 5.1: Grades of City-owned Buildings

Investment Needs

Citizens take pride in their public buildings as they reflect their City's identity. The safety, well-being, quality of life, and economic vitality of the City are tied to the services administered and delivered from these public buildings. Green [1] and energy efficient city hall (similar to other neighbor cities) and community buildings will have its benefits on the local community and economy. State-of-the-art green facilities will ensure safety, increase revenue potential, improve health and productivity of employees, and ensure the anticipated operability of city facilities in seismic/catastrophic events. The City has recently dedicated substantial efforts in increasing energy efficiency in its facilities and has some energy saving projects in its future plans.

To upgrade the public buildings one grade up (from D to C), the city needs to perform retrofitting for some buildings and system replacement for others. This includes the replacement of the mechanical and electrical systems for the City Hall Buildings and Ladera Linda Community Center Buildings, and the retrofitting of Ryan Community Building and Abalone Cove Park Building. The upgrade also includes the necessary ADA Compliance improvements for items identified as the "Potential Safety Hazard" and "Severe" barriers (the most severe) in the City's ADA Assessment Compliance Report.

To upgrade the public buildings to A, the City needs to perform complete retrofitting of the City Hall Buildings and Ladera Linda Community Center Buildings and new solar power system for PVIC and Fred Hesse Buildings. The upgrade shall also include all ADA compliance retrofitting for all buildings.

The cost estimate of the investment needs will be determined in the Infrastructure Management Program.

Although the complete retrofitting for City Hall Buildings[2] and Ladera Linda Community Buildings[3] will result in modernized energy efficient buildings with an expected useful life of at least 20 years, the inherent constraints of the structure's layout will remain and the area (square footage) will remain the same. Another alternative is the complete replacement of these buildings. This will result in brand new, state-of-the-art green and sustainable civic and community centers, which reflect the city's spirit of environment and habitat preservation, and accommodate the city's future space needs. The replacement cost for the City Hall buildings, and for Ladera Linda community buildings can be estimated in the Infrastructure Management Program.

Funding for the City-owned infrastructure, including streets, parks, sewers, and buildings comes from various

sources; including transfers from the General Fund and restricted funds, and grants from other governmental agencies.

The annual budget for buildings maintenance is in the range of $500,000. FY13-14 budget is around $600,000.

Recommendations

1. Develop a comprehensive long term maintenance plan that ensures the continuous maintenance and renovation of the buildings to extend their useful life, enhance their functionality, improve their efficiency, and minimize their impact on the environment

2. Secure funding sources for maintenance, renovation or replacement of existing buildings and construction of new buildings.

3. Perform a cost benefit analysis to decide between replacement or retrofitting for the City Hall Buildings and Ladera Linda Community Buildings.

4. Resume efforts/secure funding towards transferring city buildings into green and sustainable buildings, reflecting the city's spirit of environment and habitat preservation (the City's Green Building Construction Ordinance was passed by the City Council in November 2008)

Sources

- City Hall property Survey plans, 12/5/2007, KDM Meridien
- Modifications to Utilities Plan Site LA-55L-TACT and Administration Facility Plan- Paving, Water System & Diesel Storage (current City Hall site), 1963, Quinton Engineers Ltd.
- City Hall Generator Plans: Electrical, 2/12/2009, Nikolakopulos and Assoc., Inc., Plumbing: 4/9/2010, The Sullivan Partnership Inc.
- LA Site 55 Cathodic Protection (current City Hall site), 10/4/1968, Fort MacArthur, CA Office of the Post Engineer
- ADA updates at City of RPV City Hall, 2/7/2008, Willdan
- Seismic Hazard Evaluation for RPV Civic Center Buildings, 10/25/2000, Breiholz Qazi Engineering, Inc.
- Community Development &Administration Building Floor Plans, date and preparer name not available on plan
- Civic Center Facilities Assessment for City of RPV, 11/2010, Gonzalez Goodale Architects
- Certified Thermography Reports for Planning Department Building and Ladera Linda Community Center, 3/2010, California IR
- TV Communication & Administration Building Floor Plan, date and preparer name not available on plan
- City of RPV Accessibility Self Evaluation and Transition Plan, 6/4/2013, City Staff Report
- Office Space Planning Plans for Community Development Building, 10/30/2008, John M. Cruikshank Consultants, Inc.
- City Hall Administration & PVNET Annex Floor Plan, 12/1/2008, date and preparer name not available on plan
- Community Development Department Restroom ADA Compliance, 9/29/22010, John M. Cruikshank Consultants, Inc.
- Sustainable Sites Initiative – A Case Study: Rancho Mirage City Hall Undergoes Site Renovation, APWA by David Volz

- Ladera Linda Facility Inspection Report, 6/29/2011, Willdan
- Ladera Linda Facility Preliminary Inspection Report, 2/22/2011, City Staff Report
- Ladera Linda Architectural/MEP/Landscape Plans, 1966-1967, Kistner, Wright & Wright Architects and Engineers
- Ryan Park Restrooms Improvement and Accessibility Compliance, 5/4/2012, Willdan Landscape Architects
- Abalone Cove Building Plans, 6/28/1989, Super Secur MFG. Co.
- Eastview Park Playground & Accessibility Improvements, 2/23/2013, BOA Architecture
- Fisherman's (Pelican Cove) Parking Lot Plans, 9/3/2008, Stantec
- "New Civic Center Financing Options", 6/29/2010, City Staff Report & PowerPoint Presentation
- ADA Assessment Compliance Reports, May 2013, BOA Architecture
- City of Rancho Palos Verdes Budget for Fiscal Year 2013/2014 and appended Capital Improvement Plan

(1) The City's Green Building Construction Ordinance was passed by the City Council in November 2008

(2) In 2009, the City Council initiated the creation of a Civic Center Master Plan, however, in 2012 this planning effort was placed on hold. The future of this site and its uses, which must comply with the Program of Utilization for the site unless an amendment is sought, remains undetermined until Master Planning efforts resume. Any changes in land use to the property through the Master Planning efforts would require approval by the Planning Commission and City Council through public hearings along with review and approval of a change, if necessary, to the Program of Utilization by the National Park Service.

(3) The Ladera Linda Park & Community Center Buildings Replacement concept is comprised of 2 phases: Phase I includes infrastructure, landscaping, and park improvements and Phase 2 covers the buildings.

SECTION 7: PARK SITES B

"It is the goal of the City to conserve, protect and enhance its natural resources, beauty and open space for the benefit and enjoyment of its residents and the residents of the entire region. Future development shall recognize the sensitivity of the natural environment and be accomplished in such a manner as to maximize the protection of it."- City of Rancho Palos Verdes General Plan.

The City of Rancho Palos Verdes has a unique interconnected parks, trails and wildlife habitat system. The system has crowned the City an exceptional recreational destination serving the local community and the surrounding cities in and outside the Peninsula. The city has 16 parks, 3 recreational active, 12 recreational passive, and 1 institutional educational with a total acreage of about 186 acres as shown in the exhibit below.

No.	Park Name	Use Designation	Area
1	Abalone Cove Shoreline Park (Upper & Lower Parks)	Recreational Passive	46.84
2	Clovercliff Park	Recreational Passive*	0.17
3	Del Cerro Park	Recreational Passive	4.50
4	Eastview Park	Recreational Passive*	9.90
5	Founders Park (Maintained by Trump)	Recreational Passive	5.21
6	Frank E. Vanderlip Sr. Park	Recreational Passive*	0.48
7	Fred Hesse Jr. Community Park (Upper)	Recreational Active	29.40
8	Fred Hesse Jr. Community Park (Lower)	Recreational Active	
9	Grandview Park	Recreational Passive	18.00
10	Ladera Linda Community Center Park	Institutional Educational	11.00
11	Marilyn Ryan Park (Maintained by Trump)	Recreational Passive*	1.50
12	Martingale Trailhead Park	Recreational Passive*	1.20
13	Pelican Cove Park (Fishing Access)	Recreational Passive	10.50
14	Lower Point Vicente Park (Interpretive Center -PVIC)	Recreational Passive	28.00
15	Upper Point Vicente Park and Civic Center & Rancho Caninos Dog Park	Recreational Passive	8.25
16	Robert E. Ryan Community Park	Recreational Active	11.00
		Total Acreage	**186.86**

**Use Designation proposed as part of the City's General Plan, not yet approved.*

In addition to housing the City's community centers, the parks provide sports and recreational facilities; tot lots, playgrounds, tennis courts, baseball diamonds, grassy fields, and picnic areas. The parks also serve as trailheads for the trails system serving the cities of Rancho Palos Verdes, Rolling Hills, Rolling Hills Estates, and Palos Verdes Estates.

The City is the home of stunning scenic ocean views, whale watching, hiking, biking, equestrian activities, hands-on environmental exploration, and picnicking. The City's residents are exceptionally aware of the importance and effect of the open spaces on the quality of life and have given the City's reserves, parks, and

trails a priority along the years. This is translated in Rancho Palos Verdes Coast Vision Plan that (1) established the development and maintenance of community parks and recreational areas as a top priority and (2) outlined new carefully planned projects to enhance the enjoyment of the beautiful coastline and the natural landscape of the peninsula.

The current city document representing the parks system is the Parks Master Plan that was last revised in 1989. With the vision plan and the associated park developments in place, the update of the 1989 City's Parks Master Plan becomes essential. An updated Parks Master Plan will consolidate existing information, accumulate and incorporate related planning efforts, and map data to determine both the existing and desired level of service related to both passive and active recreation in the City.

As part of the implementation of the Coast Vision Plan, the City has two new major park developments on its unfunded CIP plan: The Lower Point Vicente Park Improvement Project (13-acre of the lower portion of PVIC) and the Gateway Park Development (a 23-acre site within the City's Landslide Moratorium area). Other major projects are the improvement of Grandview Park and Lower Hesse Park.

Parks are maintained by outside vendors retained by the City under the supervision of the Public Works Department. Other park activities and rentals are managed by the Recreation and Parks Department.

Figure 6.1: Robert E Ryan Community Park

Assessment of Parks

The City parks were assessed based on:

1. The condition of the available infrastructure
2. The condition of the existing facilities (tot lots, playgrounds, benches, picnic tables, drinking fountains, and sports facilities)
3. The assigned parking.

The ADA improvements were not considered in the evaluation criteria as they are scheduled for all City parks; however, they were included in the investment needs. The assessment showed more than 70% of the parks in excellent condition. The "A" grade was assigned to the parks that are in excellent condition, and the other parks were rated relative to the "A" parks.

Note: The assessment of the city parks did not include the building components. The buildings were assessed separately. Refer to Section 6: Public Buildings for assessment of buildings.

Final Grade

The Overall Grade for the parks is B. The overall grade was calculated as the average of the individual grades of the 15 Parks. **Figure 6.2** below provides the grades of the individual parks:

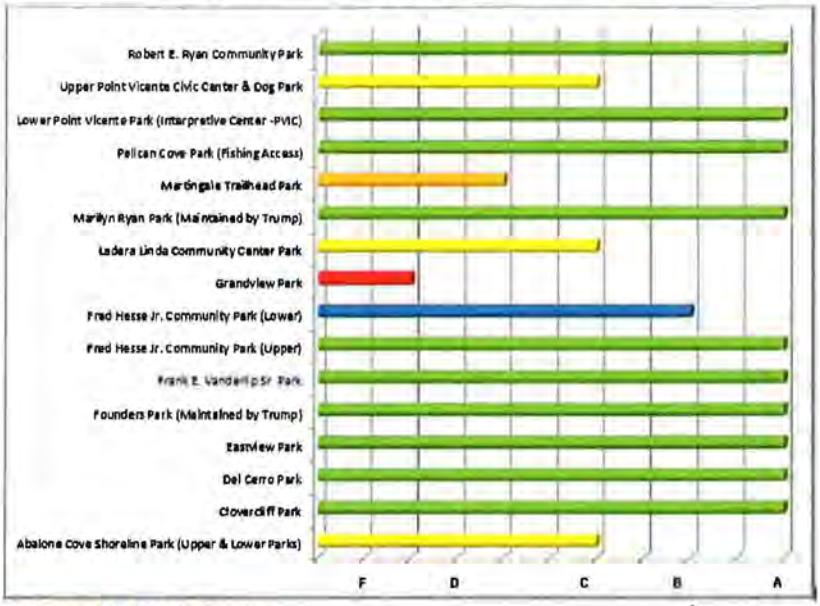


Figure 6.2: Park Grades

It is important to mention that the current very good condition of the City parks is the result of the recent improvement/renovation projects. Maintaining this grade requires the continuity of these projects.

Investment Needs

Expenditure for the maintenance of the parks, trails, and open spaces is about $1.35M/year, constituting around 5% of the total Primary General Fund expenditure. Although the General Funds cover most of the maintenance requirements, currently, Quimby Development Impact Developer fees are used for construction/acquisition of park and recreation facilities. In addition, county bond money (Measure A Parks Maintenance/ Improvements) is allocated for acquisition and maintenance of open space and park improvements. City Staff expects that allocations for maintenance from these sources will continue to be available through FY18-19, with the fund being closed by FY19-20, after which the City's General Funds will have to cover 100% of the maintenance costs.

Investments will be needed to upgrade the parks system from B to A. This includes Abalone Cove Shoreline Park Parking Improvement; Abalone Cove Shoreline Parking Lot Improvements; Lower Hesse Park Improvement; Hesse Park parking lot resurfacing; Minor improvements to Civic Center park; Ryan Park Parking Lot Improvements; Ladera Linda Park site Improvement; Lower Point Vicente Park Improvements; Grandview Park Improvements; Gateway Park improvements; and all ADA compliance improvements for all parks. ADA Compliance improvements for the "Potential Safety Hazard" and "Severe" barriers (the most severe)

The cost estimate of the investment needs will be determined in the Infrastructure Management Program.

Recommendations

Continuous maintenance, renovation, and development of the parks system, as follows:

1. Secure Consistent Funding: Develop consistent funding streams from all funding sectors to ensure that projects can be implemented and maintained.
   a. Maintain and increase the allocated budget for the maintenance of the parks. The annual budget for parks maintenance is in the range of $1.35M and is expected to increase with the increase of the number of active parks in the city.
   b. Allocate funding for the implementation of the un-funded projects on the CIP plan.
   c. Allocate funding for the implementation of the City's Vision Plan for the parks.

2. Update the Parks Master Plan (latest revision in 1989). An updated Parks Master Plan will consolidate existing information, accumulate and incorporate related planning efforts, and map data to determine both the existing and desired level of service related to both passive and active recreation in the City.

3. Expand Public Awareness: Broaden and strengthen the public's understanding of natural/cultural values that will help protect our resources for the future. Plan, support, and enhance educational opportunities through nature centers, outdoor education programs, and ranger programs.

Sources

- Parks Master Plan, Revised 1989
- Parks conceptual plans, survey plans, grading plans, improvement plans, irrigation plans, as-built plans, etc. prepared by outsourced consultants for the City.
- ADA Assessment Compliance Reports, May 2013, BOA Architecture
- City of Rancho Palos Verdes Budget for Fiscal Year 2013/2014 and appended Capital Improvement Plan

SECTION 8: TRAILS A

The City of Rancho Palos Verdes began planning for a non-motor vehicle transportation circulation system for pedestrians, equestrians, and bicyclists, as early as the adoption of the City's General Plan in 1975. In the early years after the City's formation, it was recognized that trails are an integral part of the City's circulation system and play an important role in contributing to the successful interaction of residential, institutional, commercial, and recreational zoning, while encouraging recreational and fitness opportunities.

The City's trails network system includes:

- 101 Preserve trails about 29 miles in length. The Preserve trails are within the Palos Verdes Nature Preserve. The Palos Verdes Peninsula Land Conservancy (PVPLC) is responsible for maintenance and repair of existing unimproved trails in the Preserve while the City is responsible for the construction of new trails and maintenance of improved trails. Preserve trails are generally maintained by volunteer crews.

- 16 currently operating Non-Preserve Trails, about 3 miles, within designated trail easements throughout the City, managed and maintained by the City.

The trails are designated for specific users. They are either pedestrian, cyclists, equestrians, a combination of any two, or multipurpose trails designated for the three types of users.

The City's current Trails Network Plan is identified by the 1993 Conceptual Trails Plan (CTP), and the 1996 Conceptual Bikeways Plan (CBP). Additionally, the 2012 city council adopted the Preserve Trails Plan (PTP) that identifies the trails for the Palos Verdes Natural Preserve, and the 2008 Coast Vision Plan, which is "a modern vision to unify the City's coast through design," providing a framework of connectivity of public amenities within and adjacent to the City's coastal zone, and identifying the route of the City's segment of the California Coastal Trail. The current trails network plan divides the City into 5 sections or sub regions, as depicted on the project area map shown in **Figure 7.1** below:

The City anticipates the updating and consolidation of all of its existing trails plans and documents into a single, comprehensive Trails Master Plan (TMP) expected to be completed in 2014. At this time, the City expects the TMP to be organized in a similar geographical categorization. The TMP will also include the City's segment of the California Coastal Trail (9.5 miles) that extends the entire length of the City's coastline between the boundary lines of the City of Palos Verdes Estates and the City of Los Angeles.

Figure 7.1: Rancho Palos Verdes Trails Master Plan Project Area

Assessment of Trails

The trails network in the City is mainly comprised of natural trails, and the implementation of any new trails will strictly preserve the existing ecosystem. As such, physical condition is not an evaluation factor.

The assessment of the trails was based on:

1. The available access points and trail markers/signage
2. Available parking,
3. Connectivity
4. Maintenance

All trails within the City are accessible and are provided with adequate trail markers identifying the trail name, direction arrow, and designated trail uses. Trails also have signage indicating the direction of approved trails which help users recognize approved and unapproved trails. New signs have recently been installed at preserve trail heads explaining the preserve rules.

All trails have designated public parking areas either at trail heads, at public parks, or street parking. Although currently sufficient, the noticed recent increase in the number of trail users is signaling the need for more public parking spaces.

Recent efforts to link the Preserve and Non-Preserve trails has been tremendous and has improved the connectivity of the City's trail system. Connectivity with the trails in neighboring cities in the peninsula is being studied/implemented too.

Trails are well maintained. Vegetation clearance and weed abatement are performed regularly to ensure easy and safe access and use.

Figure 7.2: North Spur Trailhead at Alta Vicente Reserve

Final Grade

The Overall Grade for the trails is A

Investment Needs

Trails maintenance provides for erosion control, vegetation clearance and weed abatement. Preserve trails are generally maintained by volunteer crews managed by PVPLC. Non-Preserve Trails are maintained by the City. Expenditure for the maintenance of Non-Preserve trails is not available as a separate item. It is included in the overall expenditure for parks, trails, and open spaces which is about $1.35M (FY13/14 Budget) mostly from General Funds. Currently Quimby Development Impact Developer fees are used for construction or acquisition of park and recreation facilities. In addition, county bond money (Measure A Parks Maintenance/ Improvements) is allocated for acquisition and maintenance of open space and park improvements. City Staff expects that allocations for maintenance will continue to be available through FY18-19, with the fund being closed by FY19-20, after which the City's General Funds will have to cover 100% of the maintenance costs

Figure 7.3: Burma Road Trail at Portuguese Bend Reserve

Apart from trails maintenance, the trails projects outlined in the 2008 Vision Plan and the Preserve Trails Plan were incorporated in the City's CIP Plan attached to the FY13/14 Budget. The CIP plan includes the construction of the Crystal (Preserve) Trail (.12 mile) in the Forrestal Reserve. It also includes the following projects for the Non-Preserve Trails: (1) the Preliminary Planning, Design, and construction for the Bronco, Martingale, and Grayslake Trails, (2) the design and construction of the Salvation Army Trail Improvement Project, (3) The Sunnyside Segment Trail connection, and (4) the construction of trailheads at key entrances to the existing City trail system along with overlooks and vista points within the Vision Plan project area.

These project will contribute to the completion of the City's Trails Network Plan and will improve the connectivity of the trails, the non-preserve trails, in particular.

Allocation of investments will be required to maintain the current "A" grade of the trails.

It was noticed that the currently available plans do not provide enough information on the non-existing trails in the Trails Network Plan. These non-existing trails, when constructed, will improve the connectivity of the trail system. These trails will be identified in the comprehensive Trails Master Plan. Thus a comprehensive Trails Master Plan will be required to calculate the required investment needs for the Infrastructure Management Program (IMP).

Recommendations

1. Resume the current efforts to prepare the comprehensive Trails Master Plan (anticipated in 2014)

2. Secure Consistent Funding: Develop consistent funding streams from all funding sectors to ensure that projects can be implemented and maintained.

    a. Maintain and increase the allocated budget for the maintenance of the trails, particularly outside the preserve. The annual requirements for trails maintenance is expected to increase with the increase of the no. of trails and the number of users.
    b. Allocate funding for the implementation of the un-funded projects on the Trails Master plan.

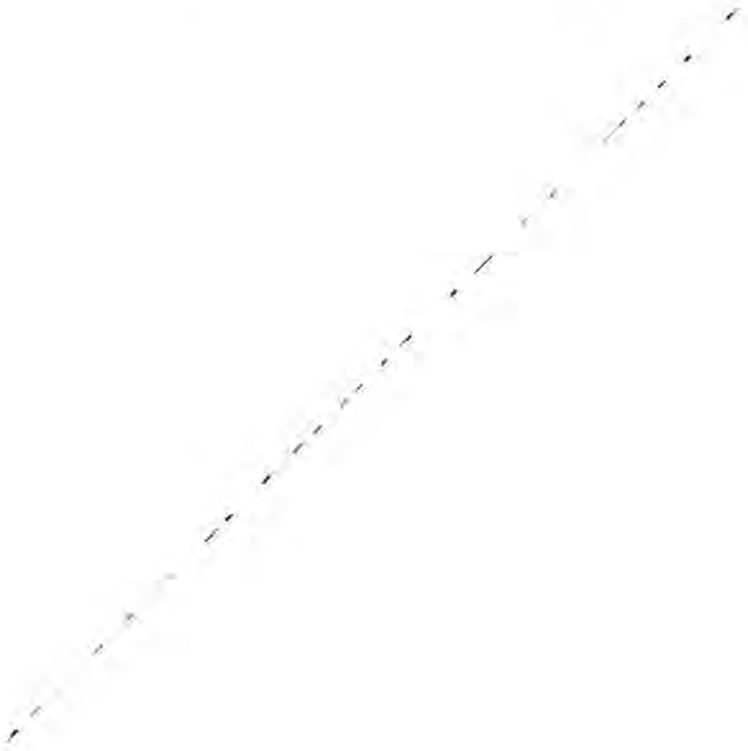
2. Perform a Parking Assessment Study for the trails system and provide solutions for the anticipated future increase in the need for public parking, particularly adjacent to the Preserve. This may include designating new parking areas or diverting trail users to less-used access points.

3. Perform a Visitor Survey/Study to find out the number of current trail users, the type of use (hike, bike, equestrian), and the expected increase in the number of visitors. Such a study will guide in planning future projects, their order of priority, and the need for new regulations to prevent any unintended consequences that may arise from the increase in the number of users.

4. Expand Public Awareness: Continue and support the efforts in educating people recreationally on how to use the City's trails to help ensure that sensitive areas are maintained in a thriving state.

Sources

- 1993 Conceptual Trails Plan
- 1996 Conceptual Bikeways Plan
- 2008 Preserve Trails Plan (PTP)& Oct 2012 adopted amendment
- 2008 Coast Vision Plan
- City General Plan – Conservation and Open Spaces Element
- 2008 City Council Six Month Review for Trails at Portuguese Bend Reserve
- 2012 PVPLC Visitor Use Survey-Portuguese Bend Reserve
- 2013 Council Adopted PUMP Document
- City of Rancho Palos Verdes Budget for Fiscal Year 2013/2014 and appended Capital Improvement Plan



SECTION 9: STORM WATER SYSTEM C

The City's landscape consists of a diverse topography that consists of undeveloped hilly terrain and canyons. As a result, the City is more vulnerable to flooding from nearby canyons that carry runoff during rainstorms. To protect property and loss of life, the City's storm drain system has been carefully designed to capture the maximum amount of storm water through numerous inlets, including the newly constructed McCarrell Canyon Storm Drain inlet shown below in **Figure 8.1**:

Figure 8.1: McCarrell Canyon Storm Drain Inlet North of PVD South

Due to the City's hilly terrain, the City's drainage system utilizes the natural landscape of the City to the extent possible, as underground drains discharge water into adjacent canyons and creeks, or carry it to man-made discharge structures. The City's storm water ultimately discharges into the ocean, in one of eight natural or man-made discharge points (see **Figure 8.2**). As a result of utilizing the City's natural landscape, however, City staff is faced with challenges of having to maintain the City's aesthetic quality while preventing debris accumulation from clogging drain inlets.

Assessment of Storm water System

As mentioned previously, the City has a diverse, hilly terrain. The terrain varies from elevations at sea level to over 1,400 feet above sea level. Due to this diverse topography, the City's storm drain system is divided up into six separate drainage sub-basins, based on the natural characteristics of the terrain and the natural direction of runoff flows for the areas. The drainage sub-basins include the following:

Drainage Area	Area (ac)
Los Angeles Drainage Area	2820
Ocean South Drainage Area	3330
Ocean West Drainage Area	710
Palos Verdes Estates West Drainage Area	1100
Palos Verdes Estates North Drainage Area	450
Rolling Hills Estates Drainage Area	500
Total	**8910**

Of the sub-basins, the Ocean South Drainage Sub-basin is the largest, consisting of over 3,300 acres and nearly the majority of the City's coastline. The City's landslide area is also located within the Ocean South Drainage Sub-basin. Palos Verdes Drive South (PVDS) is the major arterial street that transverses the Ocean South Drainage Sub-basin. The Ocean South Drainage Sub-basin is also the only area of that contains undeveloped land (that is not marked as reserve land), including the Portuguese Bend area north of PVDS. Every other drainage sub-basin is nearly fully developed with a significant drainage infrastructure network.

With regard to man-made infrastructure, the City's storm drain system consists of inlets, pipes, manholes, and discharge structures. Storm drain pipes consist of reinforced concrete pipe (RCP), and corrugated metal pipe (CMP). Overall, the condition and capacity of the City's storm drain infrastructure is consistent throughout each drainage sub-basin. According to the City's records, there are over 4.6 miles of storm drain lines, 82 culverts, along with a multitude of inlets, catch basins, and manholes. A significant portion of the City's storm drain infrastructure lies within the Ocean South Drainage Area, including a number of culverts that cross PVDS. Since a number of these culverts are also located within the City's landslide area, the culverts are vulnerable to damage from severe landslides that result from heavy storms. The damage can also be compounded when the culverts become clogged with natural debris from the surrounding landscape which gets washed down during rainstorm periods. This could result in flooding which increases the potential for significant landslide activity to occur. To prevent flooding, the City's goal is to ensure that the storm drain pipe network drains stormwater away from developed areas and into one of eight outlets, as shown in **Figure 8.2** below:

Figure 8.2: Outlet Structure to Ocean in Ocean West Drainage Area

As part of the City's goal to prevent flooding, the City is continually in the process of maintaining its existing infrastructure and improving it by adding additional infrastructure. Maintenance typically includes repairing and/or replacing damaged pipe, removing debris, and modifying existing. New improvements vary from small residential storm drains to large, multi-million dollar projects such as the under-construction San-Ramon Canyon Project just north of PVDS.

After reviewing several documents related to its storm water infrastructure, and visiting several locations, including those in **Figure 8.1** and **Figure 8.2**, the City's storm water system was evaluated on following three criteria:

1. The capacity of storm water infrastructure as it relates to flood prevention
2. The structural condition of storm water infrastructure as it relates to operation and maintenance

3. The environmental sustainability of storm water infrastructure as it relates to preserving the natural landscape and wildlife when operating, maintaining, and improving stormwater infrastructure.

Final Grade

After looking at the three grading criteria categories, it was determined that the City had good capacity to transmit storm water flows, average structural condition with appropriate operation and maintenance, and exceptional environmental sustainability. The weight of these three criteria was then weighed as to the overall level of importance of the system. Overall, the City's storm water system earned a grade of C.

Recommendations

Based on the assessment and grade of the City's storm water infrastructure, we recommend the following actions:

- **Maintain a strong CIP program**
  A strong CIP program adds new infrastructure and also replaces existing failing infrastructure.
- **Renew Rates**
  The City currently charges a fee to help fund its storm water system. This fee will expire at the end of fiscal year 15-16. As a result of aging infrastructure and rising construction costs, the City and its citizens will benefit from a more substantial storm water budget resulting from renewal of the rates.
- **Utilize Natural Drainage Patterns**
  Thus far, the City has done a terrific job of utilizing natural drainage canyons and channels as opposed to pipes and concrete channels. The City would benefit by continued use of natural landscapes to keep the costs associated with constructing new facilities low, when possible.
- **Install debris reduction methods**
  Debris reduction methods may include the use of grouted rip-rap, where possible, in the place of loose rock and gravel.
- **Maintain proper maintenance/cleaning**
  Strong maintenance ensures properly working storm drains and the protection of property.
- **Inspect 100% of known Storm Drain System**

Sources

This report summary for the City's storm water system has been has been determined as a result of the following sources of data:

- 2004 Master Plan Update
- CIP Priority Lists
- GIS Maps
- Current GIS Spreadsheet Data
- Meetings with City Staff
- Field Analysis

SECTION 10: CITYWIDE SANITARY SEWER SYSTEM D

The City's landscape consists of developed land to the extent practical, and the majority of the development in the City consists of single family residential homes. This results in the need for an extensive sewer system that has the capacity to properly transmit wastewater flows. Due to the City's hilly terrain, this results in the need for a carefully designed sewer system that utilizes the natural landscape of the City to the extent practical, in order to avoid additional infrastructure which can add to operation and maintenance costs and lower the reliability of the system during power outages or equipment malfunctions. **Figures 9.1**and **9.2** show two of the City's wastewater lift (pumping) stations:

Figure 9.1: Laurel Drive Sewer Station

Assessment of Sanitary Sewer System

As mentioned previously, the City has a diverse, hilly terrain. The terrain varies from elevations at sea level to over 1,400 feet above sea level. As a result, the City has to utilize a combination of gravity pipes, lift stations, and pressurized force mains. With regard to its sanitary sewer infrastructure, there are over 150 miles of sewer pipelines, 17 lift stations, 44 grinder pumps, and 3,707 manholes. Sewer pipes consist primarily of vitrified clay pipe (VCP), with some plastic pipe, along with a few other materials. Due to the age of the City's sewer system, the majority of its pipe (VCP) was installed without gaskets, as the prevailing theory was that additional groundwater that flowed into the pipes was good for cleaning and flushing of the pipes.

Figure 9.2: Calle Entradero Sewer Station

As part of the City's goal to maintain a properly working sewer system and to protect the public, the City is continually in the process of maintaining its existing infrastructure and improving it by adding additional infrastructure. The LA County Department of Public Woks provides maintenance for the City's sewer system. Maintenance typically includes repairing damaged pipe, repairing lift stations, removing debris from pipes, and repairing manholes. New improvements vary from pipeline replacement to lift station replacement.

After reviewing several documents related to its sewer infrastructure, the City's sewer system was evaluated on following three criteria:

1. The capacity of sewer infrastructure as it relates to transmission of wastewater flows (both gravity pipes and pressurized force mains).
2. The structural condition of sewer infrastructure as it relates to operation and maintenance.
3. The environmental sustainability of sewer infrastructure as it relates to ensuring sanitary conditions and an aesthetic City landscape.

Final Grade

After looking at the three grading criteria categories, it was determined that the City had good capacity to transmit wastewater flows (both gravity and pressurized force mains), below average structural condition with appropriate operation and maintenance, and a good safety/sanitary protection. The weight of these three criteria was then weighed as to the overall level of importance of the system. Overall, the City's wastewater system earned a grade of a D.

Recommendations

Based on the assessment and grade of the City's sewer infrastructure, we recommend the following actions:

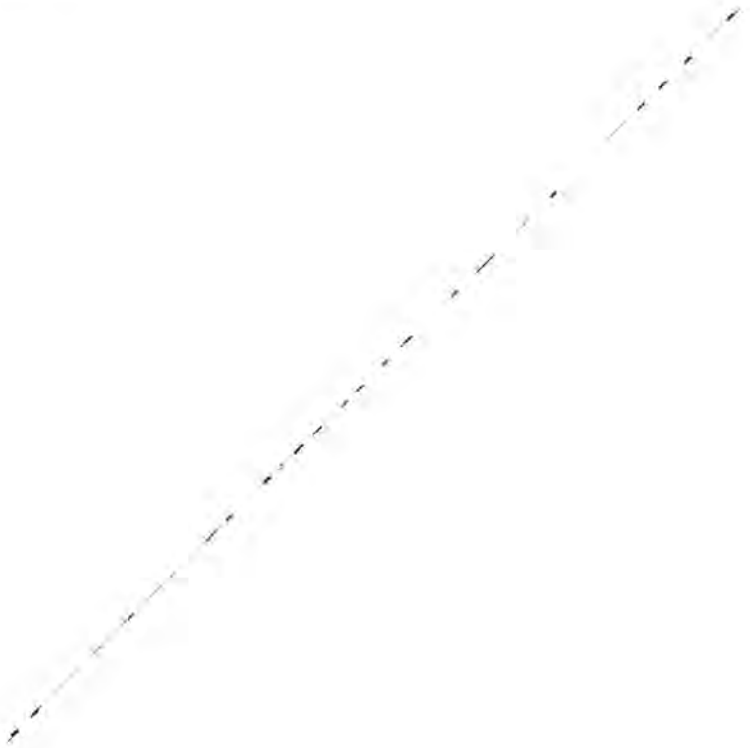
- **Maintain a strong CIP program**
  A strong CIP program adds new infrastructure and also replaces existing failing infrastructure.
- **Establish a sewer user fee rate**
  The County currently charges a fee to help fund maintenance of the sanitary sewer system. However this fee is not sufficient for capital improvements or capacity increases.

- **Maintain proper maintenance**
  Strong maintenance ensures properly working lift stations, sewer mains, and the protection of property and the public.

Sources

This report summary and the grade assigned for the City's sewer system has been has been determined as a result of the following sources of data:

- 2009 Master Plan Update
- 2009 County Condition Assessment
- Meetings with City Staff
- Field Analysis



SECTION 11: ABALONE COVE ASSESSMENT DISTRICT SEWER SYSTEM D

The Abalone Cove Assessment District (District) is a moderately developed portion of City land that is comprised mostly of single family residential homes, along with one church building. The District development is located in the heart of the landslide area and experiences a slow but continuous land movement. As a result, the District requires a special kind of sewer system that can maximize reliability while minimizing maintenance due to ground movement. The District also requires a system that fits its hilly terrain. **Figure 10.1** below shows the Abalone Cove landscape:

Figure 10.1: Abalone Cove/Portuguese Bend Reserve

Assessment of Abalone Cove Sewer System

As mentioned previously, the District, as well as the City overall, has a diverse, hilly terrain. The terrain varies from elevations at sea level to over 1,400 feet above sea level. As a result, the District has to utilize a combination of gravity pipes, grinder pumps, low-pressure sewer mains, lift stations, and high pressurized force mains. According to the 2009 Master Plan, the District's system was installed in 2001 to replace septic systems in landslide areas. There are 130 manholes, 1 diversion structure, approximately 19,000 linear feet of gravity pipeline, 19,615 linear feet of low pressure pipe, and 2,505 linear feet of force main. Overall, there are 44 grinder pumps in the District, with 41 of them serving single family homes and 3 duplex grinder pumps serving two or more residences. There are 4 lift stations serving the District, one of which is the Abalone Cove Shoreline Park Lift Station shown in **Figure 10.2** below:

Figure 10.2: Abalone Cove Shoreline Park Sewer Lift Station

Since the District is prone to landslide, the City is continually in the process of maintaining its existing infrastructure and improving it by adding additional infrastructure. Maintenance typically includes repairing damaged pipe, repairing lift stations, grinder pumps, removing debris from pipes, and repairing manholes. New improvements vary from pipeline replacement to lift station replacement. With the Abalone Cove Assessment District, this is all the more important, due to the presence of multiple grinder pumps and low pressure mains that use galvanized transmission lines, as well as the potential for landslide.

After reviewing several documents related to its sewer infrastructure, the District's sewer system was evaluated on following three criteria:

1. The capacity of sewer infrastructure as it relates to transmission of wastewater flows (both gravity pipes and pressurized force mains).
2. The structural condition of sewer infrastructure as it relates to operation and maintenance.
3. The environmental sustainability of sewer infrastructure as it relates to ensuring sanitary conditions and an aesthetic City landscape.

Final Grade

After looking at the three grading criteria categories, it was determined that the District had good capacity to transmit wastewater flows (both gravity and pressurized force mains), below average structural condition with appropriate operation and maintenance, and a good safety/sanitary protection. The weight of these three criteria was then weighed as to the overall level of importance of the system. Overall, the Abalone Cove Assessment District's wastewater system earned a grade of D.

Recommendations

Based on the assessment and grade of the City's sewer infrastructure, we recommend the following actions:

- **Maintain a strong CIP program**
  A strong CIP program adds new infrastructure and also replaces existing failing infrastructure.
- **Increase Rates**
  The City currently charges a fee from District properties to help fund the District's sanitary sewer

system. Even though the City subsidizes part of the maintenance cost, the budget is not sufficient for required maintenance and capital improvements. As a result of high maintenance and replacement costs due to landslide activity, the District and its citizens will benefit from a more substantial sanitary sewer budget resulting from an increased rate.

- **Maintain proper maintenance**
  Strong maintenance ensures properly working lift stations, sewer mains, and the protection of property and the public.

Sources

This report summary and the grade assigned for the City's sewer system has been has been determined as a result of the following:

- 2009 Master Plan Update
- 2009 County Condition Assessment
- Discussions with City Staff
- Field Analysis

SECTION 12: RIGHT OF WAY & TRAFFIC DEVICES A

The City maintains a right of way network that consists of over 142 miles of local streets and major arterials. Due to the demographics of the City, local streets comprise the majority of the City's roadways at approximately 75% of the overall length or 106 miles. All of the City's roadways consist of asphalt-concrete (AC), with over 23 million square feet of AC pavement. In addition to the road network, the City also maintains traffic signals, safety lights, and flashers. The City's right of way network serves both motorists as well as bicyclists and pedestrians with nearly all major arterials consisting of a sidewalk and bike lanes. **Figure 11.1** below provides a sample of the condition of the City's streets.

Figure 11.1: Crest Rd west of Crenshaw Blvd looking southwest

In 2009, the City hired a consultant to prepare a Pavement Management System (PMS) report that provided a summary, inventory, and breakdown of the condition of the City's streets. The 2009 PMS was prepared as a means to guide planning efforts to maintain the City's large capital investment in streets. The main function of the PMS lies in the implementation of capital improvements such that every dollar spent is maximized towards extending the lifespan of the street network. The 2013 PMS update is currently being prepared and is expected to be completed by March 2014.

Assessment of City Right of Way and Traffic Devices

Due to the City's hilly terrain, major arterials are not arranged in a typical North/South grid-like manner, but rather change direction as they traverse the City's landscape. **Figure 11.2** below illustrates this.

Figure 11.2: Hawthorne Blvd looking northwest

Oftentimes, the City's major arterials do not provide direct access to destinations. There are also no freeways or highways located in the City. However, travel access restrictions are offset by the natural beauty of the City and the man-made landscape improvements along the City's streets, and the City is well known for its accommodating environment to all commuters, including cyclists, equestrians, and pedestrians. Nearly all of the City's major arterials provide bike lanes for cyclists. The City's bike lanes are categorized into four different classes of bike lanes, as classified by the City's Conceptual Bikeways Plan (Plan), adopted in January of 1990 and revised in October of 1996. The Plan classifies bikeways as either Class I, Class I/Off-Road, Class II, or Class III. The Plan's purpose is to identify the bikeway's opportunities with the community and to implement new bikeways into development projects and into the City's public trails network.

One major factor that makes the City's streets so appealing to both motorists and cyclists is the condition of the pavement, not only on major arterials but throughout the City's streets as whole. The 2009 Pavement Management System (PMS) revealed that the City's streets received an overall score of 84.5 on the Pavement Condition Index (PCI) and 95.3 on the Structural Index (SI), while arterials received a score of 76.8 on the PCI index and 90.8 on the SI index. The PCI and SI indexes focus on different aspects of pavement conditions. Residential streets received a score of 87.6 on the PCI Index and a score of 97.1 on the SI index. The 2013 PMS update revealed that the City's streets received an overall score of 82 on the PCI index. PCIs greater than 86 are considered to be "very good" and SIs greater than 90 are considered to be "good". Figure 11.2 below shows a sample condition of residential streets:

Figure 11.3: Beach View Drive Looking East

With regard to vehicular traffic conditions, the City does experience some moderate to high traffic volumes

which results in a low Level of Service (LOS) for major arterials. A recent Traffic Study Report conducted in 2011-2012 revealed that the current traffic conditions in certain intersections of Palos Verdes Drive South and Hawthorne Boulevard resulted in a LOS ranging from A to F, with F being a low level of service with traffic delays. The Traffic Study Report was prepared mainly to identify traffic impacts associated with a development project in the Abalone Cove are known as the Annenberg Project. Despite the low LOS associated with certain intersections, the City does look for new ways to improve traffic conditions, and overall traffic conditions are good throughout the City.

With regard to pedestrian traffic, the City does have an annual sidewalk maintenance program, with an annual budget of $140,000. The City routinely looks for ways to improve sidewalk conditions throughout the City, and sidewalk conditions were noted to be in great condition throughout the City.

After reviewing several documents related to the City's right of way and traffic devices, the City's right of way and traffic devices were evaluated on following three criteria:

1. The capacity of infrastructure as it relates to accommodating vehicular, bicycle, equestrian, and pedestrian traffic flows
2. The structural condition of infrastructure as it relates to drive-ability, ride-ability, walk-ability, safety, and also as it relates to operation and maintenance costs and efforts.
3. The environmental condition of infrastructure as it relates to promoting recreation, an aesthetic environment, and preserving nature.

Final Grade

After looking at the three grading criteria categories, it was determined that the City had good capacity to accommodate traffic flows, good structural conditions of pavement and sidewalk, and excellent environmental conditions. The weight of these three criteria was then weighed as to the overall level of importance of the system. Overall, the City's traffic and right of way network earned a grade of A.

Recommendations

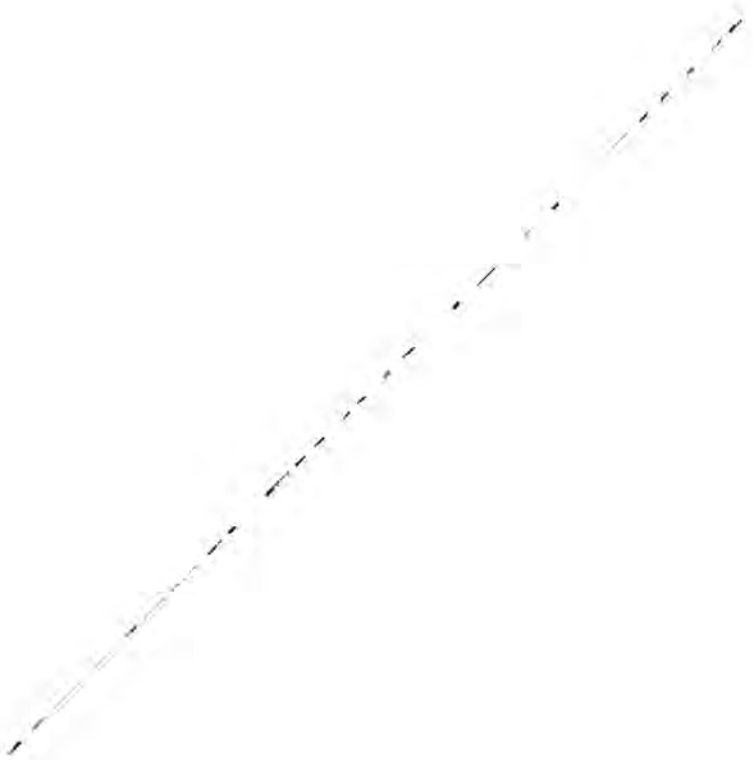
Based on the assessment and grade of the City's right of way infrastructure, we recommend the following actions:

- **Maintain a strong CIP program**
  A strong CIP program adds new infrastructure and also replaces existing failing infrastructure.
- **Continue to Seek and Obtain Funding Sources**
  The City's existing funding sources, although adequate for routine maintenance, may need to be supplemented to implement larger improvement projects.
- **Maintain proper maintenance**
  Strong maintenance ensures excellent pavement conditions, pedestrian access, and the protection of property and the public.

Sources

This report summary and the grade assigned for the City's right of way system has been has been determined as a result of the following sources of data:

- 2011-2012 Traffic Study
- 2008 Neighborhood Traffic Calming Program
- 1996 Conceptual Bikeways Plan
- 2009 Pavement Management System Report
- Discussions with City Staff
- Field Analysis



SECTION 13: PALOS VERDES DRIVE SOUTH LANDSLIDE D

A significant portion of the City lies within a natural landslide area that is composed of several component landslides. Overall, these landslides move southerly towards the ocean into the Abalone Cove, Sacred Cove, and Portuguese Bend shorelines. Approximately 1,000 acres, or 12% of the City's 13.6 square mile limits, are affected by landslide. The landslide affects not only surface streets and buildings, but also other infrastructure as well, including below grade utilities. **Figure 12.1** below shows part of the City's landscape that is located within the landslide region:

Figure 12.1: Palos Verdes Drive South along Landslide Area

Assessment of the Landslide and Landslide Infrastructure

There are over a dozen landslides that make up what is known as the City's landslide area along Palos Verdes Drive South. The three main landslides in the City are the Abalone Cove, Portuguese Bend, and Klondike Canyon Landslides. The landslides are caused primarily by groundwater which decreases the strength of clays and adds additional weight to subsurface soils. Rainfall is the primary contributor to groundwater. The City has three main drainage basins within the landslide regions that collect rainwater and allow it to percolate to the soils below. These drainage basins include the Altamira Canyon Drainage Basin, the Portuguese Canyon/Paintbrush Canyon Drainage Basin, and the Klondike Canyon Drainage Basin. It is estimated that 50-75% of storm water infiltrates the canyons to become groundwater, primarily through fractures and expansive soils. Although the City has established drainage facilities within these canyons, the landslide movement causes damage to drainage facilities which enables more storm water to enter the surface below. **Figure 12.1** shows a damaged half corrugated pipe system along Palos Verdes Drive South resulting from continuous landslide movement:

Figure 12.2: Landslide Damage to Palos Verdes Drive South

To combat infiltrating storm water and landslide movements, the City has established mitigation infrastructure and improvements as part of efforts to slow the rate of the landslides and to minimize the likelihood of catastrophic landslide movements. This mitigation infrastructure consists of, grading, and dewatering wells in addition to drainage and sewer systems. For this section of the report, only the, grading, and dewatering wells were evaluated. The grading performed by the City in 1986 and recently in 2010 has resulted in significant benefits for the City. Also, the City's dewatering wells (in addition to other wells not owned by the City) help extract groundwater which enables subsurface ground movement. Overall, it appears that the mitigation efforts and infrastructure are effective in slowing subsurface land movement and preventing storm water from collecting/ponding.

After reviewing several documents related to the City's landslide mitigation infrastructure, the following three categories were evaluated:

1. The capacity of the infrastructure to prevent or slow subsurface land movement
2. The condition of the infrastructure as it relates to operation and maintenance.
3. The environmental impacts as it relates to maintaining dwellings, landscapes, and utilities, and protecting the public from harm.

Final Grade

After looking at the three grading criteria categories, it was determined that although the condition and environmental impacts of the infrastructure (i.e. grading/drainage) was measurable , and although the dewatering wells extract a large amount of groundwater, the infrastructure is inadequate during years of high rainfall, leaving the City's streets and building vulnerable to landslide damage. Overall, the City's landslide mitigation infrastructure earned a grade of A.

Recommendations

Based on the assessment and grade of the City's sewer infrastructure, we recommend the following actions:

- **Maintain a strong CIP program**
  A strong CIP program adds new infrastructure and also replaces existing failing infrastructure.
- **Continue to seek and obtain Funding Sources**

The City's existing funding sources, although adequate for routine maintenance, may need to be supplemented to implement larger improvement projects, especially after a landslide emergency.

- **Maintain a strong maintenance program**
  Strong maintenance ensures properly working mechanical infrastructure, and also corrects eroded grading improvements.
- **Continue to Work Together with other agencies**
  A portion of dewatering wells located in the City are not owned by the City. Thus, the City would benefit from a continued and strong alliance with all owners of landslide mitigation infrastructure.
- **Groundwater sources in neighboring cities should be investigated and minimize, if possible**

Sources

This report summary and the grade assigned for the City's landslide mitigation infrastructure system has been has been determined as a result of the following sources of data:

- 2012 Abalone Cove, Portuguese Bend, and Klondike Canyon Landslides: Landslide Workshop Presentation
- Discussions with City Staff

SECTION 14: ACKNOWLEDGEMENTS

City of Rancho Palos Verdes:

- **Siamak Motahari**
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  Public Buildings, Parks, Trails
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Infrastructure Report Card -

THE CITY OF RANCHO PALOS VERDES