APPENDIX I

Technical Memorandum: Green Streets Priority Exemption

TECHNICAL MEMORANDUM:

Green Streets Priority Project Exemption for:

College Boulevard Improvement Project,

Oceanside, CA

Prepared for:

Dudek

July 21, 2015

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TECHNICAL MEMORANDUM

TO: Mr. Shawn Shamlou
Dudek

FROM: Tory Walker, PE, CFM, LEED GA

DATE: July 23, 2015

RE: Green Streets Priority Project Exemption for: College Boulevard Improvement Project, Oceanside, CA.

INTRODUCTION

Under the current Hydromodification Management Plan (HMP) requirements from the San Diego Regional Water Quality Control Board (SDRWQCB), if a project consists of "Retrofitting or redevelopment of existing paved alleys, streets or roads that are designed and constructed in accordance with the USEPA Green Streets guidance, then the project can qualify for a hydromodification exemption". This hydromodification exemption is laid out in the MS4 Permit Order No. R9-2013-00001[1], and represents one of the exemptions allowed by the permit.

The purpose of this memo is to demonstrate that the College Boulevard Improvement Project, which proposes to widen College Boulevard between Olive Drive and Old Grove Road, meets the requirements to qualify as a Green Street project, and is therefore exempt from hydromodification. This will be proven by demonstrating that the project is in agreement with the guidance presented in Environmental Protection Agency's (EPA) Municipal Handbook[2] titled "*Managing Wet Weather with Green Infrastructure"*.

GREEN STREETS EXEMPTION

As stated in the EPA Municipal Handbook, *"Green streets can incorporate a wide variety of design elements including street trees, permeable pavements, bioretention, and swales".* However, in deciding which design elements to incorporate, one must look at variables such as safety, street longitudinal slope, maintenance, traffic loads and vehicular speed among others, which determine if a design element is physically feasible for the project or not. The different design elements will be presented in this section and their practicality to the College Boulevard Improvement Project.

Alternative Street Designs (Street Widths): This element design consists of minimizing the impervious area when building a new street. If an existing street is being redeveloped or retrofitted, opportunities to reduce impervious area should be explored.

Practicality: The College Boulevard Improvement Project looks to widen an existing road which is already constrained on both sides. However, in areas where the width of the median is wide enough, impervious area will be replaced with low maintenance landscaping with no irrigation (except to

establish the drought tolerant vegetation). The vegetation will be covered with stabilized compost, which will help retain water and reduce erosion potential.

Swales: Swales help reduce stormwater volume, as they provide vegetated channels that receive and slow runoff, which allows for increased soil infiltration.

Practicality: For this project, it is not feasible to implement swales because of the longitudinal slopes of the stretch of College Boulevard that is being widened. Additionally, on the sides of the roads there is not adequate space to implement a swale. Lastly, the median is not an ideal location to place a swale because it will be difficult and unsafe for maintenance personnel to access this area.

Bioretention Curb Extensions and Sidewalk Planters: Bioretention features can take runoff from the streets and can consist of tree boxes or other types of planter boxes. Stormwater curb extensions place a rain garden into which runoff flows.

Practicality: Non-contiguous sidewalks were not possible to incorporate in every location of the project. However, where feasible the College Boulevard Improvement Project has non-contiguous sidewalks as part of the design. In essence, before water drains from the sidewalk into the curb gutter, it becomes intercepted by the sidewalk planter, thus reducing the flows into the street.

Permeable Pavement: Permeable pavers come in different forms, such as permeable concrete, permeable asphalt, permeable interlocking concrete pavers, and grid pavers. Although each system looks different, they all contain an aggregate base which provides structural support, runoff storage, and pollutant removal through filtering and adsorption.

Practicality: Permeable pavers are not physically feasible at any location for this project because of the vehicular speed, traffic loads and longitudinal slopes along College Boulevard.

Sidewalk trees and tree boxes: Trees not only reduce stormwater runoff but they also provide better air quality, reduce the heat by providing shade and also look good aesthetically.

Practicality: Sidewalk trees and tree boxes are not a good design element for this project because the vehicular speeds make it unsafe for traveling vehicles. Additionally, there is not enough space to adequately provide a hospitable environment for trees.

CONCLUSION

This technical memorandum has demonstrated that the proposed College Boulevard Improvement Project site is exempt from HMP as the design elements from the EPAs Municipal Handbook were implemented by the project wherever it was technically feasible. The project is thus considered a Green Streets Priority Exemption Project per Order No. R9-2013-00001.

REFERENCES

[1] – Order R9-2013-001, California Regional Water Quality Control Board San Diego Region (SDRWQCB).

[2] – *"Managaing Wet Weather with Green Infrastructure, Municipal Handbook, Green Streets"* December 2008, Robb Luked, Christopher Kloss, Low Impact Development Center.