Agenda Item #:_____

Staff Report
City of Manhattan Beach

TO: Honorable Mayor Wilson and Members of the City Council

THROUGH: Geoff Dolan, City Manager

FROM: Neil C. Miller, Director of Public Works
Dana Greenwood, City Engineer

DATE: January 18, 2005

SUBJECT: Presentation of Storm Water System Overview and Update on Storm Water Capital Improvement Program

RECOMMENDATION:
Staff recommends that the City Council accept staff's presentation of the Storm Water System Overview and Storm Water Capital Improvement Program Update and provide direction, if appropriate.

FISCAL IMPLICATION:
There is no anticipated fiscal impact at this time. However, depending on direction provided by Council, it may be necessary to budget future projects.

BACKGROUND:
As illustrated in Exhibit A, the storm drain system within the City of Manhattan Beach consists of storm drains owned and operated by both the City of Manhattan Beach and the County of Los Angeles. In fact, the major drains within the City are County facilities. They represent the backbone of this hybrid system. This main line system, which discharges onto the beach at the vicinity of 27th Street, consists of a combination of 1952, 1958 and 1964 bond issue projects. The majority of this system was built according to hydrology standards established at that time, which are now over 50 years old.

The City completed a Storm Drain Master Plan Study in 1997. The results of this study indicated that the County's system capacity was anywhere from 55% to 70% of what it should be by current standards. The County reviewed the City's study and they agreed with the study's conclusions.

The County was then asked to evaluate alternatives for correcting this deficiency. After evaluating several options, they were able to determine that the most cost-effective alternative would be to construct a parallel relief drain which would cost between $20 to $22 million (1999 dollars). The County indicated that the benefits derived from a project of this magnitude could not justify the expenditure. In addition to the cost of the project, it should also be expected that construction of a

new ocean outfall would be opposed by environmental groups concerned with water quality in Santa Monica Bay, as well as the Coastal Commission.

In anticipation of the County's findings, staff went ahead and focused attention on projects that would mitigate drainage problems without relying on an upgrade to the County's system. The City's projects therefore primarily focused on problems in the Sand Section, and also on projects that would either improve the efficiency of existing City systems, or that could mitigate flooding problems independent of the County's storm drain system.

DISCUSSION OF CITY STORM DRAIN PROGRAM:

At the March 17, 1998 City Council meeting, the City Council was provided with an update on the City's Storm Drain Improvement Program. The status of a previously-completed Master Plan was discussed and project priorities recommended by staff were approved by Council. Since that time, the following projects have been completed:

Project	**Status**	**Cost**	**Fund Source**
Highland Avenue Cross-Swale at 25th Street	completed	$ 198,000	Proposition C
21st Street and Peck Avenue Storm Drain	completed	$ 191,000	City funds
Storm Drain at 5th Street and Bayview Drive	completed	$ 80,000	City funds
Golf Course Pump Station Improvements	completed	$ 80,000	City funds
31st Street and Bayview Drive Storm Drain	completed	$ 160,000	FEMA & Prop. C
American Martyr's Sump Study	completed	$ 29,000	City funds
Storm Drain at 2900 Block of Laurel Avenue	completed	$ 150,000	City funds
30th Street/Bell Avenue Retention Basin	completed	$ 255,000	Proposition A
Sand Dune Park Storm Drain	completed	$ 31,000	Proposition A
Total:		$1,174,000	

These projects were completed using a combination of County Department of Public Works contributions, County Proposition C funds, FEMA grants, and City Storm Water Enterprise funds.

Also in the 1998 report, it was noted that a drainage deficiency at 36th Street near Blanche was not recommended as a high priority because it was dependent upon improving the County's storm drain system downstream.

Finally, the last Highland cross-swale that was programmed to be addressed with the 15th Street/Highland Storm Drain Project has been purposely delayed to avoid conflicts with the ongoing construction at both Metlox and the City's Police/Fire facility. This project is nearing completion of the design phase. Staff anticipates that construction on this final programmed project would start in Spring 2005.

Walnut/Marine Flooding Problems

At the March 17, 1998 meeting, a resident attending the meeting spoke to the Council with respect to his concerns over the recurring flooding problems at the intersection of Walnut and Marine Avenue. It has been well-documented in the Storm Drain Master Plan that this flooding problem is directly attributed to the County's storm drain system being undersized and unable to handle the current run-off tributary to this intersection.

As noted above, at the City's request, the Los Angeles County Department of Public Works conducted a study of this drainage deficiency. The deficient drain is a 1952 bond issue project that collects drainage from over 70% of the City. Both the City's consultant conducting the City's Storm Drain Master Plan and the County's staff agree that the current capacity of the storm drain only meets 55% to 70% of what would be required under today's design criteria. This deficiency is attributed to the fact that since 1952, there has been considerable development within the City and the run-off has increased accordingly.

The County's study indicated that it would cost approximately $20 to $22 million to correct this deficiency. They had indicated in a letter to the City dated April 24, 2000 (copy attached) that the proposed solution was very costly when compared to storm drains that they were currently constructing in other cities.

Walnut/Marine Detention Solution

Staff has conducted a very preliminary investigation into the possibility of constructing a detention facility in the vicinity of this intersection. To effectively prevent temporary ponding of flood waters outside of the street right-of-way, several detention basin alternatives were evaluated.

1) If a surface basin approximately five feet deep was constructed over one residential lot in this area, the capacity would not be sufficient to avoid flooding private property (estimated cost $1.2 million).

2) If a surface basin approximately five feet deep was constructed over two adjacent lots, this would provide sufficient capacity to avoid street flooding (estimated cost $2.3 million).

3) If a surface basin was constructed over two non-adjacent lots, the capacity would not be sufficient to avoid water ponding on private property (estimated cost $2.4 million).

4) If an underground basin similar to the Bell Avenue Retention Basin was constructed under one residential lot, this would provide sufficient capacity to avoid flooding of private property. However, the intersection would still be flooded under this scenario (estimated cost $1.4 million).

Assuming that a lot could be acquired in the immediate vicinity of the intersection of Marine and Walnut, Alternative 4 would be the most cost-effective way to manage the flooding situation at this intersection.

Polliwog Park Flooding Problems

With the recent rains, the City's retention facility at Polliwog Park has been featured on local news broadcasts. As noted in Exhibit A, Polliwog Park is fed by storm drains serving the area north of the park and a large drainage area essentially to the south and east of the park. To the southeast corner of the pond, there is a County storm water pump station that provides the only outlet for the pond. The pump station has two pumps that when combined are capable of pumping up to 8,300 gallons-per-minute. Both of these pumps are controlled automatically by a float switch. The first pump comes on when the water surface in the pond rises approximately two feet. The second pump comes in the event that the water surface of the pond rises to a point four feet above the original pond surface.

With the high intensities and the large amounts of rain that the City had received recently, the retention basin's capacity was stretched to the ultimate limit. County rain gauge data collected in Manhattan Beach indicated that the City experienced a peak 24-hour rainfall in excess of that of a 50-year storm. Originally, the basin was designed to retain 33 acre-feet. Staff estimates that the basin recently retained over 40 acre-feet when it overflowed into the streets. With both County pumps working at capacity, it is estimated that it would take approximately five hours just to draw down the maximum water surface of the pond one foot. It was also noted that because of the water in the pond, water backed up in the storm drain system to the south, resulting in ponding water at the intersection of 11th Street and Redondo Avenue.

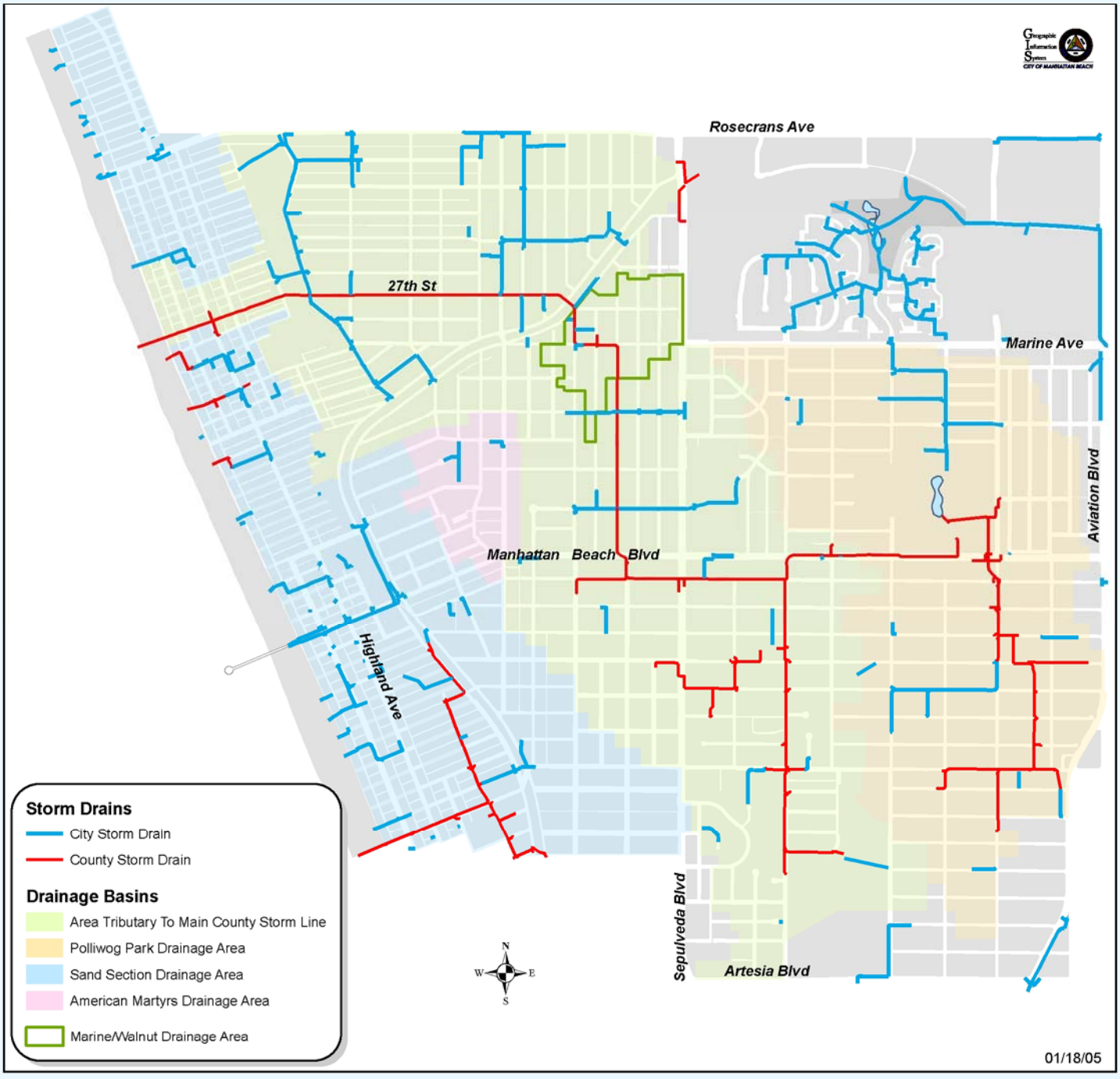
CONCLUSIONS:

Solving the deficiency of the County's main line drainage system remains an expensive ($20 to $22 million) unfunded project. The City should continue to focus on solving flooding problems that occur independently of the County's system.

Attachments: A. GIS map of Storm Water System
B. GIS map of Storm Drain Improvements
C. County Letter (not available in electronic format)

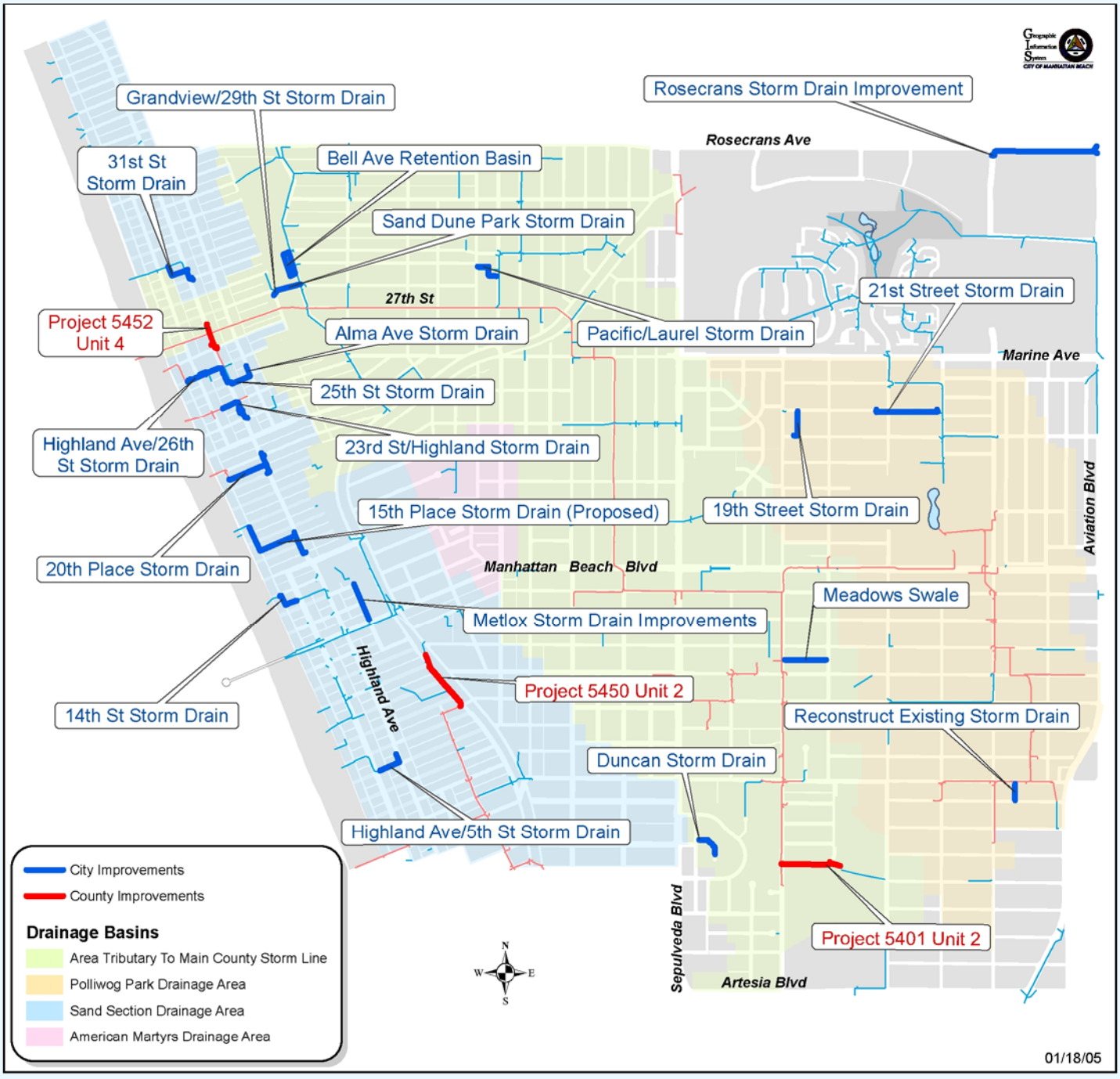
Storm Water System

City of Manhattan Beach



Storm Drain Improvements

City of Manhattan Beach



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