CITY OF LONG BEACH

DEPARTMENT OF HEALTH AND HUMAN SERVICES

2525 GRAND AVENUE • LONG BEACH, CALIFORNIA 90815 • (562) 570-4000 • FAX: (562) 570-4049

R-35

May 7, 2019

HONORABLE MAYOR AND CITY COUNCIL
City of Long Beach
California

RECOMMENDATION

Adopt a Resolution preliminarily approving the Engineer's Report and mailing of benefit assessment ballots for the Mosquito and Vector Control Program (VCP) to property owners within the boundaries of the proposed benefit assessment district; setting the date of Tuesday, July 2, 2019 for the public hearing on the proposed VCP benefit assessment;

Adopt a Resolution adopting Proposition 218 assessment ballot proceedings procedures, providing a record of the decisions regarding implementation of the provisions of Proposition 218 relating to assessments; and,

Authorize the City Manager, or designee, to direct the City's consultant, SCI Consulting Group, to proceed with the mailing of VCP benefit assessment ballots on May 17, 2019, at a maximum of $8.21 per Single Family Equivalent per year, and return to City Council for a public hearing and closing of the ballot period on July 2, 2019. (Citywide)

DISCUSSION

On October 2, 2018, the City Council approved a contract with SCI Consulting Group (SCI) to research the feasibility of establishing a benefit assessment district to fund mosquito and vector control in areas of the City not currently covered by a benefit assessment. On March 19, 2019, the City Council received the results of the public opinion survey and feasibility analysis (Attachment A), and directed staff to continue the process for a new funding measure, to prepare an Engineer's Report and the notice and ballot for a Proposition 218 (Prop. 218) benefit assessment, providing new or enhanced services to control mosquitoes and other vectors in the Vector Control Program (VCP) service area. The dedicated funding generated by the proposed assessment district would support an enhanced level of service above the baseline level established in the Engineer's Report. This enhanced level of service would include increasing staff capacity to provide year-round control of invasive mosquitoes and other pests using environmentally sound methods, and to monitor public health issues, such as West Nile virus, Zika, Typhus, and other emerging vector-borne diseases.

If approved, the proposed VCP assessment will be included on the vector service area property owner's next annual tax bill. Thus, an important timing consideration is the Los Angeles County Auditor's (LACo Auditor) requirement to have any new levies submitted by August 9, 2019.

Meeting the LACo Auditor's requirement is a key driver in establishing project milestones, as identified below:

May 7	City Council meeting with request to approve Prop. 218 procedures, engineer's report and direct mailing of ballots.
May 17	Mail assessment ballots (must be out 45 days).
July 2	City Council meeting/public hearing. Closes balloting and calls for tabulations.
July 3-15	City Clerk tabulates ballots.
July 16	City Council meeting to announce ballot results and if approved, establish district and order levies.
August 9	Submit assessment levies to Los Angeles County Auditor for FY 20.
December 2019	Assessment funding provided to City Treasurer.

Two Resolutions and a public hearing are requirements for this process.

Resolution #1

The first Resolution preliminarily approves the Engineer's Report, orders the mailing of notices and ballots to property owners within the boundaries of the proposed assessment district, and sets July 2, 2019 as the date for the public hearing on the proposed assessments.

The total assessment and rates are based on the level of benefit received and are shown in Section 5 of the Resolution. These rates are classified in four categories (Zone A, Zone B, Zone C, and Zone D), with Zone A receiving the highest level of benefit. It should be noted that approximately 99 percent of parcels in the benefit assessment area are in Zone A, at a Single Family Equivalent rate of $8.21 per year. The remaining zones are assessed at a slightly lower rate.

The cost escalator mechanism describing the changes in the maximum assessment rate, calculated in accordance with the Los Angeles Area Consumer Price Index (CPI), is contained in Section 9 of the Resolution.

The Engineer's Report (Attachment B) is the technical document associated with the proposed benefit assessment. The report was prepared by SCI and details the benefits from the proposed assessments, the method of assessment, an estimate of cost and budget for the assessments, and justification of the proposed assessments. The main sections of the Engineer's Report are:

- The CPI calculation in this report allows for an increase of up to 3 percent annually, to keep up with the costs of providing services;
- The VCP services section was prepared by the Health and Human Services Department;
- The VCP preliminary budget;

- The Zones of Benefit were identified after review of service levels, consideration of the amount of surveillance work conducted in these areas, and population density and proximity factors;
- The Special Benefits section;
- The General Benefit calculations; and,
- The Method of Assessment.

For a geographical overview of the VCP benefit assessment district, please see the color-coded map provided at the end of the Engineer's Report. This map also depicts the Zones of Benefit referred to in the section above.

The public hearing on July 2, 2019 will conclude the 45-day ballot period, as required by State law governing the procedures for benefit assessment ballot proceedings. The public hearing is to give all interested parties the opportunity to hear comments regarding the proposed VCP assessment and ballot proceeding, and for the City Council to accept any additional ballots. Following the close of the public input portion of the public hearing, the City Council may continue the public hearing to July 16, 2019 to allow sufficient time for the tabulation of ballots received, and may direct the City Clerk, the tabulator, to commence tabulation of all valid ballots that are received prior to the close of the public input portion of the public hearing.

The tabulation of ballots is expected to be completed by the City Council meeting scheduled for July 16, 2019, and the results from the City Clerk will be reported to the City Council and the public at the beginning of the City Council meeting. At its July 16, 2019 meeting, assuming the majority of weighted ballots cast are in favor of the measure, the City Council may consider a Resolution to levy the assessments for mosquito, vector and disease control for fiscal year 2019-20. The proposed assessments will initially generate an estimated $753,474 for fiscal year 2019-20. In future years, the assessments may continue to be levied and the rate of assessment can be increased by the annual change in the CPI for the Los Angeles-Long Beach-Anaheim Area, not to exceed 3 percent per year, following the preparation of an updated Engineer's Report and the City Council's conducting a public hearing on the continuation of the assessments.

Resolution #2

The second Resolution adopts Prop. 218 ballot proceedings procedures, provides a record of the decisions regarding implementation of the provisions of Prop. 218 relating to assessments.

Upon consideration of the Engineer's Report and the two resolutions, the City Council may approve the Resolutions to move forward with a Prop. 218 benefit assessment mailed ballot measure. The ballots will seek approval from the impacted parcel owners for the formation of the VCP benefit assessment district. The Health and Human Services Department will return to the City Council on July 2, 2019 for the public hearing and the end of the 45-day ballot period.

This matter was reviewed by Deputy City Attorney Gary J. Anderson on April 17, 2019 and by Budget Analysis Officer Julissa Jose-Murray on April 22, 2019.

TIMING CONSIDERATIONS

City Council action is requested on May 7, 2019, to ensure the VCP benefit assessment milestones are achieved in compliance with LACo Auditor submission requirements.

FISCAL IMPACT

If approved, the total level of funding for the proposed service area will be $847,784 for FY 20. Of this amount, $753,474 is estimated to be generated from the VCP benefit assessment district and a general benefit contribution of a minimum of $94,310 is projected to be provided by the Health Fund. In future years, the assessments may continue to be levied at the discretion of the City Council and the rate of assessment may be increased by the annual change in the CPI for the Los Angeles-Long Beach-Anaheim Area, not to exceed 3 percent per year, following the preparation of an updated Engineer's Report and the City Council's conducting a public hearing on the continuation of the assessments. This recommendation will result in minimal impact to staff hours beyond normal budgeted scope of duties and is consistent with existing City Council priorities. There is no local job impact associated with this recommendation.

SUGGESTED ACTION

Approve recommendation.

Respectfully submitted,

KELLY COLOPY
DIRECTOR
HEALTH AND HUMAN SERVICES

Attachments: Resolutions (2)
Attachment A – March 19, 2019 Staff Report
Attachment B - Engineer's Report

APPROVED:

PATRICK H. WEST
CITY MANAGER

RESOLUTION NO.

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LONG BEACH ADOPTING PROPOSITION 218 ASSESSMENT BALLOT PROCEEDINGS PROCEDURES

WHEREAS, Proposition 218 was adopted on November 6, 1996, adding Articles XIIIC and XIIID to the California Constitution; and

WHEREAS, Articles XIIIC and XIIID of the California Constitution impose certain procedural and substantive requirements relating to assessments (as defined); and

WHEREAS, the City Council believes it to be in the best interest of the Long Beach Health Department's Bureau of Environmental Health Mosquito and Vector Control Program (VCP) to record its decisions regarding implementation of the provisions of Proposition 218 relating to assessments and to provide the community with a guide to those decisions and how they were reached;

NOW, THEREFORE, the City Council of the City of Long Beach resolves as follows:

Section 1. Statement of Legislative Intent. In adopting this resolution, it is the City Council's intent to adopt assessment ballot proceedings, which are consistent and in compliance with Articles XIIIC and XIIID of the California Constitution and with the Government Code Sections 53750 through 53754. It is not the intent of the City Council to vary in any way from the requirements of either the California Constitution or the laws of the State of California.

Section 2. Definition of Assessment. Proposition 218 defines "assessment" as "any levy or charge by an agency upon real property that is based upon the special benefit conferred upon the real property by a public improvement or services, that is imposed to pay the capital cost of the public improvement, the maintenance and

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operation expenses of the public improvement or the cost of the service being provided." "Assessment" includes, but is not limited to, "special assessment," "benefit assessment," "maintenance assessment," and "special assessment tax."

Section 3. Vector Control. According to Government Code section 53750(l) "vector control means any system of public improvements or services that is intended to provide for the surveillance, prevention, abatement, and control of vectors as defined in subdivision (k) of Section 2002 of the Health and Safety Code and a pest as defined in Section 5006 of the Food and Agricultural Code."

Section 4. Assessment Ballot Proceeding. The following procedures shall be used in an assessment ballot proceeding that follows the requirements of Article XIIID, section 4 of the California Constitution:

A. Amount of Assessment. Only special benefits are assessable. The amount of each assessment shall be each identified parcel's proportionate share of the cost of the vector control services and capital improvement costs based upon that parcel's special benefit from the improvement or service. The amount shall be proportional to and no greater than the special benefits conferred on the property.

B. Engineer's Report. The City Council shall direct the filing of an engineer's report that shall comply with the applicable state statute authorizing the assessment and with Article XIIID, Section 4, of the California Constitution. The engineer's report shall explain the special benefit conferred by the improvement or service. The engineer's report shall also provide the evidence upon which the City Council may find that a special benefit exists. If the improvement or service confers a general benefit, the engineer's report shall describe the general benefit and an alternative funding source for any general benefits. The engineer's report shall be prepared by a registered professional engineer certified by the State of California (the "Assessment Engineer").

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C. Notice. The following guidelines shall apply to giving notice of an assessment:

1. The record owner(s) of each parcel to be assessed shall be determined from the last equalized property tax roll. If the property tax roll indicates more than one owner, each owner shall receive notice. Only property owners shall receive notice;

2. The notice shall be sent at least forty-five (45) days prior to the date set for the public hearing on the assessment;

3. The notice provided by this section shall contain the following information:

a. The total amount to be assessed for the entire assessment district;

b. The amount to be assessed to the owner's particular parcel;

c. The duration of the payments;

d. The reason for the assessment;

e. The basis upon which the amount of the proposed assessment was calculated;

f. The date, time and location of the public hearing on the proposed assessment;

g. A summary of the procedures for the completion, return and tabulation of the assessment ballots;

h. A disclosure statement that the existence of a majority protest will result in the assessment not being imposed; and

i. A ballot to be completed by the owner, as further described in section 4D of this resolution.

4. The notice provided in accordance with this section and in accordance with Government Code Sections 53753(b) and (c) shall

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supersede and be in lieu of any other statutes requiring notice to levy or increase an assessment, including but not limited to the notice required by the state statute authorizing the assessment and Government Code section 54954.6;

5. Failure of any person to receive notice shall not invalidate the proceedings;

6. The cost of providing notice shall be included as a cost of the assessment.

D. Assessment Ballot. The following guidelines shall apply to the assessment ballot:

1. The ballot required by Article XIIID, section 4(d), of the California Constitution shall be mailed with the notice to all property owners of record subject to the proposed assessment at least forty-five (45) days prior to the date of the public hearing on the proposed assessment. This ballot and the ballot envelope shall comply with Government Code Sections 53753(b) and (c). The ballot envelope, in which the ballot and notice are enclosed, there shall appear in substantially the following form in no smaller than 16-point bold type: "OFFICIAL BALLOT ENCLOSED." The ballot shall be designed in such a way that, once sealed, its contents are concealed.

2. All ballots must be returned either by mail or by hand delivery not later than the date for return of ballots stated on the notice and ballot described in this section. Mailed ballots must be returned to the City Clerk, the company/person delegated and approved by the City Council to tabulate the ballots (the "Tabulator"), at the address shown on the ballot: Office of the City Clerk, City of Long Beach, 333 West Ocean Boulevard, Lobby Level, Long Beach, CA 90802, or, if delivered at the time and location of the public hearing, to the City Clerk. Ballots must be returned either by mail or by hand delivery prior to the conclusion of the public input

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portion of the public hearing.

3. Each ballot must be signed under penalty of perjury. In the event that more than one of the record owners of a parcel submits an assessment ballot, the amount of the proposed assessment to be imposed upon the parcel shall be allocated to each ballot submitted in proportion to the respective record ownership interests or, if the ownership interests are not shown on the record, as established to the satisfaction of the City Clerk or the Assessment Engineer by documentation provided by the record owners. If two or more persons own a parcel subject to the assessment, any one owner may cast an assessment ballot for all owners.

4. If a parcel has multiple owners, any owner may request a proportional assessment ballot. If the ownership interest of the owner is not shown on the last equalized secured property tax assessment roll, such request must include evidence, satisfactory to the City Clerk, of the owner's proportional rights in the parcel. The City Clerk will provide the proportional ballot to the owner at the address shown on the assessment roll. Any request for a ballot to be mailed to another location must include evidence, satisfactory to the City Clerk, of the identity of the person requesting the ballot. Each proportional ballot will be marked to identify it as a proportional ballot and to indicate the owner's proportional rights in the parcel. The City Clerk will keep a record of each proportional ballot provided to an owner.

5. The City Clerk will only accept official ballots mailed or otherwise provided to owners by the City Clerk.

6. If an assessment ballot is lost, withdrawn, destroyed or never received, the City Clerk will mail or otherwise provide a replacement ballot to the owner upon receipt of a request delivered to the City Clerk or the Assessment Engineer. The replacement ballot will be marked to identify it as a replacement ballot or a replacement proportional ballot. Any

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request for a replacement or replacement proportional ballot to be mailed to another location must include evidence, satisfactory to the City Clerk or the Assessment Engineer, of the identity of the person requesting the ballot. The same procedure applies to replacement ballots or replacement proportional ballots, which are lost, withdrawn, destroyed, or never received.

7. If an assessment ballot is returned by the United States Post Office as undeliverable, the City Clerk may mail a redelivered ballot to the current property owner, if updated ownership or owner mailing address can be determined. The redelivered ballot will be marked to identify it as a redelivered ballot.

8. An assessment ballot proceeding is not an election or voting for purposes of Article II of the California Constitution.

9. Assessment ballots shall remain sealed until the tabulation of ballots commences, provided that an assessment ballot may be withdrawn or changed by the person who submitted the ballot prior to the conclusion of the public input portion of the hearing on the assessment. An assessment ballot is a disclosable "public record" as that phrase is defined by Government Code section 6252 during and after tabulation of the ballots.

10. The California Government Code requires that assessment ballots be signed by property owners.

11. To complete an assessment ballot, the owner of the parcel or his authorized representative must (1) mark the appropriate box (or circle) supporting or opposing the proposed assessment, and (2) sign, under penalty of perjury, the statement on the ballot that the person completing the ballot is the owner of the parcel or the owner's authorized representative. Only one box may be circled or marked on each ballot. All

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incomplete or improperly marked ballots shall be disqualified from balloting. The City Clerk will retain all such invalid ballots.

12. After returning an assessment ballot to the City Clerk, the person who signed the ballot may withdraw the ballot by submitting a written statement to the City Clerk directing the City Clerk to withdraw the ballot. Such statement must be received by the City Clerk prior to the close of the public input portion of the public hearing on the proposed assessment. When ballots for the assessment are tabulated, the City Clerk will segregate withdrawn ballots from all other returned ballots. The City Clerk will retain all withdrawn ballots and will indicate on the face of such withdrawn ballots that they have been withdrawn.

13. In order to change the contents of a ballot that has been submitted, the person who has signed that ballot may (1) request that such ballot be withdrawn, (2) request that a replacement ballot be issued, and (3) return the replacement ballot fully completed. Each of these steps must be completed according to the procedures set forth above and prior to the conclusion of the public input portion of the public hearing.

E. Tabulating Ballots. The following guidelines shall apply to tabulating assessment ballots:

1. Assessment ballots shall remain sealed until tabulation commences at the conclusion of the public input portion of the public hearing.

2. An independent third party may tabulate the assessment ballots (the "Tabulator"). The Tabulator shall follow the rules and procedures of the laws of the State of California, this resolution and any other rules and procedures of the City Council. If the Tabulator needs clarification, then they shall inquire of the City Council, who is the final arbiter. All ballots shall be accepted as valid except those in the following

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categories:

a. A photocopy of a ballot, a letter or other form of a ballot that is not an official ballot provided by the City Clerk;

b. An unsigned ballot, or ballot signed by an unauthorized individual;

c. A ballot which lacks an identifiable mark in the box for a "yes" or "no" vote or with more than one box marked, will not be counted;

d. A ballot which appears tampered with or otherwise invalid based upon its appearance or method of delivery or other circumstances;

e. A ballot for which the barcode representing the parcel number is damaged or obstructed, unless the parcel number or property ownership information is legible and allows the Tabulator to clearly determine the property(s) identified on the ballot.

f. A ballot received after the close of the balloting time period.

3. The Tabulator's decision, after consultation with the City Attorney, that a ballot is invalid shall be final and may not be appealed to the City Council.

4. If more than one of the record owners of a parcel submits an assessment ballot, the amount of the proposed assessment to be imposed upon the parcel shall be allocated to each ballot in proportion to the respective record ownership interests, as shown on the record or as established to the City Clerk's satisfaction by documentation provided by the record owners.

5. In the event of a dispute regarding whether the signer of a ballot is the owner of the parcel to which the ballot applies, the City

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Clerk will make such determination from the official County Assessor records and any evidence of ownership submitted to the City Clerk prior to the conclusion of the public hearing. The City Council will be under no duty to obtain or consider any other evidence as to ownership of property and its determination of ownership will be final and conclusive.

6. In the event of a dispute regarding whether the signer of a ballot is an authorized representative of the owner of the parcel, the City Clerk may rely on the statement on the ballot signed under penalty of perjury that the person completing the ballot is the owner's authorized representative and any evidence submitted to the City Clerk prior to the conclusion of the public hearing. The City Clerk will be under no duty to obtain or consider any other evidence as to whether the signer of the ballot is an authorized representative of the owner and its determination will be final and conclusive.

7. A property owner who has submitted an assessment ballot may withdraw the ballot and submit a new or changed ballot up until the conclusion of the public input portion of the public hearing on the assessment. Assessment ballots may be withdrawn and newer changed ballots submitted up until the conclusion of the public input portion of the public hearing on the assessment.

8. A property owner's failure to receive an assessment ballot shall not invalidate the proceedings conducted under this section and section 4, Article XIIID, of the California Constitution.

9. The City Clerk shall retain all ballots for a period of two (2) years from the date of the public hearing.

F. Public Hearing.

1. At the public hearing, the City Council shall hear and consider all public testimony, objections and protests regarding the

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proposed assessment and accept ballots until the close of the public input portion of the public hearing.

2. Reasonable time limits may be imposed on both the length of the entire hearing and the length of each speaker's testimony.

3. At the conclusion of the public input portion of the hearing, but prior to the conclusion of the public hearing, the Tabulator shall begin tabulation of the ballots at the direction of the City Council.

4. If it is not possible to tabulate the ballots on the day of the public hearing, or if additional time is necessary for public testimony, the City Council may continue the public hearing to a later date to receive additional testimony, information, or to finish tabulating the ballots.

5. If according to the final tabulation of the ballots, ballots submitted, and not withdrawn, in opposition of the proposed assessment exceed the assessment ballots submitted, and not withdrawn, in its favor, weighting those assessment ballots by the amount of the proposed assessment to be imposed upon the identified parcel, a "majority protest" exists and the City Council shall not impose the assessment.

Section 5. This resolution shall take effect immediately upon its adoption by the City Council, and the City Clerk shall certify the vote adopting this resolution.

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I hereby certify that the foregoing resolution was adopted by the City Council of the City of Long Beach at its meeting of _____, 2019 b by the following vote:

Ayes: Councilmembers: _____

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Noes: Councilmembers: _____

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Absent: Councilmembers: _____

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City Clerk

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RESOLUTION NO.

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LONG BEACH INITIATING PROCEEDINGS, PROVIDING NOTICE OF ITS INTENTION TO LEVY ASSESSMENTS, PRELIMINARILY APPROVING THE ENGINEER'S REPORT, AND PROVIDING FOR NOTICE OF HEARING, AND THE MAILING OF ASSESSMENT BALLOTS FOR THE VECTOR CONTROL PROGRAM, MOSQUITO, VECTOR AND DISEASE CONTROL ASSESSMENT

WHEREAS, the Long Beach Health Department's Bureau of Environmental Health Mosquito and Vector Control Program (VCP) desires to provide comprehensive mosquito abatement, vector control and public health protection services; and

WHEREAS, the mission of the VCP is to serve the public by suppressing populations of mosquitoes and other vectors of human disease-carrying potential, and reduce annoyance levels below generally acceptable thresholds, in order to protect the public health and comfort and permit full use and enjoyment of outdoor areas by residents and visitors within the VCP's service area ("Service Area"); and

WHEREAS, the VCP hereby proposes to establish a benefit assessment on all benefiting properties within the VCP boundaries to continue and enhance services and public improvements ("Services") that provide direct and special benefits to certain real properties in its service area ("Assessment Area" or "Assessment District"); and

WHEREAS, the VCP has designated SCI Consulting Group as Engineer of Work ("Assessment Engineer") for purposes of these proceedings, and has requested SCI Consulting Group to prepare an Engineer's Report in accordance with the Government Code, Health and Safety Code and Article XIIID of the California

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Constitution; and

WHEREAS, an Engineer's Report ("Engineer's Report") has been prepared by the Assessment Engineer and submitted to the City Council, in which a new assessment is proposed to fund the cost of providing the Services. The Report, which is available for public review at the City Clerk's office, located at 333 West Ocean Blvd., Long Beach CA 90802, is hereby incorporated by reference. This Engineer's Report includes: (1) a description of the Services to be funded with assessment proceeds; (2) an estimate of the annual cost of such Services; (3) a description of the assessable parcels of land within the VCP service area and proposed to be subject to the new assessment; (4) a description of the proportionate special and general benefits conferred on property by the proposed assessment; (5) a description of the boundaries of the VCP, and (6) a specification of the amount to be assessed upon various types of assessable land to fund the cost of the mosquito, vector and disease control services. This proposed assessment shall be described as the "Mosquito, Vector and Disease Control Assessment" (hereinafter the "Assessment") of the Long Beach Health Department's Bureau of Environmental Health Mosquito and Vector Control Program;

NOW, THEREFORE, the City Council of the City of Long Beach resolves as follows:

Section 1. An Engineer's Report by a registered professional engineer, (the Engineer of Work) has been prepared in accordance with Article XIIID of the California Constitution and the California Government and Health and Safety Codes. The Engineer's Report has been made, filed with the City Clerk and duly considered by the City Council and is hereby deemed sufficient and preliminarily approved. The Engineer's Report shall stand as the Engineer's Report for all subsequent proceedings under and pursuant to the foregoing resolution.

Section 2. The City Council intends to levy and collect annual assessments within the Assessment Area to fund the cost of providing improved mosquito and disease testing and control services and the proposed projects and

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services set forth in the Engineer's Report. Within the Assessment Area, the proposed projects, services and programs are generally described as monitoring, disease prevention, abatement, and control of vectors within the VCP's boundaries. Such improved mosquito abatement, vector control and disease testing and prevention projects include, but are not limited to, source identification, monitoring, control and reduction; rapid and cost-effective mosquito, vector and disease identification, testing, control, management and response; efficient, focused, environmentally sensitive and efficient larvicide and adulticide applications; disease monitoring, public education, reporting, accountability, research and interagency cooperative activities; as well as capital costs, maintenance and operation expenses (collectively "Services and Improvements"). The cost of these Services also includes capital costs comprised of equipment, capital improvements and facilities necessary and incidental to the VCP's mosquito and vector control services.

Section 3. The Assessment consists of the lots and parcels shown on the assessment diagram of the Assessment, on file with the City Clerk, and reference is hereby made to such diagram for further particulars..

Section 4. Reference is hereby made to the Engineer's Report for a full and detailed description of the proposed projects and services, the boundaries of the Assessment and the proposed assessments upon assessable lots and parcels of land within the Assessment.

Section 5. The estimated cost of funding the Services described in the Report and funded by the Assessment for fiscal year 2019-20 is approximately $753,474. This cost results in a proposed assessment rate of Eight Dollars and Twenty One Cents ($8.21) per single family equivalent benefit unit in Zone of Benefit A, Seven Dollars and Fifty Five Cents ($7.55) per single family equivalent benefit unit in Zone of Benefit B, Six Dollars and Ninety Eight Cents ($6.98) per single family equivalent benefit unit in Zone of Benefit C, and Six Dollars and Ninety Eight Cents ($6.98) per single family equivalent benefit unit in Zone of Benefit D for fiscal year 2019-20.

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Section 6. A public hearing shall be held before this City Council as follows: 333 W. Ocean Boulevard Council Chamber, Long Beach CA 90802, on July 2, 2019 at the hour of 5:00 p.m. (or as soon as allowed by the council agenda) for the purpose of conducting a hearing and to consider all protests of property owners regarding the proposed Assessment and this Council's determination whether the public interest, convenience and necessity require the Services and this Council's final action upon the Engineer's Report and the assessments therein.

Section 7. The City Clerk is hereby authorized and directed to cause Notice of the hearing ordered hereof to be given in accordance with law by mailing, postage prepaid in the United States mail, and such Notice shall be deemed to have been given when so deposited in the mail. The mailed Notice shall be given to all property owners, by name, subject to the proposed assessments by such mailing to those persons whose names and addresses appear on the last equalized secured property tax assessment roll for the Los Angeles County, or in the case of any public entity, the representative of such public entity at the address thereof known to the City Clerk or the Assessment Engineer.

Section 8. The mailed public notice of this public hearing shall also contain the following information: (a) the total amount of assessments proposed to be levied within the Assessment for fiscal year 2019-20; (b) the assessment chargeable to each property owner's parcel; (c) the duration of the proposed assessment; (d) the reason for the proposed assessment; (e) the basis upon which the amount of the proposed assessment was calculated; (f) the date, time and place of the public hearing on the proposed assessment as specified in this Resolution. Further, each notice shall include, in a conspicuous place, a summary of the procedures to be used for the completion, return and tabulation of the assessment ballots including a statement that the assessment shall not be imposed if the ballots submitted in opposition to the assessment exceed the ballots submitted in favor of the assessment, with ballots weighted according to the proportional financial obligation of the affected property. Each Notice shall also

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contain an official assessment ballot, a summary of the procedures applicable to the completion, return and tabulation of assessment ballots, and a statement that the existence of a majority protest will result in the assessment not being imposed. The assessment ballot shall include the address for receipt of the assessment ballot and a place where the person returning the assessment ballot may indicate his or her name, a reasonable identification of the parcel and his or her support or opposition to the proposed assessment. Each ballot shall be in a form that conceals its contents once it is sealed by the person submitting the ballot. The Notice and assessment ballot shall be mailed not less than forty-five (45) days before the date of the public hearing.

Section 9. The assessments are proposed to be levied annually. If the proposed Special Assessments are approved and confirmed by the City Council, the Special Assessments may increase in future years by an amount equal to the annual change in the Consumer Price Index for All Urban Consumers (CPI-U) in Los Angeles-Long Beach-Anaheim, CA, not to exceed three percent (3%) per year, without a further vote or balloting process. In each subsequent year in which the assessments will be levied, an updated Engineer's Report, including a proposed budget and assessment rate, shall be prepared. The updated Engineer's Report shall be considered by the City Council at a noticed public hearing. The updated Engineer's Report shall serve as the basis for the continuation of the assessments.

Section 10. This resolution shall take effect immediately upon its adoption by the City Council, and the City Clerk shall certify the vote adopting this resolution.

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333 West Ocean Boulevard, 11th Floor
Long Beach, CA 90802-4664

I hereby certify that the foregoing resolution was adopted by the City Council of the City of Long Beach at its meeting of _____, 2019 b by the following vote:

Ayes: Councilmembers: _____

_____

_____

_____

Noes: Councilmembers: _____

_____

Absent: Councilmembers: _____

_____

_____

City Clerk

OFFICE OF THE CITY ATTORNEY
CHARLES PARKIN, City Attorney
333 West Ocean Boulevard, 11th Floor
Long Beach, CA 90802-4664

CITY OF LONG BEACH

DEPARTMENT OF HEALTH AND HUMAN SERVICES

2525 GRAND AVENUE • LONG BEACH, CALIFORNIA 90815 • (562) 570-4000 • FAX: (562) 570-4049

March 19, 2019

HONORABLE MAYOR AND CITY COUNCIL
City of Long Beach
California

RECOMMENDATION

Receive and file a report on the results of a survey to determine the level of support from property owners for a vector control funding measure in areas of the City not currently covered by a benefit assessment; and,

Authorize the City Manager, or designee, to direct the City's consultant, SCI Consulting Group, to proceed with the preliminary development of the engineer's report and ballot preparation to establish a benefit assessment district at the rate of $8.21 per Single Family Residence per year and return to the City Council for final review and approval in May 2019. (Citywide)

DISCUSSION

On October 2, 2018, the City Council approved a contract with SCI Consulting Group (SCI) to research the feasibility of establishing a benefit assessment district to fund mosquito and vector control in areas of the City not currently covered by a benefit assessment. Similar to establishment of a Business Improvement District, the process to establish a benefit assessment is subject to Proposition 218 (Prop. 218), which involves multiple steps, including surveys, data analysis, an engineer's report, mailed ballots, City Council direction, and a public hearing. If approved, the assessment is included on the property owner's annual tax bill. Thus, an important timing consideration is the Los Angeles County Auditor's (LACo Auditor) requirement to have any new levies submitted by August 9, 2019. Meeting the LACo Auditor's requirement is a key driver in establishing project milestones, as identified below:

January 17	Mail survey to property owners.
February 22	Survey results and presentation submitted to Health Department.
March 19	Survey results presented to City Council for direction regarding preparation of the benefit assessment district.
March / April	Engineer's report prepared by consultant with City Attorney review.
May 7	City Council meeting with request to approve Prop. 218 procedures, engineer's report and direct mailing of ballots.
May 17	Mail assessment ballots (must be out 45 days).
July 2	City Council meeting/public hearing. Closes balloting and calls for tabulations.
July 3 - 22	City Clerk tabulates ballots.
July 23	City Council meeting to announce ballot results and if approved, establish district and order levies.
August 9	Submit assessment levies to LACo Auditor for FY 19/20.
December 2019	Assessment funding provided to City Treasurer.

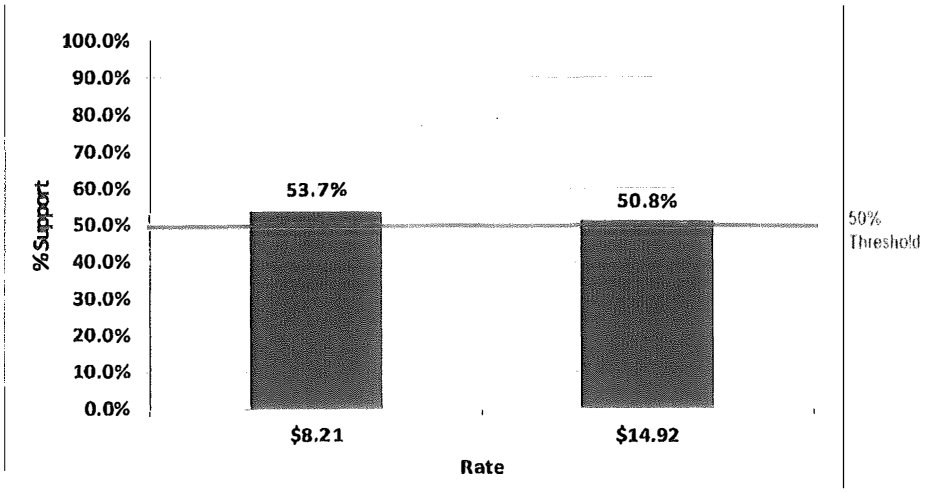
As part of the process, SCI conducted a survey to determine the priorities and level of property owner support for a vector assessment in unassessed areas of the City. To that end, a survey was mailed out to the property owners of approximately 20,000 parcels (out of 79,000) in the unassessed areas of the City. The survey was mailed out on January 18, 2019 and provided information to property owners on the vector control program and assessed their relative support for new or enhanced programs to control mosquitoes and other vectors in Long Beach.

Two key scenarios were explored in the survey. The first scenario measured support for vector services at an annual assessment of $8.21. This level of service would provide year-round control of invasive mosquitoes and other pests using environmentally sound methods. Monitoring for public health issues, such as West Nile virus, Zika, Typhus, and other emerging vector borne diseases would also be conducted. The second scenario measured support for creating an enhanced vector control program at an annual assessment of $14.92. The enhanced program would improve vector monitoring and improve response times to public health issues, such as West Nile virus, Zika, Typhus, and other emerging diseases. The enhanced program would also continue year-round control of invasive mosquitoes and other pests. In addition, the enhanced program would provide increased education and awareness to residents about protecting themselves from diseases carried by mosquitoes and other vectors. Services would be expanded to include addressing rodents, bats, rabies surveillance and investigations, and would provide additional monitoring for other public health threats such as emerging mosquito species.

As noted, two rates were tested for this project in the amounts of $8.21 and $14.92. The chart below shows the overall level of projected weighted support for each rate tested. The weighting of assessment ballots is the equivalent of one vote per dollar of proposed assessment. As an example, if the proposed assessment is $10 per home, an owner of two single family homes could cast a ballot that is worth $20 in weighted votes ($10 x 2), and the owner of one single family home could cast a ballot that is worth half as much, or $10 in weighted votes.

The chart below shows that the overall level of support for the $8.21 is 53.7 percent, and the overall level of support for the $14.92 rate is 50.8 percent. Although both rates are supported above the required Prop. 218 majority protest ballot threshold of 50 percent plus 1, the second rate would not be viable when considering the margin of error of 1.75 percent.

Overall Support by Proposed Rate



The overall community priorities garnering a favorable response were:

1. Control the emergence of invasive species, such as Aedes aegypti (Yellow Fever Mosquito), that can carry life-threatening diseases.
2. Prevent future outbreaks of Zika, Dengue, West Nile virus, and other diseases.
3. Reduce mosquito populations using environmentally-sound methods.
4. None of the proceeds from this assessment could be taken by the State or County and can only be used directly for mosquito and vector control services.
5. Continue the use of mosquito traps to measure mosquito populations, and expand focused, surveillance-based control programs.
6. Control and treat "green pools," which are a major source of mosquitoes.
7. Improve response times to control mosquito populations using environmentally-sound treatments to address Zika, Dengue, West Nile virus, and other life-threatening diseases.

These project priorities provide important insight to the community. The top priorities relate to reducing mosquito populations, invasive species and the diseases they carry, followed by the use of environmentally-sound methods. Fiscal responsibility is also a great concern in the community; survey respondents indicated that they want assurances that the funding will be used solely by the Vector Control Program for mosquito and vector control services. The results for all the projects, issues and arguments are summarized in the attached report.

The City's consultant, SCI, recommends the City conduct a mailed ballot majority protest proceeding to establish dedicated funding to continue comprehensive mosquito and vector control services at the rate of $8.21 per Single Family Residence per year.

SCI also recommends that the City include an annual Consumer Price Index adjustment mechanism, not to exceed 3 percent per year, and requiring annual City Council approval, and that the assessment continues each year unless ended by voters or the City Council.

An informational outreach program is needed to ensure City residents are fully informed about the proposed mosquito and vector control services, and the costs and budgets included with this ballot proceeding.

Upon presentation and review of the survey results, should the City Council decide to continue formation of the mosquito and vector control benefit assessment district, the Health and Human Services Department will return to the City Council in May for adoption of a Resolution of Intention to move forward with a mailed ballot majority protest election seeking approval of the benefit assessment from the impacted parcel owners.

This matter was reviewed by Deputy City Attorney Amy R. Webber on February 26, 2019 and by Budget Analysis Officer Julissa Jose-Murray on March 1, 2019.

TIMING CONSIDERATIONS

City Council action is requested on March 19, 2019, to ensure the benefit assessment milestones are achieved in compliance with LACo Auditor submission requirements.

FISCAL IMPACT

There is no fiscal or local job impact associated with this recommendation. Compiling this report requires minimal level of staff hours beyond normal budgeted scope of duties and is consistent with existing City Council priorities. Should a benefit assessment district be established, at the rate of $8.21 per Single Family Residence per year, it is projected it will raise $697,607 annually to fund mosquito and vector control in areas of the City not currently covered by a benefit assessment.

SUGGESTED ACTION

Approve recommendation.

Respectfully submitted,

KELLY COLOPY
DIRECTOR
HEALTH AND HUMAN SERVICES

Attachment: Survey Results

APPROVED:

PATRICK H. WEST
CITY MANAGER

LONG BEACH DEPARTMENT OF HEALTH & HUMAN SERVICES
BUREAU OF ENVIRONMENTAL HEALTH
VECTOR CONTROL PROGRAM

OPINION RESEARCH AND SURVEY
OF PROPERTY OWNERS

MARCH 19, 2019

PREPARED FOR:

CITY OF LONG BEACH CITY COUNCIL

PREPARED BY:
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ACKNOWLEDGMENTS

This Opinion Research and Survey was prepared by SCI Consulting Group under contract with the City of Long Beach, Department of Health and Human Services, Bureau of Environmental Health.

The work was accomplished under the general direction of the following persons:

- Kelly Colopy, Director, Department of Health and Human Services
- Dr. Anissa Davis, Health Officer, Department of Health and Human Services
- Nelson Kerr, Manager, Bureau of Environmental Health
- Judeth Luong, Environmental Health Operations Officer

With special thanks to the following for their technical and programmatic contributions:

- H. Lamar Rush, Operations Director, Vector Control Program
- David Gogue, Vector Control Technician, Vector Control Program
- Eddie Gogue; Vector Control Technician, Vector Control Program
- Claudia McGee, Clerical Support, Vector Control Program
- Caron Lowe, Bureau Secretary
- Emily Holman, Epidemiologist, Department of Health and Human Services
  Carl Vos, Administration Analyst, Department of Health and Human Services

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INTRODUCTION

PURPOSE

This report presents the findings of a scientific survey of property owners and voters within the City of Long Beach areas served by the Health Department's Vector Control Program (VCP) conducted by SCI Consulting Group (SCI). The VCP is interested in establishing a new funding source that would help continue, or potentially improve, the existing vector control services presently provided.

The primary purposes of the study were to:

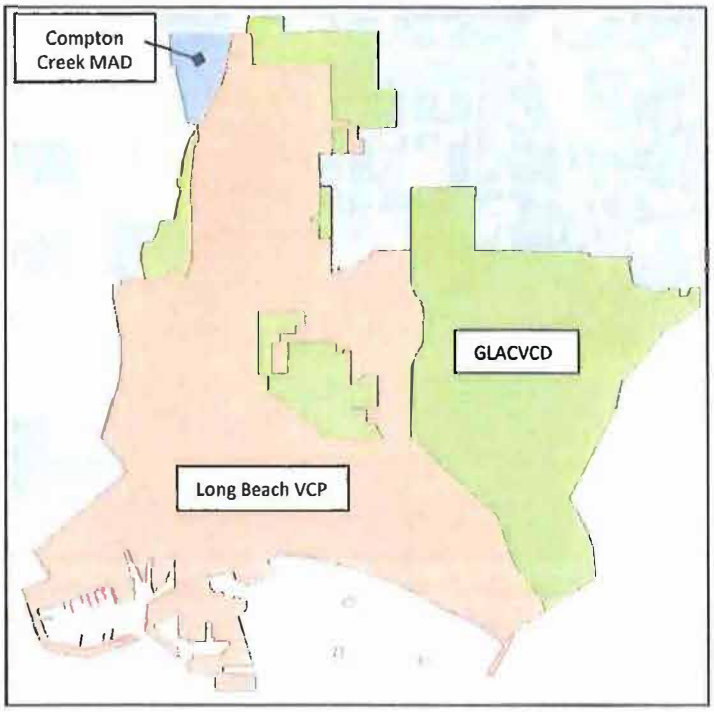
- Evaluate the support, desires, and priorities of property owners within the Health Department's Vector Control Program with respect to the proposed mosquito, vector and disease control services.
- Measure the relative level of support and priorities of property owners and voters overall in the area by type of property owner.
- Measure the level of financial support for the proposed mosquito, vector and disease control services.

The surveys were sent out with an informational page that provided an overview of the VCP's mosquito, vector and disease control services. There were two versions of the survey, each presenting one of two proposed annual rates of assessment, $8.21 and $14.92 (corresponding to two different levels of proposed services) per single family home, and proportional rates based on property use, size and other characteristics for other types of properties in conjunction with the identified financial needs of the VCP. The total proposed amounts for each unique owner were independently calculated and individually printed on each survey.

After a brief overview of the methodology employed in the survey, this report presents a summary of the key survey findings. The survey utilized a mailed survey approach because SCI has found this survey technique to more closely, and accurately, model actual ballot results for a property owner mailed ballot proceeding.

METHODOLOGY

The Vector Control Program is part of the Bureau of Environmental Health within the Long Beach Department of Health and Human Services. The Health Department's Vector Control Program (VCP) provides mosquito and disease control services to most of the properties in the City of Long Beach, except for the areas served by the Greater Los Angeles County Vector Control District and the Compton Creek Mosquito Abatement District, as shown in the map below.



Mosquito Control Agencies Serving the City of Long Beach

The VCP is currently funded by a portion of the Health Department's Realignment Funding, which is allocated from the State Department of Public Health for general public health programs. Sources of these funds are State Vehicle License Fees and sales taxes. The VCP also receives additional revenue from the City's general fund for reimbursement of work performed on City properties. All these funding sources tend to fluctuate from year to year, and the VCP's revenue base is not keeping pace with the rising costs of providing services, and the growing demand for more services. After considerable review of available options, the Bureau of Environmental Health is interested in exploring a new local funding source for the VCP in order to continue financing the existing mosquito, vector and disease control services provided.

The Bureau of Environmental Health is also interested in the possibility of providing expanded services to the community. The following are some of the proposed enhanced services:

- Enhance year-round control of invasive mosquitoes and other pests, and the diseases they carry.
- Improve identification of mosquitoes and shorten response times to public health issues such as Zika, Dengue, West Nile virus, and other emerging diseases.
- Expand environmentally sound adult mosquito control when necessary to protect public health.
- Broaden control of mosquito sources with environmentally sound products wherever mosquito larvae or pupae are found.
- Continue the use of mosquito traps to measure mosquito populations and expand focused, surveillance-based control programs.
- Increase surveillance and treatment of green pools which are a major source of mosquitos.
- Expand rodent (e.g., rats, mice, bats, etc.) control inspections and advice to residents, rabies surveillance and investigation, and monitoring of other public health threats.
- Increase public education on how to manage and prevent vector sources, and how to protect people and pets from diseases carried by mosquitoes and other vectors.

This survey was designed to gather property owner input for a proposed annual assessment to continue funding the services currently provided ($8.21, tested on survey version 1), as well as a proposed annual assessment to fund expanded services ($14.92, tested on survey version 2).

The survey was designed to simulate the property owner ballot measure response pool and data collection method of the actual assessment approval procedures as closely as possible. In this way, the survey results will be predictive in evaluating the support an assessment measure would likely receive in the actual mailed-ballot election.

It should be noted that a benefit assessment is the only local funding alternative that gives a vote to all property owners who are being asked to support mosquito, vector and disease control services. This type of local funding mechanism is discussed in further detail in the following section.

SAMPLE

SCI created a stratified sample pool that included most of the qualified property owners in the VCP area. The sample was designed to draw from the property owners eligible to participate in the mailed ballot proceeding for this funding mechanism, and in proportion to their representation of property ownership throughout the area.

Next, two sub-samples were created from this pool. Each sub-sample was designed to test different levels of support at two annual assessment levels ($8.21 and $14.92 per single family dwelling) corresponding to two different levels of service. All sub-samples for this research project were created using a randomized, stratified approach designed to replicate the profile of property ownership within the VCP.

DATA COLLECTION METHOD

The surveys were designed as a mail-based survey to replicate the mailed-ballot proceeding that would be used if the City moves forward with a benefit assessment measure. On January 17, 2019, about 20,000 surveys were mailed to unique property owners within the VCP service area. The survey mailings included general information about the mosquito, vector and disease control services, and a questionnaire with an enclosed postage-paid return envelope. This data collection method closely mirrors the mailed-ballot proceeding and has proven to be highly reliable for predicting the results from an actual benefit assessment ballot measure.

Survey recipients were also given the option to respond to the survey online by either scanning with their cell phone the barcode (Qr Code) printed on the survey questionnaire, typing the survey website path on their computer or cell phone browser, or clicking on the hyperlink contained in the email sent to those property owners for whom there was an email address.

To date, about 2,974 surveys have been received from the property owners, representing a response rate of over 15%. This response rate is generally consistent with SCI's experience from other similar survey projects, and is significantly higher than the typical response rate of approximately 5% for a telephone survey.

ACCURACY

The statistical margin of error for the results presented in this report is about 1.75%. This margin of error means that there is a 95% certainty that the actual levels of support in the area are ± 1.75% from the results presented in this report.

BENEFIT ASSESSMENT FUNDING OVERVIEW

BENEFIT ASSESSMENT OVERVIEW

As noted, the funding mechanism being considered in this study is a benefit assessment. Benefit assessments are a common local funding alternative for mosquito, vector and disease control services, and such assessments have been approved in many other areas in California. Benefit assessments are levies on real property that are based on the "special benefit" each property receives from the mosquito, vector and disease control services to be funded by the assessments. Such assessments for the mosquito, vector and disease control services have a long history of use in California, including County of San Diego VCP, Orange County VCD, West Valley MVCD, Fresno MVCD, Fresno Westside MAD, Placer MVCD, Napa County MAD, Alameda County VCD, Alameda County MAD, Northwest MVCD, Bute County MVCD, Northern Salinas MVCD, etc.

The application of special benefit generally means that the amount of proposed assessment will not be uniform for all properties. Properties that are deemed to receive greater benefit (larger properties and properties with higher numbers of dwelling units) will typically have relatively higher assessments.

The benefit assessment is different from other revenue vehicles in its makeup, design, and voter participation. In short, there are charges levied upon parcels of real property to pay for benefits the parcels receive from local improvements and services. The charge is derived from the "special benefit", or a particular and distinct benefit over and above general benefits conferred on real property located in the agency service area or to the public at large. All property owners who would pay the proposed assessments are eligible to vote. Furthermore, the method of voting is through a mailed ballot procedure by which every property owner receives a ballot indicating the total amount of the proposed assessment for their property. The property owners who cast their ballots are voting based on the total dollar amount of their proposed assessment. Therefore, the results are determined by a weighting of total proposed assessments of the returned ballots. In order for the benefit assessment to pass, a majority of the weighted amount of the proposed assessments of the returned ballots is needed.

In other words, the weighting of assessment ballots is the equivalent of one vote per dollar of proposed assessment. As an example, if the proposed assessment is $10 per home, an owner of two single family homes could cast a ballot that is worth $20 in weighted votes ($10 x 2), and the owner of one single family home could cast a ballot that is worth half as much, or $10 in weighted votes.

COMPARISON OF BENEFIT ASSESSMENT WITH SPECIAL TAX

The primary local funding alternatives for the proposed services are a special tax (parcel tax) or a benefit assessment. A parcel tax is decided by registered voters in the City, typically in a one-day election, and it requires 66.7% voter support. As noted, a benefit assessment is decided by all property owners within the VCP service area, including business owners, apartment owners, and agricultural property owners, and it requires a weighted majority support from property owners.

In an election to approve a parcel tax, only registered voters are eligible to vote. This includes tenants who will not pay the proposed tax, and excludes property owners such as business owners, apartment owners and others who will have to pay the tax. Because non-owner voters have a significant say in parcel tax elections and many other property owners who would pay the taxes are excluded from the voting, the Howard Jarvis Taxpayers Association ("HJTA"), via Proposition 13, established a two-thirds (super-majority) requirement for parcel tax elections.

Conversely, all property owners being asked to support an assessment, including the owners of businesses, apartments and agricultural property, can vote on benefit assessments, and these property owners have a "say" that is proportional to their proposed assessment. Therefore, because all property owners who own property within the VCP service area can vote, and each owner's vote is proportional to how much they are being asked to pay, the HJTA established a weighted majority threshold for these mailed ballot measures (via Proposition 218).

Figure 1 on the next page provides a further comparison of parcel taxes and benefit assessments:

FIGURE 1 – COMPARISON OF PARCEL TAXES AND BENEFIT ASSESSMENTS

	Parcel Tax	Benefit Assessment
Who Votes?	Registered Voters	Property Owners
Who Created Requirements?	Jarvis Taxpayers	Jarvis Taxpayers
Election Venue	Polling Booth	Mail Ballot
Election Period	1 Day	45 Days
Does Everyone Who Will Pay Get a Vote?	No	Yes
Are Votes Proportional to How Much You Will Pay?	No	Yes
Tax/Assessment Amounts Based on Benefit?	No	Yes
Threshold of Vote Required for Success	Super Majority	Weighted Majority
Common For Mosquito and Vector Control Agencies?	Yes	Yes

SURVEY RESULTS ADJUSTED TO PROJECT WEIGHTED BALLOT OUTCOME

This survey was specifically designed to predict the outcome of a benefit assessment mailed-ballot proceeding, including the relatively higher weighted ballots for the owners of larger business and investment properties and the likely participation rates for various types of property owners. Unless otherwise noted, the level of support presented in this study is the projected actual weighted ballot result for the overall measure, including ballots from the owners of residential property, businesses, apartments, investment property and other properties.

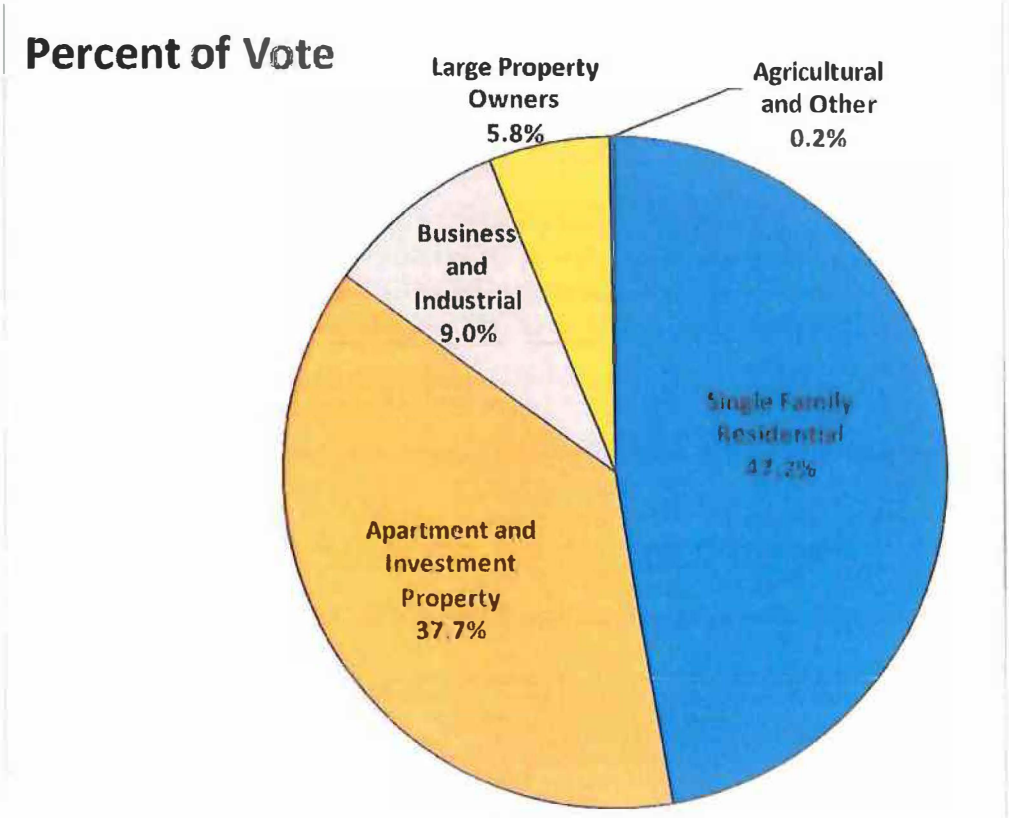
SURVEY FINDINGS

Before discussing the survey/ballot findings, it is helpful to review the types of property within the VCP and "weighted" votes.

TYPES OF PROPERTY AND WEIGHTED VOTES THEY HOLD

The following Figure presents the percentage of overall weighted "votes" for each type of property surveyed. As shown, within the VCP service area, single family residential owners represent approximately 47.2% of the overall weighted vote; apartments and investment properties represent approximately 37.7%; business and industrial properties represent 9.0%; large property owners represent 5.8%; and agricultural and other properties (which are primarily vacant parcels) represent 0.2%.

FIGURE 2 – WEIGHTED ASSESSMENT BY PROPERTY TYPE



Note: Weighting of assessments and "votes" is based on likely assessment methodology based on experience by SCI.

FIRST SURVEY QUESTION

After the potential assessment rates and potential weighted votes were calculated for each property, the survey questionnaire and informational sheets were finalized and mailed. The survey documents were mailed to a stratified sample of property owners within the VCP boundaries. In the survey, property owners were first asked whether they would support or oppose a proposal to pay an annual property assessment for mosquito and disease control services.

The first survey question on the proposed local funding measure for mosquito and disease control services was presented as follows:

Version 1 – Question #1 (First Survey Question for <u>continuing</u> services, $8.21 rate)

In order to:

- *Continue to provide year-round control of invasive mosquitoes and other pests, and the diseases they carry; and*
- *Continue monitoring and responding to public health issues, such as West Nile virus and other emerging diseases,*

would you support a yearly assessment on your property(s) in the amount of _____?*

***(Note the specific amount of proposed assessment for all of the properties owned by each surveyed owner was printed on each survey in the area underlined)**

Version 2 – Question #1 (First Survey Question for <u>improving</u> services, $14.92 rate)

In order to:

- *Continue to provide year-round control of invasive mosquitoes and other pests, and the diseases they carry; and*
- *Improve monitoring and response times to public health issues, such as West Nile virus and other emerging diseases,*

would you support a yearly assessment on your property(s) in the amount of _____?*

***(Note the specific amount of proposed assessment for all of the properties owned by each surveyed owner was printed on each survey in the area underlined)**

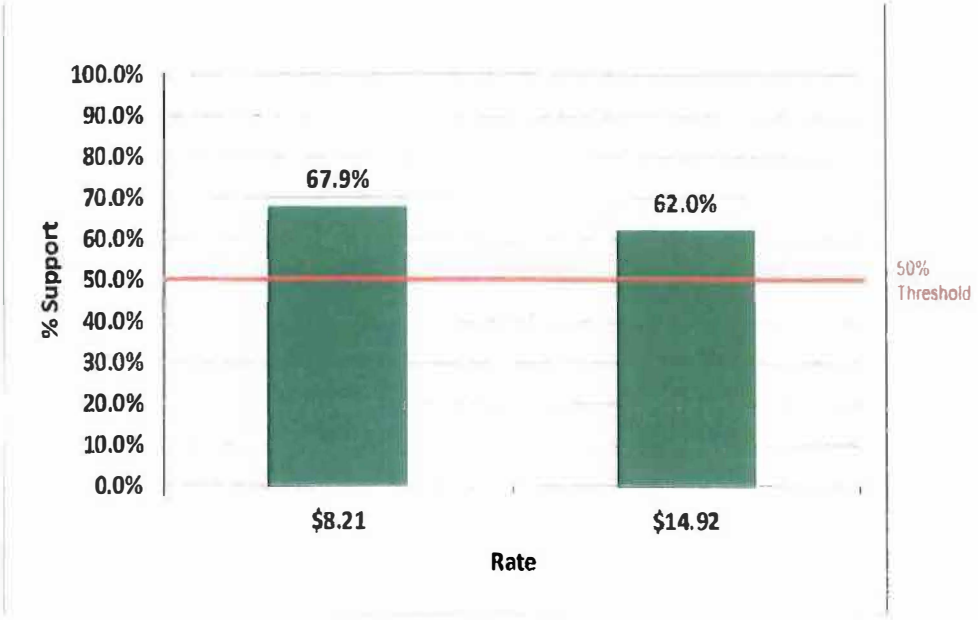
The property owner receiving the survey is given four choices to answer this first survey question: Definitely YES, Probably YES, Probably NO, and Definitely NO.

SUPPORT BY RATE, FROM SINGLE FAMILY HOMEOWNERS ONLY

Figure 3 below summarizes the level of support from single-family homeowners only combined across the two proposed annual assessment rates tested ($8.21 and $14.92) for the proposed mosquito and disease control services measure. It is important to note that the percentage of support displayed in these tables does not include other property owners, such as business, vacant and apartment owners. (The analysis for single-family homeowners only is presented as an important datum to evaluate levels of support versus other measures, areas, etc.)

As shown in this figure, support from single family homeowners in the VCP overall was 67.9% at the proposed rate of $8.21 per year, and 62.0% at the proposed rate of $14.92.

FIGURE 3 – OVERALL SUPPORT BY RATE, SINGLE FAMILY HOMEOWNERS ONLY



Figures 4 and 5 below present further detail about the degree of support or opposition from single family owners in the VCP.

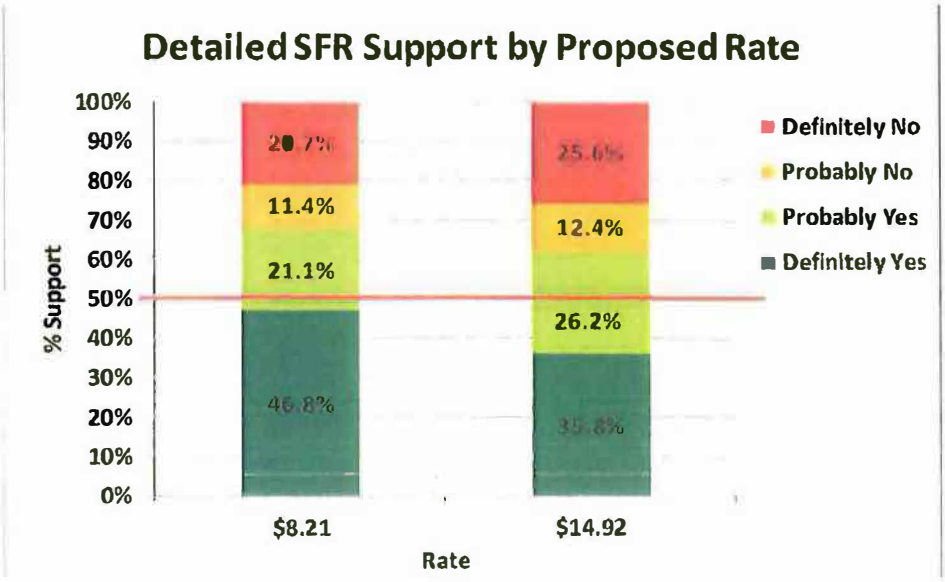
These figures show that many of the property owners are in the "Probably Yes" category. A moderate percentage of negative respondents were in the "probably no" category. Unfortunately, SCI has found that most often these respondents will vote no on the actual ballot measure regardless of any further information presented to them.

A significant percentage of respondents were somewhat undecided, so information and outreach to more fully inform residents and property owners about the need for continued funding for mosquito and disease control services would improve support over time.

FIGURE 4 – SUPPORT BY RATE, SINGLE FAMILY HOMEOWNERS ONLY

Rate	Definitely Yes	Probably Yes	Probably No	Definitely No
$8.21	46.8%	21.1%	11.4%	20.7%
$14.92	35.8%	26.2%	12.4%	25.6%

FIGURE 5 – DETAILED SUPPORT BY RATE, SINGLE FAMILY HOMEOWNERS ONLY



Overall Weighted Support by Owner Type

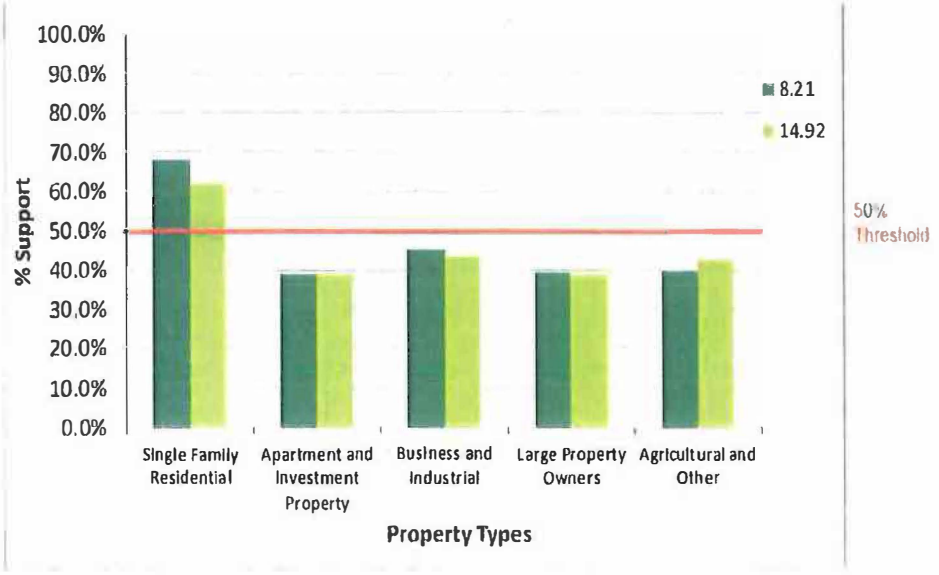
Figure 6 summarizes the survey findings for all property owners, and the overall projected support for the two proposed alternate survey rates combined. As shown, the overall projected weighted level of support is projected to be 52.3%, and support from single family home owners alone is at 65.1%.

Figure 6 – Overall Weighted Assessment and Support by Owner Type

Property Type	Percent of Vote	Weighted Support
Single Family Residential	47.2%	65.1%
Apartment and Investment Property	37.7%	38.7%
Business and Industrial	9.0%	44.8%
Large Property Owners	5.8%	39.6%
Agricultural and Other	0.2%	34.5%
Total	100.0%	52.3%

Figure 7 below displays the level of support by property type for each of the two rates tested. Single family homeowners are the group most in favor of the proposed mosquito and disease control services measure.

Figure 7 – Weighted Assessment and Support by Owner Type and Proposed Rate



OVERALL SUPPORT BY PROPOSED RATE

As noted, two rates were tested for this project in the amounts of $8.21 and $14.92. Figure 8 below shows the overall level of projected weighted support for each rate tested. This chart shows that the overall level of support for the $8.21 is 53.7%, and the overall level of support for the $14.92 rate is 50.8%. Although both rates are supported above the required ballot threshold of 50% plus 1, the second rate would not be viable when considering the margin of error of 1.75%.

FIGURE 8 – OVERALL SUPPORT BY PROPOSED RATE

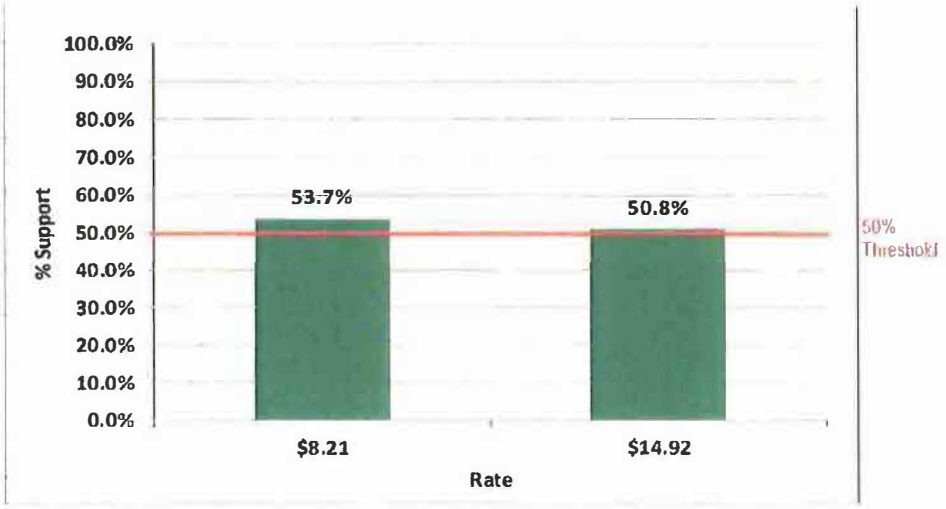


Figure 9 presents an analysis of levels of support from property owners by age groupings. This data demonstrates that the proposed mosquito, vector and disease control services garner 50% support or higher from most age groups at both rates, and that the lower rate is better supported by all age groups.

FIGURE 9 – SUPPORT BY AGE

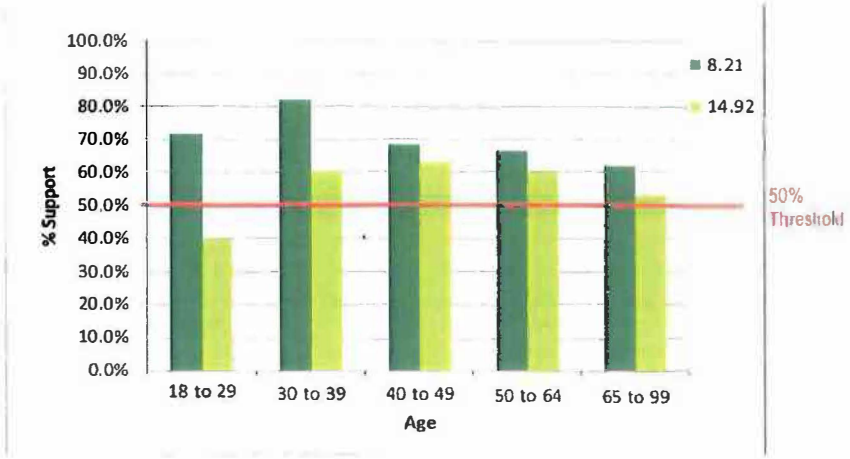


Figure 10 presents an analysis of levels of support from property owners by years in residence and rate. Once again, the chart shows that the proposed mosquito, vector and disease control services receive 50% support or more from most groups, except the property owners with 25 or more years of ownership, which only support both rates at 48%. Also, the lower rate is better supported by more recent property owners.

FIGURE 10 – SUPPORT BY YEARS IN RESIDENCE

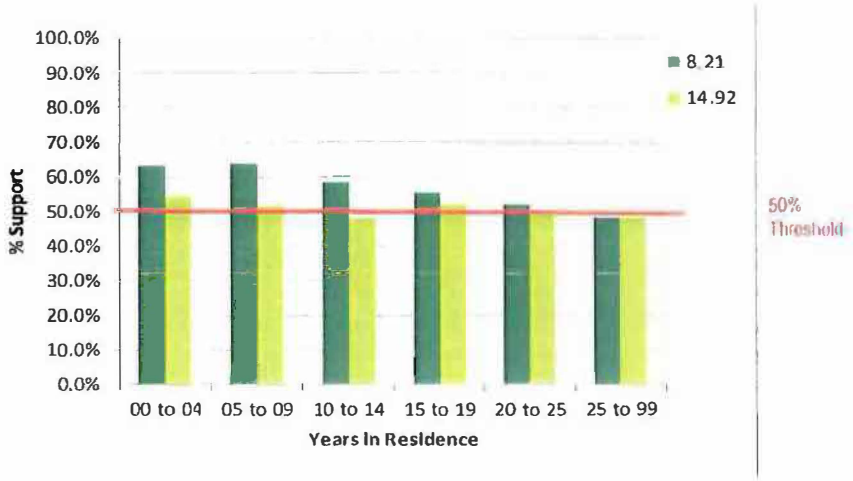
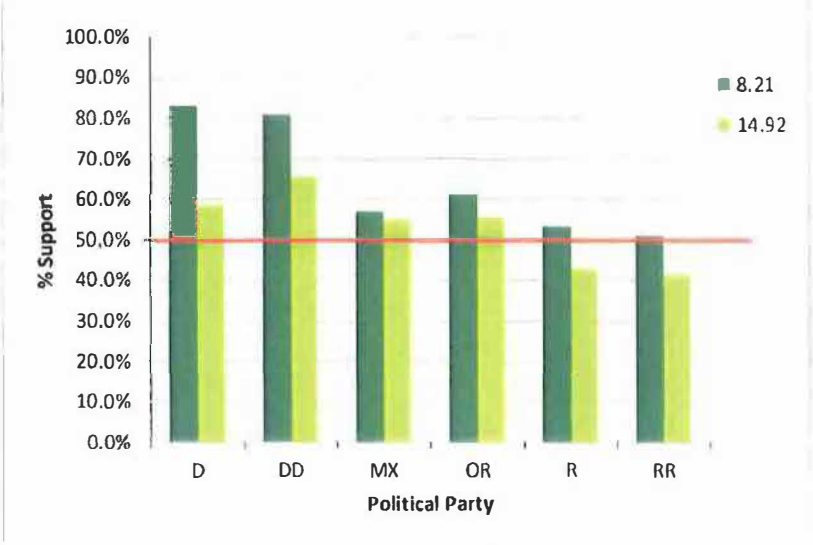


Figure 11 presents the analysis of levels of support by political party affiliation for property owners that are registered to vote. This data shows that the single Democrat and double Democrat households show more support for the proposed measure. Overall the support is above 50% for most political party groups, except for the single and double Republican households that support the higher rate at only 42.9% and 41.7% respectively. Again, the lower rate receives higher support from all political affiliations.

FIGURE 11 – SUPPORT BY HOUSEHOLD PARTY AFFILIATION



Source: Los Angeles County Registrar of Voters

Note:
D = One Democrat in residence
DD = Two Democrats in residence
MX = One Democrat and one Republican in residence
OR = Neither Democrat nor Republican in residence (e.g., Green, Reform, Independent)
R = One Republican in residence
RR = Two Republicans in residence

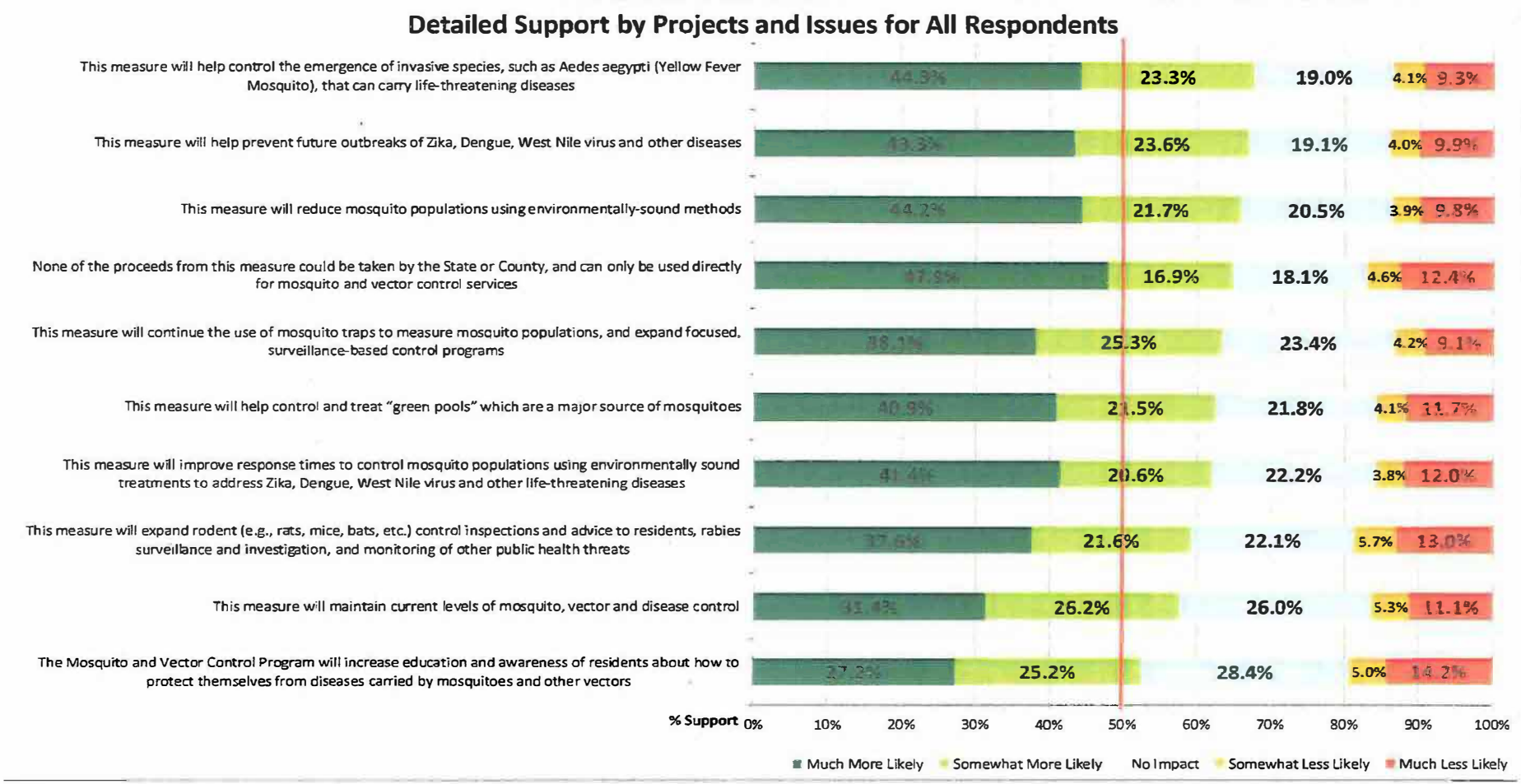
SERVICE PRIORITIES

After indicating their degree of support for the measure, property owners were presented with a list of mosquito, vector and disease control services, and were asked to indicate their degree of support for each service. These questions were asked even of those owners who indicated that they intended to vote against the measure. This ensures that the mosquito, vector and disease control service priority ratings reflect the overall community priorities, not just the interests of those who intend to vote for the measure. As the figure on the following page illustrates, the top priorities and features, garnering 60% favorable responses or better, were:

1. Control the emergence of invasive species, such as Aedes aegypti (Yellow Fever Mosquito), that can carry life-threatening diseases
2. Prevent future outbreaks of Zika, Dengue, West Nile virus and other diseases
3. Reduce mosquito populations using environmentally-sound methods
4. None of the proceeds from this measure could be taken by the State or County, and can only be used directly for mosquito and vector control services
5. Continue the use of mosquito traps to measure mosquito populations, and expand focused, surveillance-based control programs
6. Control and treat "green pools" which are a major source of mosquitoes
7. Improve response times to control mosquito populations using environmentally sound treatments to address Zika, Dengue, West Nile virus and other life-threatening diseases

These project priorities provide important insight to the community. The top priorities relate to reducing mosquito populations, invasive species and the diseases they carry, followed by the use of environmentally-sound methods. Fiscal responsibility is also a great concern in the community; survey respondents indicated that they want assurances that the funding will be used solely by the VCP for mosquito and vector control services. The results for all the projects, issues and arguments are summarized in Figure 12.

FIGURE 12 – PROPERTY OWNER PRIORITIES



OTHER FINDINGS

The survey included a section for respondents to indicate their other opinions and feedback regarding the proposed funding measures. Following is a summary of the comment categories. Figure 13 shows the comment categories received from respondents in favor of the proposed measure. Figure 14 lists the comment categories received from respondents who were against the proposed measure.

FIGURE 13 – COMMENTS RECEIVED IN FAVOR OF THE PROPOSED MEASURE

Respondents In Favor of an Assessment	
# of Comments	**Comment Topic**
56	Disease Control / Public Health
57	General Support
16	Environmental Concerns
36	Mosquito Control and Services
31	General Support, Questions, and Other Concerns
44	General Issues/Dislikes
240	Total Comments In Favor

FIGURE 14 – COMMENTS RECEIVED AGAINST THE PROPOSED MEASURE

Respondents NOT In Favor of an Assessment	
# of Comments	**Comment Topic**
95	Distrust of Government
199	No New Taxes/Financial Issue
43	Fairness of Assessment
18	Environmental Concerns
41	General Concerns
34	Confusion with Who is Responsible for Vector Control
19	Need Additional Information
9	Unhappy with Service
3	Comments About the Survey Itself
461	Total Comments Not In Favor

NOTE: Some comments may appear in multiple categories where the respondents commented in more than one topic.

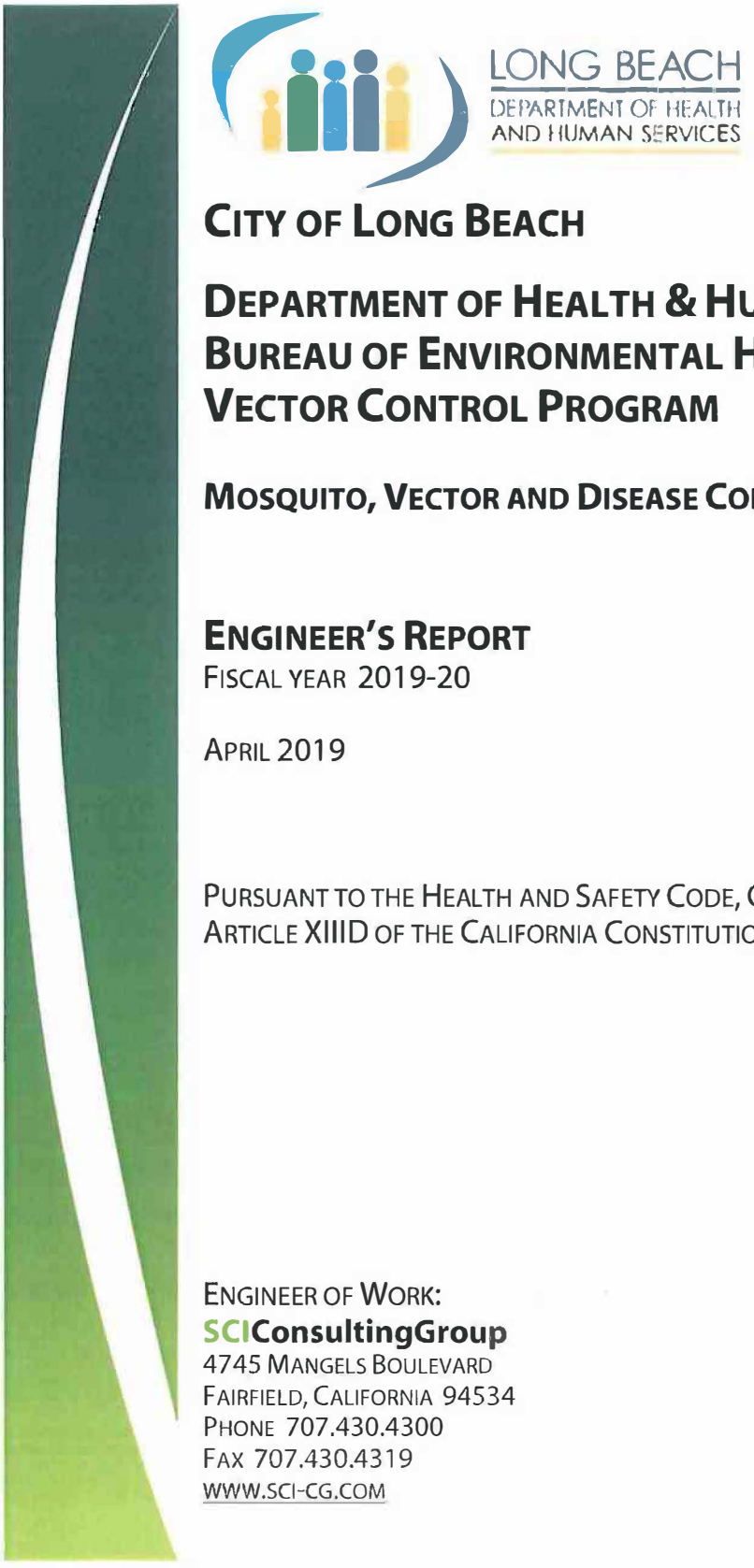
RECOMMENDATIONS

SCI recommends the City conduct a mailed ballot proceeding to establish dedicated funding to continue comprehensive mosquito and vector control services at the rate of $8.21 per Single Family Residence per year.

SCI also recommends that the City include an annual Consumer Price Index adjustment mechanism, not to exceed 3% per year, and requiring annual City Council approval, and that the assessment continues each year unless ended by voters or the City Council.

However, a robust, effective informational outreach program is needed to ensure City residents are fully informed about the proposed mosquito and vector control services, and the costs and budgets included with this ballot proceeding.

ATTACHMENT B



LONG BEACH
DEPARTMENT OF HEALTH
AND HUMAN SERVICES

CITY OF LONG BEACH

DEPARTMENT OF HEALTH & HUMAN SERVICES
BUREAU OF ENVIRONMENTAL HEALTH
VECTOR CONTROL PROGRAM

MOSQUITO, VECTOR AND DISEASE CONTROL ASSESSMENT

ENGINEER'S REPORT
FISCAL YEAR 2019-20

APRIL 2019

PURSUANT TO THE HEALTH AND SAFETY CODE, GOVERNMENT CODE AND ARTICLE XIIID OF THE CALIFORNIA CONSTITUTION

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CITY OF LONG BEACH, DEPARTMENT OF HEALTH & HUMAN SERVICES

LONG BEACH MAYOR
Robert Garcia

LONG BEACH CITY COUNCIL
Lena Gonzalez - 1st District
Jeannine Pearce - 2nd District
Suzie Price - 3rd District
Daryl Supernaw - 4th District
Stacy Mungo - 5th District
Dee Andrews - 6th District
Roberto Uranga - 7th District
Al Austin - 8th District
Rex Richardson - 9th District

LONG BEACH CITY ATTORNEY
Charles Parkin

LONG BEACH CITY MANAGER
Patrick H. West

LONG BEACH CITY CLERK
Monique DeLaGarza

DIRECTOR, DEPARTMENT OF HEALTH & HUMAN SERVICES
Kelly Colopy

MANAGER, BUREAU OF ENVIRONMENTAL HEALTH
Nelson Kerr

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INTRODUCTION

OVERVIEW AND HISTORY OF MOSQUITO & VECTOR CONTROL PROGRAM IN LONG BEACH

The Long Beach Health Department's Bureau of Environmental Health Mosquito and Vector Control Program ("VCP") was established over 50 years ago by the City of Long Beach's Department of Health and Human Services to protect the public by providing comprehensive mosquito abatement, vector control and public health protection services in the area served by the VCP ("Service Area"). Since the VCP was created, the quality of life for residents in the Service Area has been enhanced through the control of pests that can cause harm or transmit disease to residents, businesses and visitors within the Service Area.

The Service Area encompasses over 34 square miles, serving approximately 277,000 residents, and includes portions of the City of Long Beach that are west of Lakewood Blvd and South of Pacific Coast Highway, excluding small portions in North Long Beach that are served by Greater Los Angeles County Vector Control District and Compton Creek Mosquito Abatement District. (See the Assessment Diagram at the end of this report.)

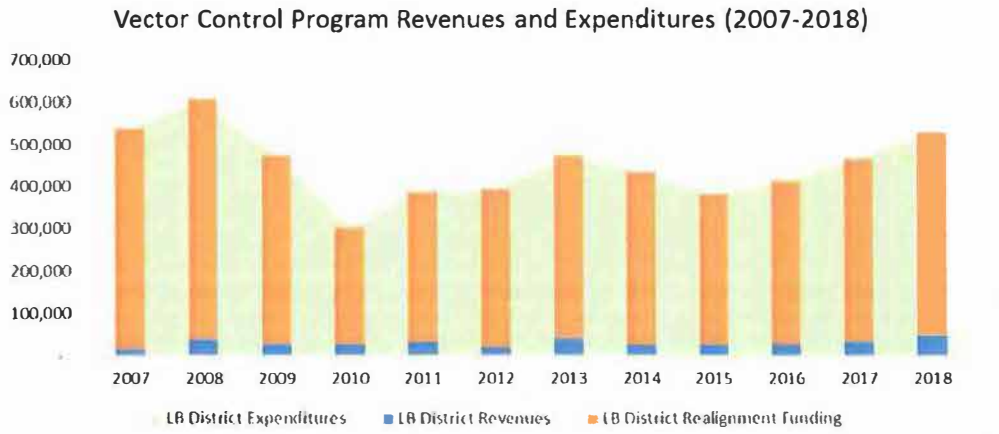
Over time, demand for vector control services in the Service Area has increased. New species of mosquitoes have arrived in recent years, resulting in associated emerging mosquito-borne diseases. Other vector issues such as the arrival of the Africanized Honey Bee and the introduction of flea borne typhus in suburban areas have also contributed significantly to the demand for vector control services. Further, as the local climate has become warmer, the need for vector control services has become virtually yearlong period. Addressing these increased services requires additional resources.

CURRENT FUNDING FOR MOSQUITO & VECTOR CONTROL PROGRAM IS INADEQUATE

The VCP is currently funded by a portion of the Health Department's Realignment Fund, which was established in 1991 to provide funds directly to California Counties and several cities (including Long Beach) to fund essential functions of public health. The underlying source of these funds are State Vehicle License Fees and sales taxes. This fund varies significantly each year, depending on economic factors, and competing public health priorities.

The Realignment Funding provides the Health Department with flexibility in terms of where funds are allocated within the Department. However, there are many programs within the Department competing for these funds, including Epidemiology, Public Health Laboratory, Vital Records, Public Health Nursing and other community health programs. The flexibility to allocate realignment funds often results in an inconsistent funding level for the VCP, as the Health Department's priorities change to meet the needs of the community. For example, in 2008 the realignment funding allocated by the Health Department to the VCP was $571,219 and dropped to $279,670 in 2010. This represents a fluctuation of 51% as shown in the graph below:

FIGURE 1 – HISTORIC MOSQUITO & VECTOR CONTROL PROGRAM REVENUES IN LONG BEACH



This reduced level of resources can often result in a lower level of service in the proposed Service Area and an increased risk to the public. For example, between 2008 and 2010, four out of six positions in the VCP were eliminated. This significantly impacted the program's ability to address vector issues in the proposed Service Area.

Competing public health priorities emerge every year and are allocated realignment funds to responsibly address these public health issues as appropriate. Funding emerging public health priorities results in diminishing the funds from other programs. For example, a flu pandemic in 2009 required the Health Department to perform mass vaccinations in schools and other facilities. This unanticipated public health emergency impacted the realignment fund by $600,000. In September of 2017, a major Hepatitis A outbreak occurred in San Diego County and quickly moved to Los Angeles County. The Health Department responded expeditiously with a coordinated response, including a regional planning and mass vaccinations in the homeless community. This response cost the realignment fund approximately $60,000 in unanticipated costs.

Public health threats will not disappear. The City is currently experiencing significant levels of sexually transmitted diseases (STD). There is insufficient staff to respond to this need. The Health Department will need to allocate approximately $400,000 of realignment funding to address this issue in the next budget cycle. California is also experiencing an increase in Measles. This disease is extremely contagious and may require substantial resources from the Health Department to address. Conservatively, this amount would impact the realignment fund $540,000. These types of emerging issues will negatively impact the other programs, including the VCP. The structure of this funding source with competing public health priorities results in a markedly inconsistent revenue level for the VCP.

The VCP also receives additional revenue from the City's general fund for reimbursement of work performed on city properties. However, these funding sources fluctuate significantly from year to year, making it very difficult to continue providing sustainable operations under this unpredictable and limited budget. Hence, based upon the specific evaluation of current practices and costs and the determination of an appropriate service level, the VCP needs a

reliable and comprehensive funding source with an annual cost-of-living adjustment mechanism and continuing as long as the mosquito and vector control services are needed.

A NEW BENEFIT ASSESSMENT IS PROPOSED TO STABILIZE FUNDING & IMPROVE SERVICES

As a result, and in order to provide the special benefits of enhanced disease surveillance and vector control services, and to better respond to the threat of West Nile Virus and other public health issues, the VCP is proposing a benefit assessment ("Assessment" or "Benefit Assessment") on all specially benefiting properties within the Service Area ("Assessment Area" or "Assessment District"). A new funding source would be used to stabilize current services and improve the level of services currently provided to protect the public health in the Service Area.

SUMMARY OF THE PROPOSED BENEFIT ASSESSMENT RATES AND REVENUE

As well-described and well-supported later in this Engineer's Report, the proposed rates for the proposed new benefit assessment are:

FIGURE 2 – SINGLE FAMILY HOME RATE SUMMARY

Proposed Rate	Schedule	Zone
$8.21	per year	A (city)
$7.55	per year	B (Alamitos Bay)
$6.98	per year	C (port)
$6.98	per year	D (airport)

Note: These are the rates for single family homes. Other property uses (vacant, commercial, office, multi-family, etc.) would be assessed differently as described in the Assessment Apportionment section beginning on page 50.

The proposed Benefit Assessment would generate **$753,474** per year.

THE PROPOSED BENEFIT ASSESSMENT MUST BE COMPLIANT WITH PROPOSITION 218

This proposed assessment is formed consistent with Proposition 218, The Right to Vote on Taxes Act, which was approved by the voters of California on November 6, 1996, and is now Article XIIIC and XIIID of the California Constitution. Proposition 218 provides for benefit assessments to be levied to fund the cost of providing services, improvements, as well as maintenance and operation expenses to a public improvement which benefits the assessed property.

Proposition 218 describes a number of important requirements, including a property-owner balloting, for the formation and continuation of assessments, and these requirements are satisfied by the process used to establish this assessment. When Proposition 218 was initially approved in 1996, it allowed for certain types of assessments to be "grandfathered" in, and these were exempted from the property–owner balloting requirement.

> *Beginning July 1, 1997, all existing, new, or increased assessments shall comply with this article. Notwithstanding the foregoing, the following assessments existing on the effective date of this article shall be exempt from the procedures and approval process set forth in Section 4:*
>
> *(a) Any assessment imposed exclusively to finance the capital costs or maintenance and operation expenses for sidewalks, streets, sewers, water, flood control, drainage systems or vector control.*

Vector control was specifically "grandfathered in," underscoring the fact that the drafters of Proposition 218 and the voters who approved it were satisfied that funding for vector control is an appropriate use of benefit assessments, and therefore confers special benefit to property.

COMPLIANCE WITH PROPOSITION 218'S SUBSTANTIVE REQUIREMENTS

Proposition 218 authorizes and describes the process for the imposition of benefit assessments for certain governmental services and improvements, including vector control, for services over and above baseline services.

The Services proposed to be provided by the VCP are over and above the (currently diminishing and inconsistent) baseline level of service that would be provided if the measure is not approved. The formula below describes the relationship between the final level of service, the existing baseline level of service, and the enhanced level of service to be funded by the proposed assessment.

Final Level of Service	=	**Baseline Level of Service**	+	**Enhanced Level of Service**

The Baseline Level of Services currently fluctuates significantly each year, depending on available funding, and is expected to diminish each year from high mark in 2008 of over $600,000 to a minimum of just under **$100,000** (estimated as $94,310 as required for general benefit contribution in fiscal year 2019-20) in the near future. The proposed Enhanced Level of Services is based upon **$753,474** generated from the proposed Benefit Assessment. The Final Level of Services is the sum of the Baseline and Enhanced Level of Services and would be funded at **$847,784** for fiscal year 2019-20.

Further, Proposition 218 imposes four basic substantive requirements on Benefit Assessments[1]:

- *Identify all benefitted parcels. All parcels that will have a special benefit conferred upon them and upon which an assessment will be imposed must be identified in the engineer's report and included in the assessment district. Parcels owned by the government cannot*

[1] Cal. Const., art. XIII D, § 4, subd. (a). and League of California Cities Proposition 26 and 218 Implementation Guide

be excluded unless clear and convincing evidence demonstrates such a parcel receives no special benefit.

- The Services will be directly provided to property in the Assessment Area. More specifically, the Services confer special benefits specifically and only to property owners within the VCP Service Area with a corresponding effect that is not shared by other parcels outside of the VCP or real property in general including the public at large. This is further described in this report under the "Benefit Factors" section.
- All properties that are specially benefited are assessed. As described in the section "Method of Apportionment," publicly owned property that is used for purposes similar to private residential, commercial, industrial, agricultural or institutional uses is benefited and assessed at the same rate as such privately owned property.

- *Distinguish general from special benefit. The general benefits must be distinguished from the special benefits conferred on the parcels.*
  - This Engineer's Report establishes a conservative separation and quantification of general benefits. This is described in detail in the section "Calculating General Benefit."

- *Proportionality. The proportionate special benefit derived by each parcel must be determined in relationship to the entirety of the capital cost of public improvement, the maintenance and operation expenses of a public improvement, or the cost of the property related service being provided.*
  - The method used for apportioning the assessment is based upon the proportional special benefits to be derived by the properties in the Assessment Area over and above general benefits conferred on real property in the assessment area or to the public at large. The special benefit is further described in the section "Method of Assessment."

- *Reasonable cost. The assessment must be apportioned so that the amount assessed to a parcel does not exceed the reasonable cost of the proportional special benefit conferred on that parcel and does not include any costs attributable to general benefits. Thus, the portion of a project cost associated with general benefit must be funded from non-assessment revenues, and an agency which lacks other funds will not be able to use assessment financing, as few cases sustain a conclusion a project has no general benefit.*
  - This report estimates that the general benefits to be received by the public at large and land outside the Assessment Area, is estimated to be approximately 11% of the benefits conferred by the Mosquito, Vector and Disease Control Assessment. Since these benefits may be general in nature they will be funded by sources other than the assessment. As shown in the "Estimate of Cost and Budget," the VCP will contribute $94,310 from non-assessment revenue, which more than covers any general benefits from the Services. Please refer to the section "Summary of General Benefits" for more detail on the General Benefit factors and calculations.

In summary, this Engineer's Report is consistent with the requirements of Article XIIIC and XIIID of the California Constitution because the Services to be funded are clearly defined; the Services are available to and will be directly provided to all benefited property in the Assessment Area; the Services provide a direct advantage to property in the Assessment Area that would not be received in absence of the Assessment, and are benefits that are over and above general benefits conferred on real property located in the Service Area or to the public at large.

OVERVIEW OF PROPOSED MOSQUITO & VECTOR CONTROL PROGRAM SERVICES TO BE FUNDED

The VCP's main proposed services are summarized as follows:

- Early detection of public health threats in the Service Area through comprehensive mosquito, vector and disease surveillance.
- Elimination and control of mosquitoes and mosquito sources in the Service Area to protect public health and to diminish the nuisance and harm caused by mosquitoes.
- Appropriate, timely response to customer requests in the Service Area concerning the prevention and control of mosquitoes and the diseases they can transmit.
- Provision of public outreach and education in the Service Area concerning mosquitoes and vector-borne diseases.
- Reduction of the potential for human and animal disease caused by vectors.
- Reduction of the potential for human and animal discomfort or injury from vectors.
- Deliver effective and environmentally sound vector management by means of:
    i. Surveying for vector abundance/human contact
    ii. Establishing treatment criteria
    iii. Appropriately selecting from a wide range of Program tools or components

Most of the relevant vectors are quite mobile and cause the greatest hazard or discomfort at a distance from where they breed. Each potential vector has a unique life cycle, and most of them occupy several types of habitats. To effectively control these vectors, an Integrated Mosquito and Vector Management Program (IMVMP) has been implemented. This Program consists of a dynamic combination of surveillance, treatment criteria, and use of multiple control activities in a coordinated program, with public education sometimes referred to as Integrated Pest Management (IPM) or Integrated Vector Management (IVM). VCP policy is to identify those species that are currently vectors, to recommend techniques for their prevention and control, and to anticipate and minimize any new interactions between vectors and humans and domestic animals.

OVERVIEW OF MOSQUITO & VECTOR CONTROL PROGRAM'S BENEFIT TO PROPERTY

The VCP currently provides a level of mosquito, vector and disease control services in the Service Area that will not be sufficient under the current budget structure if the proposed assessment is not approved. The current funding source is diminishing and inconsistent, while the demand to address vectors, including emerging vectors, is increasing. Absent additional funding from a benefit assessment, a reduced, diminishing and inconsistent level of service would be the new "baseline" level of service and may include a very low level of

surveillance, testing, monitoring and control of mosquitoes, resulting in higher mosquito populations and the potential for outbreak of diseases.

The future services to be provided to the proposed Assessment Area would include intensive surveillance, disease prevention, and control of mosquitoes for properties within the Assessment Area. Such as mosquito, vector and disease prevention services, projects and programs include, but are not limited to, source reduction, biological control, larvicide applications, adulticide applications, disease monitoring, public education, reporting, accountability, research and interagency cooperative activities, as well as capital costs, maintenance, and operation expenses as further described below, which are above the baseline level of services, and that otherwise would not be provided if the measure is not approved.

The proposed Assessment Area is narrowly drawn to include only properties that, if the Assessment were approved, could request and/or receive direct and more frequent service, that are located within the scope of the vector surveillance area, that are located within flying or traveling distance of potential vector sources monitored by the VCP, and that would benefit from a reduction in the amount of vectors reaching and impacting the property as a result of the enhanced mosquito surveillance and control. The Assessment Diagram included at the end of this report shows the boundaries of the Assessment Area.

This Engineer's Report ("Report") defines the proposed Benefit Assessment, which would enhance the existing services provided in the Service Area, and provides funding for these improved mosquito, vector and disease control services for property throughout the Service Area, as well as related costs for equipment, capital improvements and services, and facilities necessary and incidental to mosquito, vector and disease control programs.

As used within this Report and the Benefit Assessment ballot proceeding, the following terms are defined:

> *"Vector" means any animal capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including, but not limited to, mosquitoes, flies, mites, ticks, other arthropods, and rodents and other vertebrates (Health and Safety Code Section 2002(k)).*
> *"Vector Control" means any system of public improvements or services that is intended to provide for the surveillance, prevention, abatement, and control of vectors as defined in subdivision (k) of Section 2002 of the Health and Safety Code and a pest as defined in Section 5006 of the Food and Agricultural Code (Government Code Section 53750(l)).*

The VCP operates under the authority of the Mosquito Abatement and Vector Control District Law of the State of California. Following are excerpts from the Mosquito Abatement and Vector Control District Law of 2002, codified in the Health and Safety Code, Section 2000, et seq. which serve to summarize the State Legislature's findings and intent with regard to mosquito abatement and other vector control services:

2001. (a) The Legislature finds and declares all of the following:
(1) California's climate and topography support a wide diversity of biological organisms.
(2) Most of these organisms are beneficial, but some are vectors of human disease pathogens or directly cause other human diseases such as hypersensitivity, envenomization, and secondary infections.
(3) Some of these diseases, such as mosquitoborne viral encephalitis, can be fatal, especially in children and older individuals.
(4) California's connections to the wider national and international economies increase the transport of vectors and pathogens.
(5) Invasions of the United States by vectors such as the Asian tiger mosquito and by pathogens such as the West Nile virus underscore the vulnerability of humans to uncontrolled vectors and pathogens.

(b) The Legislature further finds and declares:
(1) Individual protection against the vectorborne diseases is only partially effective.
(2) Adequate protection of human health against vectorborne diseases is best achieved by organized public programs.
(3) The protection of Californians and their communities against the discomforts and economic effects of vectorborne diseases is an essential public service that is vital to public health, safety, and welfare.
(4) Since 1915, mosquito abatement and vector control districts have protected Californians and their communities against the threats of vectorborne diseases.

(c) In enacting this chapter, it is the intent of the Legislature to create and continue a broad statutory authority for a class of special districts with the power to conduct effective programs for the surveillance, prevention, abatement, and control of mosquitoes and other vectors.

d) It is also the intent of the Legislature that mosquito abatement and vector control districts cooperate with other public agencies to protect the public health, safety, and welfare. Further, the Legislature encourages local communities and local officials to adapt the powers and procedures provided by this chapter to meet the diversity of their own local circumstances and responsibilities.

Further the Health and Safety Code, Section 2082 specifically authorizes the creation of benefit assessments for vector control, as follows:

> *(a) A district may levy special benefit assessments consistent with the requirements of Article XIIID of the California Constitution to finance vector control projects and programs.*

This Engineer's Report was prepared by SCI Consulting Group ("SCI") to describe the mosquito, vector and disease control services to be funded by the proposed assessment, to establish the estimated costs for those services, to determine the special benefits received by property from the services, and to apportion the proposed assessments to lots and parcels within the VCP's Service Area based on the estimated special benefit each parcel receives from the services funded by the benefit assessment.

ASSESSMENT PROCESS

In order to allow property owners to ultimately decide whether funding should be provided for the Services summarized above, on March 19, 2019, the Long Beach City Council ("Council") directed the Assessment Engineer to initiate the proceedings for a benefit assessment. A preliminary Engineer's Report was prepared to establish the estimated costs for the mosquito, vector, disease surveillance and control services and related costs that would be funded by the assessments, to determine the special benefits and general benefits received from the Services, and to apportion the assessments to lots and parcels within the VCP based on the estimated special benefit each parcel receives from the Services funded by the benefit assessment.

Following submittal of this Report to the City Council for preliminary approval, the Council may, by Resolution, call for an assessment ballot proceeding and Public Hearing on the establishment of the Mosquito, Vector and Disease Control Assessment ("Assessment").

If the Council approves such Resolution and calls for the mailing of notices and ballots, a notice of assessment and assessment ballot will be mailed to property owners at least 45 days prior to the date of the Public Hearing set by the Council. Such notice would include a description of the assessments as well as an explanation of the method of voting on the assessments. Each notice would include a ballot, on which the property owner could mark his or her approval or disapproval of the assessments, and a postage-prepaid ballot return envelope.

After the ballots are mailed to property owners, a minimum 45-day time period must be provided for the return of the assessment ballots. Following this 45-day time period, a public hearing must be held for the purpose of allowing public testimony regarding the proposed assessments and services. At this hearing, the public would have the opportunity to provide input on this issue and would have a final opportunity to submit ballots. After the conclusion of the public input portion of the hearing, the hearing may be continued to a future date to allow time for the tabulation of ballots.

With the passage of Proposition 218 on November 6, 1996, The Right to Vote on Taxes Act, now Article XIIIC and XIIID of the California Constitution, the proposed assessments can be levied for fiscal year 2019-20, and future years, only if the ballots submitted in favor of the assessments are greater than the ballots submitted in opposition to the assessments. (Each ballot is weighted by the amount of proposed assessment for the property that it represents).

If it is determined, when the tabulation results are announced, that the assessment ballots submitted in opposition to the proposed assessments do not exceed the assessment ballots submitted in favor of the assessments (weighted by the proportional financial obligation of the property for which ballots are submitted) the Council may take action, by resolution, to approve the levy of the assessments for fiscal year 2019-20 and future fiscal years. If the assessments are so confirmed and approved, the levies would be submitted to the Los Angeles County Auditor for inclusion on the property tax rolls for fiscal year 2019-20.

If the assessments are so confirmed and approved, the VCP would commence in fiscal year 2019-20 to establish and provide the services described in this report. The fiscal year 2019-20 assessment budget includes outlays for West Nile Virus surveillance and mosquito control, vector control, capital equipment, supplies and disease testing programs.

If the assessments are so confirmed and approved, they may be continued in future years and may be increased in future years by an annual adjustment tied to the Los Angeles-Long Beach-Anaheim, CA Consumer Price Index for All Urban Consumers (CPI-U), with a maximum annual adjustment not to exceed 3%. Any change in the CPI in excess of 3% shall be cumulatively reserved as the "Unused CPI" and shall be used to increase the maximum authorized assessment rate in years in which the CPI is less than 3%. The maximum authorized assessment rate is equal to the maximum assessment rate in the first fiscal year the assessment was levied adjusted annually by the minimum of 1) 3% or 2) the change in the CPI plus any Unused CPI as described above.

The procedures for the levy of the assessments in future years commence with the creation of a budget for the upcoming fiscal year's costs and services, an updated assessment roll listing all parcels and their proposed assessments for the upcoming fiscal year, and the preparation of an updated Engineer's Report. After these documents are prepared and submitted, they could be reviewed and preliminarily approved by the City Council at a public meeting. At this meeting, the Council could also call for the publication in a local newspaper of the intent to continue the assessment and set the date for a noticed public hearing. At the annual public hearing, members of the public could provide input to the Council prior to the Council's decision on continuing the services and assessments for the next fiscal year.

GENERAL DESCRIPTION OF THE MOSQUITO & VECTOR CONTROL PROGRAM AND SERVICES

ABOUT THE VECTOR CONTROL PROGRAM

For over 50 years, the Long Beach Health Department's Bureau of Environmental Health Mosquito and Vector Control Program (VCP) has operated under the administration of an independent public health department, protecting the usefulness, utility, desirability and livability of property and the inhabitants of property within its Service Area, by controlling and monitoring disease-carrying mosquitoes and other vector-borne diseases in the Service Area. The VCP, under the administration of the Long Beach Department of Health and Human Services, is governed by a nine member duly elected City Council.

The VCP staff currently consists of approximately five full time equivalent regular employees, including the Environmental Health Bureau Manager and Vector Control Coordinator. About two seasonal employees are hired every year. In addition to their scheduled duties, which include a proactive approach to vector control and public education, Vector Control Specialists (VCS) respond to service requests from the public each year for mosquito, vector and disease control issues in the areas currently receiving service. Many other requests are handled by office staff at the time of initial contact.

OVERVIEW OF VECTOR CONTROL

A vector is defined by the State of California as "any animal capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including, but not limited to, mosquitoes, flies, other insects, ticks, mites, and rats, but not including any domesticated animal..." [California Health and Safety Code Section 2200(f)]. The diseases of most concern in the Service Area are as follows, by the vector they are associated with:

- Mosquito-transmitted illnesses: West Nile Virus (WNV), Western Equine Encephalitis (WEE), Saint Louis Encephalitis (SLE), Zika virus, dog heartworm, and malaria
- Tick-transmitted illnesses: Lyme disease, babesiosis, ehrlichiosis, tularemia, rickettsial illnesses, anaplasmosis
- Rodent/rat-transmitted illnesses: leptospirosis, HPS, tularemia, plague
- Other vector-transmitted illnesses: rabies transmitted by skunks, plague and murine typhus transmitted by fleas (usually on rats, opossums, etc.), raccoon roundworm

Depending on the disease, both human and domestic animal health can be at risk of disability, illness, and/or death. Furthermore, potential exists for introduction and transmission of new diseases by current vectors and for new disease vectors to be introduced into the VCP's Service Area as was demonstrated recently with the arrival of the Aedes aegypti (Yellow Fever mosquito) and Aedes albopictus (Asian Tiger mosquito) mosquitoes within the VCP's boundaries.

The VCP's IMVMP is an ongoing series of related actions for control of mosquitoes and other vectors of human disease and discomfort. The VCP's activities involve the

identification of vector problems; responsive actions to control existing populations of vectors, prevent new sources of vectors from developing, and manage habitat to minimize vector production; education of property owners and others on measures to minimize vector production or interaction with vectors; and provision and administration of funding and institutional support necessary to accomplish VCP objectives.

The VCP has, for at least the past three decades, taken an integrated systems approach to mosquito and vector control, utilizing a suite of tools that consist of surveillance, vegetation management, and physical, biological, and chemical controls along with public education. Program implementation includes vegetation management and physical and biological control, in part, to reduce the need for chemical control. To realize effective and environmentally sound vector management, vector control must be based on several factors:

- Carefully monitoring or surveying vector abundance and/or potential contact with people
- Carefully monitoring and surveying for vector diseases and their antecedent factors that initiate and/or amplify disease
- Establishing treatment criteria (thresholds)
- Selecting appropriate tools from a wide range of control methods

While these Program components together encompass the VCP's tools, it is important to acknowledge that the specific tools VCP staff will use vary from day to day and from site to site in response to the vector species that are active, their population size or density, their age structure, location, time of year, local climate and weather, potential for vector-borne disease, proximity to human populations, including (a) proximity to sensitive receptors, (b) VCP staff's access to vector habitat, (c) abundance of natural predators, (d) availability and cost of control methods, (e) effectiveness of previous control efforts at the site, (f) potential for development of resistance in vector populations, (g) landowner policies or concerns, (h) proximity to special-status species, and (i) applicability of Endangered Species Recovery Plans, Habitat Conservation Plans, Natural Community Conservation Plans, and local community concerns, among other variables. Therefore, the specific actions taken in response to current or potential vector activity at a specific place and time depend on factors of vector and pathogen biology, physical and biotic environment, human settlement patterns, local standards, available control methods, and institutional and legal constraints. While some consistent vector sources are exposed to repeated control activity, many areas with minor vector activity are not routinely treated.

DESCRIPTION OF VECTOR CONTROL PROGRAM

In addition to being nuisances by disrupting human activities and the use and enjoyment of public and private areas, certain insects and animals may transmit diseases. The diseases of most concern are West Nile Virus (WNV), western equine encephalitis (WEE) virus, St. Louis encephalitis (SLE) virus, dog heartworm, and malaria, which are transmitted by mosquitoes. Also, since the Aedes aegypti mosquito was documented in Long Beach in 2017, Zika, Dengue fever and Chikungunya virus have become a threat. The VCP works with the California Department of Public Health—Vector-borne Disease Service to conduct

surveillance on new or re-emerging diseases that could affect the health of VCP Service Area's residents and visitors.

The spread of these diseases is minimized through ongoing vector surveillance activities, source reduction, source treatment, abatement, and educational outreach. These efforts also minimize the nuisance impacts vectors can have on residents. To fulfill this purpose, the VCP may take any and all necessary steps to control mosquitoes, monitor rodents and other vectors, and perform other related vector control services.

Specifically, the Assessment will provide an adequate funding source for the continuation of the projects and programs for surveillance, prevention and control of vectors on property within the Service Area. Such mosquito abatement and vector control projects and programs include, but are not limited to, source reduction, larvicide applications, adulticide applications, disease monitoring, public education, reporting, accountability, research and interagency cooperative activities, as well as capital costs, and maintenance and operation expenses (collectively "Services"). The cost of these services also includes capital costs comprised of equipment, capital improvements and facilities necessary and incidental to the vector control program.

The Services are further defined as follows:

- Response to mosquito problems as well as other pestiferous or disease-carrying organisms on property in the VCP's Service Area.
- Control of mosquito larvae in mosquito-breeding sources including, but not limited to residential property, agricultural sources, ditches, drain lines, vaults, seasonally flooded ponds, horse troughs, wastewater treatment plants, under buildings, freshwater marshes, creeks, catch basins, and other sources on property within the VCP's Service Area.
- Control of adult mosquito populations within areas identified by the VCP's vector abundance and virus surveillance operations.
- Survey and data analysis of mosquito larvae populations to assess public health risks and allocate control efforts on property in the Service Area.
- Monitoring of mosquito and other hematophagous dipteran populations using carbon dioxide-baited traps, resting boxes, New Jersey light traps, gravid traps, ovitraps, and other surveillance methods on property in the Service Area.
- Monitoring for diseases carried and transmitted by mosquitoes and other arthropods on property in the Service Area., such as encephalitis, Zika virus, malaria, dog heartworm, and West Nile Virus.
- Testing of dead birds, dead squirrels, and mosquitoes for arboviruses and other diseases, and other disease surveillance methods to detect vector-borne diseases on property in the Service Area.
- Testing of new insecticide materials and investigation of their efficacy.
- Cooperation with the local health department, the State Department of Public Health, State Universities, and other agencies to survey and identify arthropod-borne diseases found in parks, on trails and other locations frequented by the public.

- Monitoring and/or advice for controlling other nuisance and potentially hazardous organisms and vectors such as yellow jackets, ticks, mites, and fleas on property in the Service Area.
- Education of residents on property in the Service Area about the risks of diseases carried by mosquitoes, ticks, and other disease vectors, and how to better protect themselves and their pets.
- Assisting State and universities in testing for hantavirus, arenavirus, plague and other diseases carried by small mammal populations.
- Monitoring of new and emerging vectors such as the Yellow Fever Mosquito (Aedes aegypti) and/or the Asian Tiger Mosquito (*Aedes albopictus*).
- Monitoring and testing for and control of new and emerging pathogens such as West Nile Virus, Chikungunya Virus, Rift Valley Fever, and rickettsiosis.
- Education programs on vectors and disease abatement at schools, community, and civic group meetings in the Service Area.
- Distribution of printed material and brochures that describe what residents, employees, and property owners in the Service Area. can do to keep their homes and property free of mosquitoes and other vectors, and brochures that describe and explain the risks of vectors and vector-borne disease.
- Maintenance, updates, and enhancements to the Long Beach Health Department's Bureau of Environmental Health Mosquito and Vector Control Program's website.
- Maintenance, updates, and enhancements to the Service Area's adult mosquito control notification program.

The VCP protects the public from vector-borne disease and mosquito nuisance while protecting the environment, through a coordinated set of activities collectively known as the Integrated Vector Management Program (IVMP). For all vector species, public education is a primary control strategy. In addition, the VCP determines the abundance of vectors and the risk of vector-borne disease or discomfort through evaluation of public service requests and field and laboratory surveillance activities. If the populations exceed or are anticipated to exceed acceptable threshold criteria, VCP staff employs the most efficient, effective, and environmentally sensitive means of control for the situation. Where feasible, water management or other physical control activities are instituted to reduce vector populations and production. In some circumstances, the VCP also uses biological control such as the planting of mosquitofish. When these approaches are not effective or are otherwise inappropriate, public health pesticides are used to treat specific pest-producing or pest-harboring areas.

VECTORS AND VECTOR-BORNE DISEASES IN THE MOSQUITO & VECTOR CONTROL PROGRAM SERVICE AREA

The VCP undertakes activities through its Integrated Vector Management Program to control the following vectors of disease and/or discomfort within the Service Area:

MOSQUITOES

Mosquitoes generally occur where there is adequate vegetation for harborage and where water is standing and/or stagnant. Although mosquitoes have seasonal breeding cycles throughout the rest of the State, Long Beach's temperate climate tends to produce

mosquitoes and other vectors most of the year. The mosquito species listed in the following table can be generally described as species of concern in the Service Area:

SPECIES	HABITAT	ABUNDANCE	SEASON	DISEASE ASSOCIATIONS
Culex tarsalis	Many	Moderate	Spring, Summer, Fall	West Nile Virus, St. Louis Encephalitis, Western Equine Encephalomyelitis
Culex quinqefasciatus	Many	Great	Spring, Summer, Fall	West Nile Virus, St. Louis Encephalitis
Culex erythrothorax	Tule ponds, river	Great	Spring, Summer, Fall	Potential for secondary reservoir for WNV
Culex stigmatosoma	Foul water	Occasional	Spring, Summer, Fall	West Nile and other arboviruses
Aedes aegypti	Human dwellings, back porch, patios	Newly introduced, potentially great	Spring, Summer, Fall	Yellow fever, Dengue, Chikungunya virus
Aedes. teaniorhynchus	Coastal salt marshes	Occasional	Summer, Fall	Serious daytime pest in coastal areas
Aedes vexans	Flooded river channels	Not Found	Spring, Fall	Serious daytime pest in nearby areas
Aedes albopictus	Human dwellings back porch, patios	Newly introduced, potentially great	Spring, Summer, Fall	Yellow fever, Dengue, Chikungunya virus
Aedes sierrensis	Rotted tree holes	Not found	Late Winter, Spring	Canine heartworm, serious pest in urban/suburban areas
Culiseta incidens	Many	Moderate	All Year	None, obnoxious pest in urban/suburban areas
Culiseta inornata	Many	Moderate	Winter, Spring, Fall	None, pest in rural areas
Anopheles freeborni	Rivers, creeks	Moderate	Spring, Summer, Fall	Malaria
Anopheles hermsi	Rivers, creeks, lakes	Moderate	Spring, Summer, Fall	Malaria

The mosquito breeding habitats in the Long Beach VCP's Service Area range from street gutters to catch basins, wetland areas, irrigated lands, storm water basins, neglected pools, ponds, creeks, birdbaths, ocean rock jetties, or any artificial containers found in backyards. Mosquito and/or vector control activities are conducted at a wide variety of locations or sites throughout the VCP's Service Area, including ponds, rivers and streams, vernal pools and other seasonal wetlands, stormwater detention basins, underground storm drain systems, street drains and gutters, wash drains, or agricultural ditches, as well as artificial containers, tire piles, fountains, ornamental fishponds, swimming pools, liquid waste detention ponds, and non-natural harborage (such as covered wood piles, residential and commercial landscape, trash receptacles). Throughout the Service Area, activities would be conducted at similar sites.

Aedes aegypti (Yellow fever mosquito) adults emerge in May and remain active through November. This species lives in minimal collections of standing water in containers in homes and on patios. Their biting behavior is that of vicious day biters, preferring human hosts and homes. This mosquito is a major pest where it breeds, and a known carrier of Dengue fever and Chikungunya Virus.

Culex tarsalis (Western Encephalitis Mosquito) is the primary vector of West Nile Virus (WNV), Saint Louis encephalitis (SLE) and the Western Equine encephalomyelitis (WEE) viruses. This species lives in a variety of aquatic sources ranging from clean to polluted waters, flooded agricultural fields to backyard stagnant pools, and fresh water to high salinity brackish water. This mosquito breeds year-round and prefers to feed on birds. However, it readily attacks humans, horses and cattle.

Culex quinquefasciatus (Southern House Mosquito) is most frequently found in residential communities. This species breeds in highly polluted waters, artificial containers, septic tanks, underground storm drain systems, catch basins, waste treatment ponds, and neglected swimming pools. Birds are the principal blood meal source; however, they will readily attack humans and invade their homes. This mosquito is also an excellent vector for West Nile Virus.

Culex erythrothorax (Tule Mosquito) is associated with ponds containing water plants called Tules. The Tule mosquito is a late morning/nighttime-biting mosquito and has been identified as a species of concern in the transmission of West Nile Virus to birds. (Secondary reservoir)

Culex stigmatosoma: This mosquito breeds in foul water. It is primarily a bird feeder but will bite humans and animals.

Culiseta spp: This species breeds in a variety of habitats during the cooler months, and are active mostly during spring, fall and winter. These mosquitoes are also associated with the transmission of arboviruses.

Anopheles spp: These mosquitoes also breed in cool shaded areas in riparian habitats and a variety of other habitats. These species are known to transmit malaria.

Aedes spp: These species breed in irrigated pastures, containers and tree holes. They are fierce day biters. Aedes *sierraensis* can transmit dog heartworm. Beginning June 2013, the invasive species Yellow Fever Mosquito *(Aedes aegypti*) was discovered in Fresno and Madera Counties and has since spread to Kern, San Mateo, and Tulare Counties. This has caused great expense to all vector control agencies affected. Similarly, the Yellow Fever Mosquito can transmit dengue, Chickungunya virus, and yellow fever. The recent introduction of the Asian Tiger mosquito (Aedes albopictus) in Southern California is a major change and also of great concern due to its threat of transmitted diseases such as dengue, Chickungunya virus and yellow fever.

The VCP applies the latest integrated and bio-friendly methods to control mosquitoes in the Service Area. The VCP works with City, County, State, and Federal agencies toward permanent correction of mosquito breeding sources.

The diseases of most concern are: WNV, Zika, WEE, and SLE which are all transmitted by mosquitoes. Among the principal threats to which the VCP responds are:

- Human and animal diseases associated with mosquitoes
- Annoyance and economic disruption caused by mosquitoes

OTHER ANIMALS OF IMPORTANCE

Although certain animal species such as bats, ground squirrels, chipmunks, fleas, ticks, opossums, wood rats, roof rats, and house mice will not be regularly monitored or controlled, these animals play important roles in the transmission of plague, rickettsiosis, anaplasmosis, ehrlichiosis, murine typhus, and Lyme disease, and may be surveyed for other diseases. The VCP routinely provides education and consulting services to the public about disease risk associated with these vectors and appropriate measures to protect human health. In extreme cases where the transmission of disease is likely, as with the other VCP activities, control efforts may be employed. Control of these animals will be done in consultation with the California Department of Health Services, City of Long Beach Bureau of Animal Care, City of Long Beach Department of Health and Human Services, Los Angeles County Agricultural Commissioner's Office, and other State and local agencies.

Most of the vectors mentioned above are extremely mobile and cause the greatest hazard or discomfort away from their sources. Each of these potential vectors has a unique life cycle and most occupy different habitats. In order to effectively control these vectors, an integrated vector management program must be employed. VCP policy is to identify those species that are currently vectors, to recommend techniques for their prevention and control, and to anticipate and minimize any new interactions between vectors and humans.

INTEGRATED VECTOR MANAGEMENT

The VCP's Services address several types of vectors and share general principles and policies. These include the identification and control of vector populations, prevention of new sources of vectors from developing, and the management of habitat in order to minimize vector production. Also included is the education of residents on measures to minimize

vector production or interaction with vectors, and the provision and administration of funding and institutional support necessary to accomplish these goals.

PROGRAM

The VCP's IMVMP, like any IPM program, seeks by definition to use procedures that will minimize potential environmental impacts. The VCP's IMVMP employs IPM principles by first determining the species and abundance of mosquitoes/vectors through evaluation of public service requests and field surveys of immature and adult mosquito/vector populations and, then, if the populations exceed acceptable thresholds, using the most efficient, effective, and environmentally sensitive means of control. For all mosquito species, public education is an important control strategy. In some situations, water management or other physical control activities can be instituted to reduce mosquito-breeding sites. The VCP also uses biological control such as the planting of mosquito fish in some settings: ornamental fish ponds, water troughs, water gardens, fountains, and unmaintained swimming pools. When these approaches are not effective, or are otherwise deemed inappropriate, then pesticides are used to treat specific pest-producing or pest-harboring areas.

Three core tenets are essential to the success of a sound IMVMP.

- First, a proactive approach is necessary to minimize impacts and maximize successful vector management. Elements such as thorough surveillance and a strong public education program make all the difference in reducing potential human vector interactions.
- Second, long-term environmentally based solutions (e.g., water management, reduction of harborage and food resources, exclusion, and enhancement of predators and parasites) are optimal as they reduce the potential pesticide load in the environment as well as other potential long- and short-term impacts.
- Lastly, utilizing the full array of options and tools (public education, surveillance, physical control, biological control, and when necessary chemical control) in an informed and coordinated approach supports the overall goal of an environmentally sensitive vector management program.

The VCP's Program consists of the following alternatives, which are general types of coordinated and component activities, as described below. The proposed Program, which includes the enhanced level of service to be funded by the assessment, is a combination of these alternatives with the potential for all of these alternatives to be used in their entirety along with public education.

Chemical methods to control vectors and weeds, under the Vegetation Management and Chemical Control alternatives described below, are employed independently at specific application sites. The pesticides used as part of the VCP's Proposed Program are applied at low concentrations to avoid potential impacts to non-target organisms from acute and/or chronic exposures. Manufacturers carefully establish application amounts mandated by product use requirements for treatment efficacy and low potential risk to non-target organisms and they are substantially below the thresholds used for toxicity studies in the laboratory. The pesticides the VCP selects are designed to degrade rapidly in the

environment, thereby reducing the opportunity for residual presence and environmental persistence. As different chemicals are selected for potential rotational use in a given area (i.e., larvicides first, followed by adulticides if needed), VCP staff take care both in the selection of the chemicals used and the application process so that co-exposures to non-target receptors are highly unlikely. This type of practice reduces the probability of additive or synergistic effects that could occur as a result of simultaneous exposures to more than one chemical.

Synergists, and in some cases adjuvants (used with herbicides to also facilitate mixing and application), are applied to increase the efficacy of some chemical control measures. This application could lead to co-exposures of synergists such as PBO and primary chemical treatments. However, synergists allow for reduced treatment amounts of primary pesticide chemicals, since their performance is improved via conjunctive use. Another example of chemicals sometimes used together is the co-application of methoprene and Bti. This particular treatment is employed to prevent pesticide resistance and to ensure the control of all larval stages of nuisance mosquitoes while minimizing the potential for impacts to non-target receptors from co-exposures

Mosquitoes in nature are distributed within their environment in a pattern that maximizes their survival to guarantee reproductive success. Immature stages develop in water and later mature to a winged adult that is capable of both long- and short-range dispersal. This duality of their life history presents vector control agencies with unique circumstances that require separate surveillance strategies for the aquatic versus terrestrial life stages.

PHYSICAL CONTROL

Managing vector habitat to reduce vector production or migration, either directly or through public education, is often the most cost-effective and environmentally benign element of an IMVMP. This approach to the control of vectors and other pests is often called "physical control" to distinguish it from those vector management activities that directly rely on application of chemical pesticides (chemical control) or the introduction or relocation of living agents (biological control). Other terms that have been used for vector habitat management include "source reduction," which emphasizes the significance of reducing the habitat value of an area for vectors, or "permanent control," to contrast with the temporary effectiveness of pesticide applications. Vector habitat management is important because its use can virtually eliminate the need for pesticide use in and adjacent to the affected habitat and, in some situations, can virtually eliminate vector production from specific areas for long periods of time, reducing the potential disturbances associated with frequent biological or chemical control activities. The intent is to reduce the abundance of vectors produced or sheltered by an area while protecting or enhancing the habitat values of the area for desirable species. In many cases, physical control activities involve restoration and enhancement of natural ecological functioning, including production and dispersal of special-status species and/or predators of vectors.

PHYSICAL CONTROL FOR MOSQUITOES consists of the management of mosquito-producing habitat (including freshwater marshes and lakes, temporary standing water for one week or more, and wastewater treatment facilities) especially through water control and maintenance

or improvement of channels, levees, and other water control facilities. Physical control is usually the most effective mosquito control technique because it provides a long-term solution by reducing or eliminating mosquito developmental sites, and ultimately reduces and potentially eliminates the need for chemical applications. The physical control practices may be categorized into three groups: maintenance, new construction, and cultural practices.

Maintenance activities are conducted in seasonal wetlands. They include connection of backwaters or isolated pools on floodplains to the main channels of streams and rivers and increased drainage rates and areas in managed wetlands. The following activities are classified as maintenance:

- Removal of debris/overstory, weeds, and emergent vegetation in natural channels
- Clearance, trimming, and removal of brush for access to streams tributary to wetland areas

Cultural practices include vegetation and water management. Together, both practices reduce mosquito production directly by improving water circulation and indirectly by improving habitat values for predators of larval mosquitoes (fish and invertebrates), or by otherwise reducing a site's habitat value to mosquito larvae.

The VCP may request/require landowners to remove water from tires and other urban containers; cut, trim, mow, and harvest aquatic and riparian plants (but not including any mature trees, threatened or endangered plant species, or sensitive habitat areas); and install minor trenching and ditching.

The remainder of this subsection describes physical control or "source reduction" practices by type of potential mosquito habitat.

For vegetation management, the VCP uses hand tools and expertise for vegetation removal or thinning and sometimes applies herbicides (chemical pesticides with specific toxicity to plants) to improve surveillance or reduce vector habitats. Vegetation removal or thinning primarily occurs in aquatic habitats to assist with the control of mosquitoes and in terrestrial habitats to help with the control of other vectors. To reduce the potential for mosquito breeding associated with water retention and infiltration structures, VCP staff may systematically clear weeds and other obstructing vegetation in wetlands and retention basins (or request the structures' owners to perform this task). In particular, thinning and removal of cattail overgrowth would be done to provide a maximum surface coverage of 30 percent or less.

Tools ranging from shovels and pruners to chain saws and "weed-whackers" up to tractors with mower implement can all be used at times to clear plant matter that either prevent access to mosquito breeding sites or that prevent good water management practices that would minimize mosquito populations. Strict adherence to bird nesting parameters is observed. Generally, however, VCP "brushing" activities rely almost entirely on hand tools. Trimmed vegetation is either removed and disposed of properly from the site or broadcast

in such a way as to minimize visual degradation of the habitat. Trimming is also kept to a minimum to reduce the possibility of the invasion of exotic species of plants and animals.

The use of water management to control vegetation is in some ways an extension of physical control, in that water control structures created as part of a physical control project may be used to directly manipulate hydroperiod (flood frequency, duration, and depth) as a tool for vegetation management. Where potential evapotranspiration rates are high, water management can also become a mechanism for salinity management and, indirectly, vegetation management through another path.

In order to accomplish effective and environmentally sound vector management, the manipulation and control of vectors must be based on careful surveillance of their abundance, habitat, prevalence of pathogens, and/or potential contact with people; the establishment of treatment criteria (thresholds); and appropriate selection from a wide range of control methods. This dynamic combination of surveillance, treatment criteria, and use of multiple control activities in a coordinated program is generally known as IMVMP. The VCP's Vector Management Program, like any other IMVMP program, by definition involves procedures for minimizing potential environmental impacts. The VCP employs IMVMP principles by first determining the species and abundance of vectors through evaluation of public service requests, field surveys and trapping of immature and adult pest populations; and then, if the populations exceed acceptable thresholds, using the most efficient, effective, and environmentally friendly means of control. For all vector species, public education is a vital part of control strategy. In some situations, water management or other physical control activities (historically known as "source reduction") is instituted to reduce vector-breeding sites. The VCP also uses biological control such as the planting of mosquito fish in ornamental ponds, unused swimming pools and other standing water bodies. In conjunction with these methods of control, environmentally safe control products are used to treat specific pest-producing or pest-harboring areas.

The VCP is organized into three principle sections to accomplish IMVMP:

- First, the administration provides leadership, expertise, public relations/education, and interface with other governmental authorities.
- Second, the operations program of the VCP includes Vector Control Specialists (VCS) who perform IMVMP in the field. Each VCS is assigned a zone of operation, with the VCS responsible for service requests and control activities in his or her area. Due to the independent nature of their job duties, training is provided to technicians through direct communication with the VCP's professional staff. The VCS performs visual surveillance by responding to resident complaints and by extensive examination of vector breeding habitats. In addition, the VCS monitors their areas to be sure that their control efforts have been successful.
- Finally, surveillance provides oversight of safety and personal protection, supplements surveillance performed by vector control specialists with advanced trapping techniques, interacts with local government agencies for long-term reduction of vector sources, and performs operational research in support of IMVMP.

The VCP's Illness and Injury Prevention Program and the Emergency Response Plan provide safety training for all employees who may be affected by any substance, process, procedure, or equipment that represents a potential hazard. Training programs are conducted for the safe use of equipment, lab work, machinery, or tools and the safe use and disposal of pesticides.

BEST MANAGEMENT PRACTICES

The VCP has implemented a number of procedures and practices under current Program activities that would continue into the future for the Proposed Program. These BMPs represent measures to avoid, minimize and eliminate adverse effects on the human, biological, and physical environments and VCP Staff. These BMPs are already in use and would continue to be used as part of the Proposed Program.

- Pesticide Applications to Product Label Requirements
- Pesticides/Surfactants/Herbicides Applications with Best Management Practices
- Nonchemical Vector Control Best Management Practices
- Hazardous Materials Spill Management
- Worker Illness and Injury Prevention Program and Emergency Response.

The VCP will observe all state and federal regulations. The VCP will follow all appropriate laws and regulations pertaining to the use of pesticides and herbicides and safety standards for employees and the public, as governed by the USEPA, CDPR, and local jurisdictions (with some exceptions). Although the products the VCP uses are all tested, registered, and approved for use by the USEPA and/or CDPR, the VCP provides additional margins of safety with the adherence to additional internal guidance based on BMPs and the principles embodied in VCP's IVM policies, where applicable.

- Ensure all VCP and contracted applicators are appropriately licensed by the state.
- VCP staff or contractors will coordinate with the County Agricultural Commissioners and obtain and verify all required licenses and permits as current prior to pesticide/herbicide application.
- All applicators and handlers will use proper personal protective equipment.

The VCP maintains the capability of applying aerosolized insecticide for area treatment of adult mosquitoes. This method is used to supplement larval control when conditions warrant its use to reduce the threat to public health.

MOSQUITO ADULTICIDES

In addition to chemical control of mosquito larvae, the VCP may use pesticides for control of adult mosquitoes when no other tools are available and if specific criteria are met, including species composition, population density (as measured by landing count or other quantitative method), proximity to human populations, and/or human disease risk. As with larvicides, adulticides are applied in strict conformance with label requirements (Appendix B). Adulticides the VCP potentially uses include Pyrethrins (Pyrocide®, Pyrenone 25-5®); Pyrenone Crop Spray®, and Permethrin (Scourge 18-54). The adulticides the VCP uses for

mosquito abatement for 2013 and beyond are listed below. Adulticide materials are used infrequently and only when necessary to control mosquito populations.

GROUND ADULTICIDING TECHNIQUES

The most common form of adulticide application is via insecticide aerosols at very low dosages. This method is commonly referred to as the Ultra Low Volume ULV method. This method employs specially designed ULV equipment mounted on trucks, ATVs, golf carts, and boats or handheld for ground applications. Barrier or residual treatments for adult mosquitoes consist of an application using a material generally applied with a compressed air sprayer to the preferred foliage, buildings, or resting areas of the mosquito species.

Cold aerosol generators, cold foggers, and ULV aerosol machines were developed to eliminate the need for great quantities of petroleum oil diluents necessary for earlier fogging techniques. These units are constructed by mounting a vortex nozzle on the forced air blower of a fogger. Insecticide is applied as technical material or at moderately high concentrations (as is common with the pyrethroids), which translates to very small quantities per acre and is, therefore, referred to as ULV. In agriculture, this rate is assumed less than 36 ounces per acre, but mosquito control ground adulticiding operations rarely exceed 1 ounce per acre. The optimum sized droplet for mosquito control with cold aerosols applied at ground level has been determined to be in the range of 5 to 20 microns.

Adulticiding, although the VCP uses this tool very sparingly, is the only known effective measure of reducing an adult mosquito population in a timely manner. All mosquito adulticiding activities follow reasonable guidelines to avoid affecting non-target species including bees. Timing of applications (when mosquitoes are most active), avoiding sensitive habitat areas, working and coordinating efforts with CDFW or USFWS when appropriate, and following label instructions all result in environmentally sound mosquito control practices.

The following is a summary of the VCP's efforts to apply IMVMP to the vectors and issues outlined above.

MOSQUITOES

RISK ASSESSMENT: Historically, *Culex tarsalis* and *Culex quinquefasciatus* have been abundant in the VCP. The great vector potential of these species identifies them as the principal mosquito species of concern. *Culiseta spp.*, particularly *Culiseta inornata* and Culiseta incidens are widespread in the Service Area, occurring in many kinds of habitats during winter and spring months mostly. However, tests of their ability to transmit viral pathogens show them to be of little significance as vectors.

SURVEILLANCE: Surveillance of mosquitoes is accomplished by using a combination of methods. First, Vector Control Specialists and surveillance staff actively examine potential sites by sampling mosquito habitats and collecting larvae, and then, if necessary, laboratory staff identifies the larvae to species. Second, individual residents and property owners call the VCP with complaints about bites or potential larval sites. Finally, various traps (light traps, carbon dioxide baited traps, foul water (gravid) traps are used to collect adult mosquitoes.

The adults are collected weekly and/or bi-weekly and are subsequently classified and identified to species.

During the warm months, additional temporary staff is hired to help inspect and treat breeding sources throughout the VCP. Catch basins (street drains) and underground storm drains in particular can produce *Culex quinquefasciatus* in great numbers at locations close to residences and businesses.

Viruses transmitted by mosquitoes are surveyed by testing mosquitoes, as well as the avian reservoirs and humans. Viral tests of mosquitoes, birds, or mammals are performed by the California Department of Health Services and appropriate laboratories.

CONTROL: The VCP currently uses four principal control materials to kill mosquito larvae. The toxins of the natural occurring bacteria *Bacillus thuringiensis israelensis* (Bti) can be applied as either a liquid or a granule. Bti has the tremendous advantage of specificity, only affecting mosquitoes and related groups of flies. The spores of *Bacillus sphaericus* (Bs) are also available in liquid spray or granular application. This product has the advantage over Bti by reproducing in the water, extending the life of its effectiveness. Bs is only effective against the *Culex species of mosquitoes* and works well in highly polluted water. Methoprene is an analogue for natural insect hormone that prevents successful completion of mosquito development. It is available as a liquid and longer-acting granules and briquettes. Finally, the VCP uses monomolecular surface oil to suffocate immature mosquitoes when they are found in appropriate water bodies.

Larvicides are applied when the chemical control criteria for mosquito larvae are present and application rates vary according to time of year, water temperature, the level of organic content in the water, the type of mosquito species present, larval density, and other variables. Larvicide applications may be repeated at any site at recurrence intervals ranging from annually to weekly.

Larvicides the VCP routinely uses includeBti, Bs, Methoprene (Altosid or Metalarv), CoCoBear Oil, BVA-2, Masterline Mosquito Larvicide, Saacharopolysporaspinosa (Spinosad) (Natular), and Agnique.

- Bti is a biological larvicide. Bti is a bacterium that is ingested by mosquito larvae and that disrupts their gut lining, leading to death before pupation. The VCP applies Bti as a liquid or bonded to an inert substrate (sand or corncob granules) to assist penetration of vegetation. Persistence is low in the environment, and efficacy depends on careful timing of application to coincide with periods in the life cycle when larvae are actively feeding. Pupae and late 4th stage larvae do not feed and, therefore, will not be controlled by Bti. Low water temperature inhibits larval feeding behavior, reducing the effectiveness of Bti during very cold periods. High organic conditions also reduce the effectiveness of Bti. Therefore, use of Bti requires frequent inspections of larval sources during periods of larval production, and may require frequent applications of material. Application can be by hand, from an ATV, or from watercraft.

- Bs is a biological larvicide. Bs is a bacterium that when ingested by mosquito larvae produces microbial gut toxins that destroy the insect gut wall, leading to paralysis and death. Bs is a biological larvicide the VCP applies as a liquid or bonded to an inert substrate (corncob granule) to assist penetration of vegetation. The mode of action is similar to that of Bti, but Bs may be used more than Bti in some sites because of its higher effectiveness in water with higher organic content and residual properties that allow longer larvicidal action. Persistence is low in the environment, and efficacy depends on careful timing of application to coincide with periods in the life cycle when larvae are actively feeding. Pupae and late 4th stage larvae do not feed and, therefore, will not be controlled by Bs. Low water temperature inhibits larval feeding behavior, reducing the effectiveness of Bs during very cold periods. Bs is also ineffective against certain mosquito species such as those in the genus *Aedes*. Knowing the stage and species present can increase the effectiveness of this material, restricting it to sources containing susceptible species. Therefore, use of Bs requires frequent inspections of larval sources during periods of larval production and may require frequent applications of material. Application can be by hand, from an ATV, or from watercraft.

- Spinosad is an Omri Listed Dow AgroSciences active ingredient that is a fermentation product of bacteria first discovered in an old rum distillery. Spinosad is a fermentation product of the naturally occurring soil bacterium *Saacharopolysporaspinosa*. It causes excitation of the mosquito's nervous system, ultimately leading to paralysis and death. This mode of action makes this pesticide a good option for rotational use in the prevention of resistance. Its action on the target organism is either by contact or by ingestion, and as with other bacterial larvicides, activity can be reduced in highly organic water. The VCP applies Spinosad as a liquid or as a sustained-release product that can persist for up to 30 or 180 days. It is applied either in response to high observed populations of mosquito larvae at a site or as a sustained-release product that can persist for up to about 4 months. This product has very low potential for accumulation in soil or groundwater contamination. Application can be performed by hand, from an ATV, or from watercraft.

- Methoprene, common brand names known as Altosid and Metalarv, is a synthetic juvenile hormone that is designed to disrupt the transformation of a juvenile mosquito into an adult. Methoprene products must be applied (or present, if using a slow release formula) to the late instar (e.g., third and fourth) and/or pupal stages of mosquitoes. It is not effective against other life stages. Methoprene can be applied in granular, liquid, pellet, or briquet formulation. Sustained-release products can persist for up to 30 or 150 days. Application can be performed by hand, from an ATV, from watercraft, or from aircraft.

- BVA-2 and Masterline Mosquito Larvicide are highly refined petroleum distillates (mineral oil). These new larvicides demonstrate a low level of toxicity to plant growth (phytotoxicity) and rapid environmental breakdown. BVA-2 larvicide oil has a water-white clear color and is also practically odorless. It forms a thin film on water and kills larvae through suffocation and/or direct toxicity. It is typically applied at

application rates of 3 to 5 gallons per acre and can be applied by hand, from an ATV, from watercraft, or from a truck.

- Agnique is the trade name for a surface film larvicide, comprised of ethoxylated alcohol that kills mosquito larvae and pupae. Agnique forms an invisible monomolecular film that is odorless and visually undetectable. This film interrupts the critical air/water interface (surface tension) in the mosquito's larval and pupal development cycle causing them to drown. Because the layer is thin, larvae can still temporarily penetrate the film to get air allowing for them to survive for up to 5 days. Mortality rate is somewhat dependent on life-cycle stage. Larvae are typically killed within 48 to 72 hours; however, with some species and under certain environmental conditions (such as cool temperatures when development is slow) larval control may take upwards of 120 hours. Water temperature will affect oxygen demands and rate of maturation, thus slowing control. Pupae are typically controlled within 24 to 72 hours, and any pupae that attempt to emerge will be controlled due to the presence of the film. The VCP may use Agnique as an alternative to BVA-2 although costs, limits of application, and effective duration are issues of concern. Because the application rate of Agnique is much lower than that of BVA-2 (0.35 to 1 gallon per acre) this potential shift would not include an increase in volume of materials applied.

- CoCoBear Oil is a food grade, highly refined petroleum distillate comprised of proprietary blends of sustainable coconut and mineral oils. This larvicide demonstrates low-level toxicity to plant growth (phytotoxicity) and rapid environmental breakdown. It forms a thin film on water and kills larvae through suffocation and/or direct toxicity. It is typically applied at application rates of 3 to 5 gallons per acre and can be applied by hand, from an ATV, from watercraft, or from a truck.

The VCP uses the mosquito fish, *Gambusia affinis*, as a form of biological control. These work particularly well during warm weather in decorative ponds, swimming pools, and other man made bodies of water. Mosquito fish can be used in combination with Bti, Bs, and Methoprene in a process sometimes referred to as Integrated Biological Control.

MONITORING: Monitoring is an extension of surveillance activities. Vector Control Specialists specifically re-check treatment sites to be sure that applications were successful. Surveillance personnel deploy carbon-dioxide baited traps, light traps, and foul-water traps to evaluate the success of the program. Surveillance involves monitoring the abundance of mosquito populations, their habitat, mosquito-borne disease pathogens, and the interactions between mosquitoes and people over time and space. The VCP routinely uses a variety of traps for surveillance of adult mosquitoes, regular field investigation of known mosquito sources for direct sampling for immature stages, public service requests for adult mosquitoes, and low ground pressure ATVs to access these sites when necessary. The VCP conducts surveillance by way of a variety of activities that include:

- Field counting/sampling and use of trapping, along with the laboratory analysis of mosquitoes, their hosts, and pathogens to evaluate population densities and

potential disease threats such as WNV, Zika, WEE, and SLE. Sampling for presence and abundance of mosquito populations tends to occur in areas where the citizenry would have a likelihood of exposure to them; field counts take place both at immature and adult stages of mosquito development or life cycle. Three kinds of traps, host-seeking traps, light traps, and gravid/oviposition traps, are used as described below:

i. Host-seeking traps use dry ice (carbon dioxide) to attract female mosquitoes behaviorally cued to seek a host to blood feed. The trap's components include a dry ice container, battery power source, a low ampere motor/fan combination and a collection container for holding captured adults.

ii. Light traps (commonly called New Jersey Light traps) use a source of photo-attraction such as an incandescent lamp (25 watt) or compact fluorescent lamp (7 watt) where mosquitoes are pulled in by the suction provided by an electric (110 v AC) appliance motor/fan combination. Mosquitoes picked up by the suction are directed downward (via screened cone) inside the trap body to a plastic collection jar containing a 1-inch strip of Vapona, Hot Shot® , or No-Pest® strip (dichlorvos).

iii. Oviposition traps are used to collect gravid Aedes and Culex spp. mosquitoes and/or to measure their egg-laying activity. As an example, they may use 5-day-old hay-infused water contained in a small plastic dish pan that has a 6-volt battery-operated fan directly above to draw the gravid female mosquitoes into the small container.

Mosquito immatures include eggs, four larval stages, and a transitional pupal stage. Mosquito control agencies routinely target the larval and pupal stages to preclude an emergence of adults. Operation evaluation of the presence and abundance of immature mosquitoes is limited to the larval and pupal stages, although the VCP may sample eggs for research reasons. Sampling and collection of the immature stages (egg, four larval stages, and a transitional pupal stage) involves the use of a 1-pint dipper (a standardized small plastic pot or cup-like container on the end of a 36-inch handle), which scoops up a small amount of water from the mosquito-breeding site. Operationally, the abundance of the immatures in any identifiable "breeding" source is measured through direct sampling, which provides relative local abundance as the number of immatures per unit volume or area of the source. This method requires access by field personnel to within about 3 feet of larval sites at least every 2 weeks in warm weather. The spatial patchiness of larvae requires access to multiple locations within each source, rather than to single "bell-weather" stations.

- "Arbovirus"[2] surveillance to determine the likelihood and occurrence of mosquito-borne illness is accomplished by capturing and testing female vector mosquitoes for the presence of mosquito-borne encephalitis viruses as explained above, which involves the use of host-seeking traps to capture female vector mosquitoes.

[2]Arthropod-borne viruses. The primary reservoir for the pathogens that cause these diseases is wild birds, and humans only become exposed as a consequence of an accidental exposure to the bite of infective mosquito vectors.

Captured females are sorted into groups of up to 50 (called pools) and submitted to UC Davis or a laboratory local to that VCP to test for the presence of mosquito-borne viruses. In addition, dead birds reported by the public to the statewide WNV Hotline are mapped to determine high-risk areas, and those meeting testing criteria are brought to the VCP or sent to UC Davis to be tested for WNV.

- Field inspection of known or suspected habitats where mosquitoes live and breed. Sites where water can collect, be stored, or remain standing for more than a few days are potential habitats for mosquito breeding that require continuous inspection and surveillance. Water runoff into catch basins and stormwater detention systems from land uses including, but not limited to, residential communities, parks and recreation areas, and industrial sites, as well as ornamental ponds, unmaintained swimming pools, seeps/seepages, seasonal wetlands, marshes, wastewater ponds, sewer plants, winery waste/agricultural ponds, managed waterfowl ponds, canals, creeks, streams, tree holes, tires, man-made containers, flooded basements/crawl spaces, and other standing waters are likely sources.

- Maintenance of paths and clearings to facilitate sampling and to provide access to vector habitat. It is VCP policy that staff manages vegetation periodically for accessibility to water bodies and use preexisting roads, trails, walkways, and open areas to conduct routine and essential surveillance activities with the least impact on the environment. Surveillance is usually conducted on foot.

- Analysis of public service requests and surveys and other methods of data collection. The VCP's mosquito surveillance activities are conducted in compliance with accepted federal and state guidelines, in particular the California Mosquito-borne Virus Surveillance and Response Plan (CDPH 2010a) and Best Management Practices for Mosquito Control in California (CDPH 2010b).These guidelines recognize that local conditions will necessarily vary and, thus, call for flexibility in selection and specific application of control methods.

CONTROL AND SURVEILLANCE OF OTHER VECTORS

Per the request of a public agency or resident, the VCP provides a response to control cockroaches, opossums, and bees. Other animals, such as ground squirrels and fleas, could be controlled by the VCP in response to the threat to property and of disease transmission to humans. These animals would only be controlled after consultation with the Long Beach Department of Health and Human Services and State health officials. In specific situations, control of other vectors would be considered either as policy of the Long Beach City Council or as directed by management.

OTHER SERVICES

The VCP provides a service to identify insects and arthropods that are submitted by residents, pest control companies, and other agencies. The identification is free of charge. After the insect or arthropod is identified the VCP will contact the submitter and inform them of what has been identified and how best to handle an infestation, problem, or any

associated risks. The VCP is also available upon request to attend any public, civic, or agency event to make presentations.

SERVICE REQUESTS

The VCP responds to service requests within its boundaries. Any property owner, business or resident in the VCP may contact the VCP to request vector control related service or inspection and a VCP field technician will respond promptly to the particular property to evaluate the property and situation and to perform appropriate surveillance and control services. The VCP responds to all service requests in a timely manner, regardless of location, within its boundaries.

PUBLIC RELATIONS, OUTREACH, AND EDUCATION

Public education is a crucial portion of vector control. The recent emergence of West Nile Virus created a strong need for regular and fairly extensive media contacts, outreach and education. Educational activities include press releases, brochures, interviews, informing other government agencies and presentations to the public. Additionally, the VCP may make recommendations on specific property development and land and water management practices or proposals that may create sources of mosquitoes/vectors.

The VCP also interacts professionally at many levels. Personnel attend meetings or maintain membership with the American Mosquito Control Association, the Entomological Society of America, the Mosquito and Vector Control Association of California, Society for Vector Ecology, World Health Organization, and other associated organizations and training programs.

INTERAGENCY PROGRAMS

The VCP actively seeks cooperative exchanges with a wide range of other government agencies at County, State, and national levels. Among the relationships are:

- California Department of Fish and Wildlife
- California Department of Public Health
- California DPR (Department of Pesticide Regulation) regulates the sale and use of pesticides in California
- NOAA (National Oceanic and Atmospheric Administration)
- State Water Resources Board
- USEPA (United States Environmental Protection Agency)

ESTIMATE OF COSTS AND BUDGET

FIGURE 3 – COST ESTIMATE – FY 2019-20

City of Long Beach Vector Control Program
Mosquito, Vector and Disease Control Assessment
Estimate of Cost - Fiscal Year 2019-20

	Preliminary Budget
Mosquito & Vector Control Services and Related Expenditures	
Mosquito, Vector Control and Disease Prevention Operations	$517,321
Materials, Utilities and Supplies	$104,039
Technology and Information Services	$31,500
Fleet Services	$49,500
Indirect Cost	$115,156
Total Mosquito Control Services and Related Expenditures	**$817,516**
Incidental Costs[1]	
Allowance for Uncollectable Assessments	$11,302
Levy Administration, County Collection Fee, and Other Incidentals	$18,966
Total Incidental Costs	**$30,268**
Total Benefit of Improvements	**$847,784**
Single Family Equivalent Units (SFEs)	**91,855**
Benefit received per SFE Unit	**$9.23**
Less Contributions from other Sources (i.e. current budget)[2]	
Licenses and Permits	($8,901)
Public Health Realignment Funds (VLF & Sales Taxes)	($85,409)
Total Contributions from other Sources	**($94,310)**
Total Mosquito, Vector and Disease Control Services and Incidentals (Net Amount to be Assessed)	**$753,474**

Budget Allocation to Property

Zones of Benefit	Number of Parcels	Total SFE Units[3]	Assessment per SFE[4]	Total Assessment[5]
Zone A – Main VCP Area	78,898	91,075	**$8.21**	$747,727
Zone B – Marine Stadium	599	527	**$7.55**	$3,981
Zone C – Harbor	121	238	**$6.98**	$1,664
Zone D – Airport	2	15	**$6.98**	$102
	79,620	91,855		**$753,474**

Notes:

1. Incidental Costs include allowance for uncollectable assessments from assessments on public agency parcels, and county collection charges.
2. As determined in the following section, at least 11% of the cost of the Services must be funded from other sources, other than the Assessments, to cover any general benefits from the proposed Services. Therefore, out of the total cost of the Services of $847,784, the VCP must contribute at least $93,256 from sources other than the Assessments. The VCP will contribute $94,310 from non-assessment revenue, which more than covers any general benefits from the Services. The VCP contribution also offsets the minimal amount of baseline services that are currently provided in the proposed Assessment Area.
The total costs of the new services and improvements is the sum of the total assessment amount plus the general benefit contribution.
3. SFE Units means Single Family Equivalent benefit units. See method of assessment in the following Section for further definition.
4. The assessment rate per SFE is the total amount of assessment per Single Family Equivalent benefit unit.
5. Funds raised by the assessment shall be used only for the purposes stated within this Report. Any balance remaining at the end of the fiscal year, June 30, must be carried over to the next fiscal year.

Note: For the sake of brevity within this report, the budget above represents only a top-line summary of the VCP's forecasted budget for fiscal year 2019-20. The detailed and comprehensive VCP budget is available upon request, and provides actual costs for prior years, and both forecasted and actual costs for the current fiscal year.

METHOD OF ASSESSMENT

This section of the Report explains the benefits to be derived from the Services to be provided for property in the Assessment Area, and the methodology used to apportion the total assessment to properties within the Mosquito, Vector and Disease Control Assessment Area.

The proposed Mosquito, Vector and Disease Control Service Area consists of the assessor parcels in the Long Beach Health Department's Bureau of Environmental Health Mosquito and Vector Control Program (VCP), as defined within the area of the boundary diagram included within this Engineer's Report and coincident with the Service Area. (See the Assessment Roll for a list of all the parcels included in the proposed Mosquito, Vector and Disease Control Assessment.)

The method used for apportioning the assessment is based upon the proportional special benefits to be derived by the properties in the Assessment Area over and above general benefits conferred on real property in the assessment area or to the public at large. Special benefit is calculated for each parcel in the Assessment Area.

1. Identification of total benefit to the properties derived from the Services
2. Calculation of the proportion of these benefits that are special vs. general
3. Determination of the relative special benefit within different areas within the Assessment Area
4. Determination of the relative special benefit per property type and property characteristic
5. Calculation of the specific assessment for each individual parcel based upon special vs. general benefit; location, property type and property characteristics

DISCUSSION OF BENEFIT

In summary, the assessments can only be levied based on the special benefit to property. This special benefit is received by property over and above any general benefits from the Services. With reference to the engineering requirements for property related assessments, under Proposition 218, an Engineer must determine and prepare a report evaluating the amount of special and general benefit received by property within the Assessment Area as a result of the improvements or services provided by a local agency. The special benefit is to be determined in relation to the total cost to that local entity of providing the service and/or improvements.

Proposition 218 as described in Article XIIID of the California Constitution has confirmed that assessments must be based on the special benefit to property:

> *"No assessment shall be imposed on any parcel which exceeds the reasonable cost of the proportional special benefit conferred on that parcel."*

The below benefit factors, when applied to property in the Assessment Area, confer special benefits to property and ultimately improve the safety, utility, functionality and usability of property in the Assessment Area. These are special benefits to property in the Assessment Area in much the same way that storm drainage, sewer service, water service, sidewalks and paved streets enhance the utility and functionality of each parcel of property served by these improvements, providing them with more utility of use and making them safer and more usable for occupants.

It should also be noted that Proposition 218 includes a requirement that existing assessments in effect upon its effective date were required to be confirmed by either a majority vote of registered voters in the assessment area, or by weighted majority property owner approval using the new ballot proceeding requirements. However, certain assessments were excluded from these voter approval requirements.

The Legislature also made a specific determination after Proposition 218 was enacted that vector control services constitute a proper subject for special assessment. Health and Safety Code section 2082, which was signed into law in 2002, provides that a district may levy special assessments consistent with the requirements of Article XIIID of the California Constitution to finance vector control projects and programs.

MOSQUITO AND VECTOR CONTROL IS A SPECIAL BENEFIT TO PROPERTIES

As described below, this Engineer's Report concludes that mosquito and vector control is a special benefit that provides direct advantages to property in the Assessment Area. For example, if approved, the assessment would provide for 1) surveillance throughout the Assessment Area to measure and track the levels and sources of mosquitoes impacting property in the area and the people who live and work on the property; 2) mosquito and mosquito source control, treatment and abatement throughout the Assessment Area such that all property in the area benefits from a comparable reduction of mosquito levels; 3) monitoring throughout the Assessment Area to evaluate the effectiveness of VCP treatment and control and to ensure that all properties are receiving the equivalent level of mosquito reduction benefits; and 4) service requests which result in VCP staff directly visiting, inspecting and treating property.

The proposed services to be provided by the VCP would be provided throughout the Assessment Area, that is, the benefit received in the Assessment Area would be in the entire VCP Service Area. All property would receive benefits from the proposed comprehensive mosquito, vector and disease monitoring, control and prevention services.

Moreover, the Services funded by the Assessments would reduce the level of mosquitoes and vectors arriving at and negatively impacting properties within the proposed Assessment Area.

The following section, Benefit Factors, describes how the Services would specially benefit properties in the Assessment Area. These benefits are particular and distinct from their effect on property in general or the public at large.

BENEFIT FACTORS

In order to allocate the assessments, the Engineer identified the types of special benefit arising from the Services and that would be provided to property within the Assessment Area. These types of special benefit are as follows:

REDUCED MOSQUITO AND VECTOR POPULATIONS ON PROPERTY AND AS A RESULT, ENHANCED DESIRABILITY, UTILITY, USABILITY AND FUNCTIONALITY OF PROPERTY IN THE ASSESSMENT AREA

The assessments will provide new and enhanced services for the control and abatement of nuisance and disease-carrying mosquitoes and other vectors. These Services will materially reduce the number of vectors on properties throughout the Assessment Area. The lower mosquito and vector populations on property in the Assessment Area are a direct advantage to property that will serve to increase the desirability and "usability" of property. Clearly, properties are more desirable and usable in areas with lower mosquito populations and with a reduced risk of vector-borne disease. This is a special benefit to residential, commercial, agricultural, industrial and other types of properties because all such properties will directly benefit from reduced mosquito and vector populations and properties with lower vector populations are more usable, functional and desirable.

Excessive mosquitoes and other vectors in the area can materially diminish the utility and usability of property. For example, prior to the commencement of mosquito control and abatement services, properties in many areas in the State were considered to be nearly uninhabitable during the times of year when the mosquito populations were high.[3] The prevention or reduction of such diminished utility and usability of property caused by mosquitoes is a clear and direct advantage and special benefit to property in the Assessment Area.

The State Legislature made the following finding on this issue:

> *"Excess numbers of mosquitoes and other vectors spread diseases of humans, livestock, and wildlife, reduce enjoyment of outdoor living spaces, both public and private, reduce property values, hinder outdoor work, reduce livestock productivity; and mosquitoes and other vectors can disperse or be transported long distances from their sources and are, therefore, a health risk and a public nuisance; and professional mosquito and vector control based on scientific research has made great advances in reducing mosquito and vector populations and the diseases they transmit."* [4]

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[3] Prior to the commencement of modern mosquito control services, areas in the State of California such as the San Mateo Peninsula, Napa County and areas in Marin and Sonoma Counties had such high mosquito populations that they were considered to be nearly unlivable during certain times of the year and were largely used for part-time vacation cottages that were occupied primarily during the months when the natural mosquito populations were lower.

[4] Assembly Concurrent Resolution 52, chaptered April 1, 2003.

Mosquitoes and other vectors emerge from sources throughout the Assessment Area, and with an average flight range of two miles, mosquitoes from known sources can reach all properties in the Assessment Area. These sources include standing water in rural areas, such as marshes, pools, wetlands, ponds, drainage ditches, drainage systems, tree holes and other removable sources such as old tires and containers. The sources of mosquitoes also include numerous locations throughout the urban areas in the Assessment Area. These sources include underground drainage systems, containers, unattended swimming pools, leaks in water pipes, tree holes, flower cups in cemeteries, over-watered landscaping and lawns and many other sources. By controlling mosquitoes at known and new sources, the Services will materially reduce mosquito populations on property throughout the Assessment Area.

A known increasing source of mosquitoes is unattended swimming pools:

> *"Anthropogenic landscape change historically has facilitated outbreaks of pathogens amplified by peridomestic vectors such as Cx. pipiens complex mosquitoes and associated commensals such as house sparrows. The recent widespread downturn in the housing market and increase in adjustable rate mortgages have combined to force a dramatic increase in home foreclosures and abandoned homes and produced urban landscapes dotted with an expanded number of new mosquito habitats. These new larval habitats may have contributed to the unexpected early season increase in WNV cases in Bakersfield during 2007 and subsequently have enabled invasion of urban areas by the highly competent rural vector Cx. tarsalis. These factors can increase the spectrum of competent avian hosts, the efficiency of enzootic amplification, and the risk for urban epidemics."*[5]

INCREASED SAFETY OF PROPERTY IN THE ASSESSMENT AREA

The Assessments will result in new year-round proactive Services to control and abate mosquitoes and other vectors that otherwise would occupy properties throughout the Assessment Area. Mosquitoes and other vectors are transmitters of diseases, so the reduction of mosquito and other vector populations makes property in the Assessment Area safer for use and enjoyment. In absence of the proposed assessments, these Services would not be provided, or provided on a very limited basis, so the Services funded by the assessments make properties in the Assessment Area safer, which is a distinct special benefit to property in the Assessment Area.[6] This is not a general benefit to property in the Assessment Area or the public at large because the Services are tangible mosquito, vector and disease control services that will be provided directly to the properties in the Assessment Area, and the Services are over and above the baseline services that could be provided by

[5] Riesen William K. (2008). Delinquent Mortgages, Neglected Swimming Pools, and West Nile Virus, California. Emerging Infectious Diseases.Vol. 14(11).

[6] By reducing the risk of disease and increasing the safety of property, the proposed Services will materially increase the usefulness and desirability of certain properties in the Assessment Area.

the Long Beach Health Department's Bureau of Environmental Health Mosquito and Vector Control Program without the assessment.
This finding was confirmed in 2003 by the State Legislature:

> *"Mosquitoes and other vectors, including but not limited to, ticks, Africanized honey bees, rats, fleas, and flies, continue to be a source of human suffering, illness, death, and a public nuisance in California and around the world. Adequately funded mosquito and vector control, monitoring and public awareness programs are the best way to prevent outbreaks of West Nile Virus and other diseases borne by mosquitoes and other vectors."*[7]

Also, the Legislature, in Health and Safety Code Section 2001, finds that:

> *"The protection of Californians and their communities against the discomforts and economic effects of vector borne diseases is an essential public service that is vital to public health, safety, and welfare."*

REDUCTIONS IN THE RISK OF NEW DISEASES AND INFECTIONS ON PROPERTY IN THE ASSESSMENT AREA

Mosquitoes have proven to be a major contributor to the spread of new diseases such as West Nile Virus, among others. A highly mobile population combined with migratory bird patterns can introduce new mosquito-borne diseases into previously unexposed areas.

[7] Assembly Concurrent Resolution 52, chaptered April 1, 2003.

"Vector-borne diseases (including a number that are mosquito-borne) are a major public health problem internationally. In the United States, dengue and malaria are frequently brought back from tropical and subtropical countries by travelers or migrant laborers, and autochthonous transmission of malaria and dengue occasionally occurs. In 1998, 90 confirmed cases of dengue and 1,611 cases of malaria were reported in the USA and dengue transmission has occurred in Texas."[8]

"During 2004, 40 states and the District of Columbia (DC) have reported 2,313 cases of human WNV illness to CDC through ArboNET. Of these, 737 (32%) cases were reported in California, 390 (17%) in Arizona, and 276 (12%) in Colorado. A total of 1,339 (59%) of the 2,282 cases for which such data were available occurred in males; the median age of patients was 52 years (range: 1 month--99 years). Date of illness onset ranged from April 23 to November 4; a total of 79 cases were fatal." [9] *(According to the Centers for Disease Control and Prevention on January 19, 2004, a total of 2,470 human cases and 88 human fatalities from WNV have been confirmed).*

More recently, Florida experienced an outbreak of the mosquito-borne Zika virus (ZIKV) in 2016 that was attributed to incoming passenger traffic from regions with ZIKV transmission:

The high volume of traffic entering Florida from ZIKV-affected regions, especially the Caribbean, is likely to have provided a substantial supply of ZIKV-infected individuals. Because Florida is unlikely to sustain long-term ZIKV transmission, the potential for future ZIKV outbreaks in this region is dependent upon activity elsewhere. Therefore, we expect that outbreaks in Florida will cycle with ZIKV transmission dynamics in the Americas."[10]

Some vector populations are highly mobile and may introduce new vector-borne diseases into previously unexposed areas:

"Distribution of vector-borne diseases is determined by complex demographic, environmental and social factors. Global travel and trade, unplanned urbanization and environmental challenges such as climate change can impact on pathogen transmission, making transmission season longer or more intense or causing diseases to emerge in countries where they were previously unknown."[11]

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[8] Rose, Robert. (2001). Pesticides and Public Health: Integrated Methods of Mosquito Management. Emerging Infectious Diseases. Vol. 7(1); 17-23.

[9] Center for Disease Control (2004). West Nile Virus Activity --- United States, November 9--16, 2004.Morbidity and Mortality Weekly Report. 53(45); 1071-1072.

[10] Grubaugh, Nathan D. et al. (2017), Genomic epidemiology reveals multiple introductions of Zika virus into the United States. Nature. Vol 546(7658); 401-405.

[11] Vector-borne Diseases. World Health Organization. October 2017. https://www.who.int/news-room/fact-sheets/detail/vector-borne-diseases

Vectors, including ticks, have proven to be a major contributor to the spread of new diseases such as Lyme disease, among others.

> *"In 2017, state and local health departments reported a record number of cases of tickborne disease to CDC. Cases of Lyme disease, anaplasmosis/ehrlichiosis, spotted fever rickettsiosis (including Rocky Mountain spotted fever), babesiosis, tularemia, and Powassan virus disease all increased—from 48,610 cases in 2016 to 59,349 cases in 2017. These 2017 data capture only a fraction of the number of people with tickborne illnesses. Under-reporting of all tickborne diseases is common, so the number of people actually infected is much higher.*
>
> *This increase follows an accelerating trend of tickborne diseases reported in the United States. Between 2004 and 2016, the number of reported cases of tickborne disease doubled, and researchers discovered seven new tickborne pathogens that infect people.* [12]

A study of the effect of aerial spraying conducted by the Sacramento-Yolo Mosquito and Vector Control District (SYMVCD) to control a West Nile Virus disease outbreak found that the SYMVCD's mosquito control efforts materially decreased the risk of new diseases in the treated areas:

> *After spraying, infection rates decreased from 8.2 (95% CI 3.1–18.0) to 4.3 (95% CI 0.3–20.3) per 1,000 females in the spray area and increased from 2.0 (95% CI 0.1–9.7) to 8.7 (95% CI 3.3–18.9) per 1,000 females in the untreated area. Furthermore, no additional positive pools were detected in the northern treatment area during the remainder of the year, whereas positive pools were detected in the untreated area until the end of September (D.-E.A Elnaiem, unpub. data). These independent lines of evidence corroborate our conclusion that actions taken by SYMVCD were effective in disrupting the WNV transmission cycle and reducing human illness and potential deaths associated with WNV.*[13]

The Services funded by the proposed assessments will help prevent, on a year-round basis, the presence of vector-borne diseases on property in the Assessment Area. This is another tangible and direct special benefit to property in the Assessment Area that would not be received, or received only minimally, in the absence of the assessments.

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[12] Record Number Of Tickborne Diseases Reported in U.s. in 2017 | Cdc Online Newsroom | Cdc https://www.cdc.gov/media/releases/2018/s1114-record-number-tickborne-diseases.html

[13] Carney, Ryan. (2008), Efficiency of Aerial Spraying of Mosquito Adulticide in Reducing the Incidence of West Nile Virus, California, 2005. Emerging Infectious Diseases, Vol 14(5).

PROTECTION OF ECONOMIC ACTIVITY ON PROPERTY IN THE ASSESSMENT AREA

As demonstrated by the SARS outbreak in China and outbreaks of Avian Flu, outbreaks of pathogens can materially and negatively impact economic activity in the affected area. Such outbreaks and other public health threats can have a drastic negative effect on tourism, business and residential activities in the affected area. The proposed assessments will help prevent the likelihood of such outbreaks in the Assessment Area.

Mosquitoes hinder, annoy and harm residents, guests, visitors, farm workers, and employees. A vector-borne disease outbreak and other related public health threats would have a drastic negative effect on agricultural, business, and residential activities in the Assessment Area.

The economic impact of diseases is well documented. According to a study prepared for the Centers for Disease Control and Prevention, economic losses due to the transmission of West Nile Virus in Louisiana was estimated to cost over $20 million over approximately one year:

> *The estimated cost of the Louisiana epidemic was $20.1 million from June 2002 to February 2003, including a $10.9 million cost of illness ($4.4 million medical and $6.5 million nonmedical costs) and a $9.2 million cost of public health response. These data indicate a substantial short-term cost of the WNV disease epidemic in Louisiana.* [14]

The economic impact of diseases is well documented. There are several published studies which have looked at the economic impact of the West Nile Virus in the United States as well as California. From 1999 to 2012 the West Nile Virus has cost the United States an estimated $800 million in hospitalizations and lost productivity.[15] According to a study prepared for the Centers for Disease Control and Prevention, economic losses due to the outbreak of West Nile Virus in Sacramento County, California was estimated to cost $2.98 million in 2005:

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[14] Zohrabian A, Meltzer MI, Ratard R, Billah K, Molinari NA, Roy K, et al. West Nile Virus economic impact, Louisiana, 2002. Emerging Infectious Disease, 2004 Oct. Available from http://www.cdc.gov/ncidod/EID/vol10no10/03-0925.htm.

[15] Frellick, Marcia. West Nile Cost United States Nearly $800 Million in 14 years. Medscape. 2014.

> *In 2005, an outbreak of West Nile virus (WNV) disease occurred in Sacramento County, California; 163 human cases were reported. In response to WNV surveillance indicating increased WNV activity, the Sacramento-Yolo Mosquito and Vector Control District conducted an emergency aerial spray. We determined the economic impact of the outbreak, including the vector control event and the medical cost to treat WNV disease. WNV disease in Sacramento County cost ≈$2.28 million for medical treatment and patients' productivity loss for both West Nile fever and West Nile neuroinvasive disease. Vector control cost ≈$701,790, including spray procedures and overtime hours. The total economic impact of WNV was $2.98 million. A cost-benefit analysis indicated that only 15 cases of West Nile neuroinvasive disease would need to be prevented to make the emergency spray cost-effective.* [16]

A study prepared for the Centers for Disease Control and Prevention, quotes that economic losses due to the transmission of West Nile Virus in the US was estimated to cost over $778 million from 1999 to 2012:

> *There are no published data on the economic burden for specific West Nile virus (WNV) clinical syndromes (i.e., fever, meningitis, encephalitis, and acute flaccid paralysis [AFP]). We estimated initial hospital and lost-productivity costs from 80 patients hospitalized with WNV disease in Colorado during 2003; 38 of these patients were followed for 5 years to determine long-term medical and lost-productivity costs. Initial costs were highest for patients with AFP (median $25,117; range $5,385–$283,381) and encephalitis (median $20,105; range $3,965–$324,167). Long-term costs were highest for patients with AFP (median $22,628; range $624–$439,945) and meningitis (median $10,556; range $0–$260,748). Extrapolating from this small cohort to national surveillance data, we estimated the total cumulative costs of reported WNV hospitalized cases from 1999 to 2012 to be $778 million (95% confidence interval $673 million–$1.01 billion). These estimates can be used in assessing the cost-effectiveness of interventions to prevent WNV disease.* [17]

Moreover, a study conducted in 1996-97 of La Crosse Encephalitis (LACE), a human illness caused by a mosquito-transmitted virus, found a lifetime cost per human case at $48,000 to $3,000,000 and found that the disease significantly impacted lifespans of those who were

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[16] Barber LM, Schleier JJ III, Peterson RKD. Economic cost analysis of West Nile Virus outbreak, Sacramento County, California, USA, 2005. Emerg Infect Dis 2010 16(3).

[17] Initial and Long-Term Costs of Patients Hospitalized with West Nile Virus Disease. Arboviral Diseases Branch, Centers for Disease Control and Prevention, Fort Collins, Colorado; Prion and Health Office, Centers for Disease Control and Prevention, Atlanta, Georgia; Division of Preparedness and Emerging Infections, Centers for Disease Control and Prevention, Atlanta, Georgia. J. Erin Staples, Manjunath Shankar, James J. Sejvar, Martin I. Meltzer, and Marc Fischer. J. Erin Staples, Arboviral Diseases Branch, Centers for Disease Control and Prevention, 3150 Rampart Road, Fort Collins, CO 80521. E-mail: AUV1@cdc.gov.

infected. Following is a quote from the study which references the importance and value of active vector control services of the type that would be funded by the proposed assessments:

> *The socioeconomic burden resulting from LACE is substantial, which highlights the importance of the illness in western North Carolina, as well as the need for active surveillance, reporting, and prevention programs for the infection.* [18]

The Services to be funded by the proposed assessments will help prevent the likelihood of such outbreaks on property in the Assessment Area, and will reduce the harm to economic activity on property caused by existing mosquito populations and other vectors. This is another direct advantage in the Assessment Area that would not be received, or received minimally, in absence of the proposed assessments.

PROTECTION OF THE ASSESSMENT AREA'S TOURISM AND BUSINESS INDUSTRIES

The tourism and business industries in the Assessment Area will benefit from reduced levels of harmful or nuisance mosquitoes and other vectors. Conversely, any outbreaks of emerging vectorborne pathogens such as West Nile Virus could also materially negatively affect these industries. Diseases transmitted by mosquitoes and other vectors can adversely impact business and recreational functions.

> *A study prepared for the United States Department of Agriculture in 2003 found that over 1,400 horses died from West Nile Virus in Colorado and Nebraska and that these fatal disease cases created over $1.2 million in costs and lost revenues. In addition, horse owners in these two states spent over $2.75 million to vaccinate their horses for this disease. The study states that "Clearly, WNV has had a marked impact on the Colorado and Nebraska equine industry."* [19]

> *Pesticides for mosquito control impart economic benefits to agriculture in general. Anecdotal reports from farmers and ranchers indicate that cattle, if left unprotected, can be exsanguinated by mosquitoes, especially in Florida and other southeast coastal areas. Dairy cattle produce less milk when bitten frequently by mosquitoes* [20]

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[18] Utz, J. Todd, Apperson, Charles S., Maccormack, J. Newton, Salyers, Martha, Dietz, E. Jacquelin, Mcpherson, J. Todd, Economic And Social Impacts Of La Crosse Encephalitis In Western North Carolina, Am J Trop Med Hyg 2003 69: 509-518.

[19] S. Geiser, A. Seitzinger, P. Salazar, J. Traub-Dargatz, P. Morley, M. Salman, D. Wilmot, D. Steffen, W. Cunningham, Economic Impact of West Nile Virus on the Colorado and Nebraska Equine Industries: 2002, April 2003, Available from http://www.aphis.usda.gov/vs/ceah/cnahs/nahms/equine/wnv2002_CO_NB.pdf.

[20] Jennings, Allen. (2001). USDA Letter to EPA on Fenthion IRED.United States Department of Agriculture, Office of Pest Management Policy. March 8, 2001.

The proposed assessments will serve to protect the businesses and industries in the Assessment Area. This is a direct advantage and special benefit to property in the Assessment Area.

REDUCED RISK OF NUISANCE AND LIABILITY ON PROPERTY IN THE ASSESSMENT AREA

In addition to health related factors, uncontrolled mosquito and vector populations create a nuisance for residents, employees, customers, tourists, farm workers and guests in the Assessment Area. Properties in the Assessment Area benefit from the reduced nuisance factor that will be created by the Services. Agricultural and rangeland properties also benefit from the reduced nuisance factor and harm to livestock and employees from lower mosquito and vector populations.

Agricultural, range, golf course, cemetery, open space and other such lands in the Assessment Area contain large areas of mosquito and vector habitat and are therefore a significant source of mosquito and vector populations. In addition, residential and business properties in the Assessment Area can also contain significant sources.[21] It is conceivable that sources of mosquitoes could be held liable for the transmission of diseases or other harm. For example, in August 2004, the City of Los Angeles approved new fines of up to $1,000 per day for property owners who don't remove standing water sources of mosquitoes on their property.

The proposed Services to be provided by the VCP will reduce the mosquito and vector related nuisance and health liability to properties in the Assessment Area. The reduction of that risk of liability constitutes a special benefit to property in the Assessment Area and this special benefit would not be received, or only received minimally, in absence of the proposed Services funded by the proposed assessments.

IMPROVED MARKETABILITY OF PROPERTY

As described previously, the proposed Services will specially benefit properties in the Assessment Area by making them more useable, livable and functional. The Services also make properties in the Assessment Area more desirable, and more desirable properties also benefit from improved marketability. This is another tangible special benefit to certain property in the Assessment Area which will not be enjoyed in absence of the proposed Services.[22]

BENEFIT FINDING

In summary, the special benefits described in this Report and provision of Services to the Assessment Area ("enhanced level of service") would directly benefit and protect the real properties in the Assessment Area in excess of the assessments for these properties. Therefore, the Assessment Engineer finds that the cumulative special benefits to property

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[21] Sources of mosquitoes on residential, business, agricultural, range and other types of properties include removable sources such as containers that hold standing water.

[22] If one were to compare two hypothetical properties with similar characteristics, the property with lower mosquito infestation and reduced risk of vector-borne disease will clearly be more desirable, marketable and usable.

from the Services are reasonably equal to or greater than the assessment of $8.21 per benefit unit or Single Family Equivalent ("SFE") for Zone A, $7.55 per SFE for Zone B, $6.98 per SFE for Zone C, and $6.98 per SFE for Zone D (Figure 3 – Cost Estimate). These rates per SFE generate revenues of $753,474, which is the amount needed to fund the VCP's budget total of $847,784 less the VCP contribution of $94,310. Further, the Engineer has judged that the special benefit to each parcel reasonably exceeds the sum of all dedicated taxes and assessments imposed on each parcel.

GENERAL VS. SPECIAL BENEFIT

Article XIIIC of the California Constitution requires any local agency proposing to increase or impose a benefit assessment to "separate the general benefits from the special benefits conferred on a parcel." The rationale for separating special and general benefits is to ensure that property owners subject to the benefit assessment are not paying for general benefits. The assessment can fund the special benefits to property in the assessment area but cannot fund any general benefits. Accordingly, a separate estimate of the special and general benefit is given in this section.

In other words:

Total Benefit	=	General Benefit	+	Special Benefit

There is no widely accepted or statutory formula for general benefit from vector control services. General benefits are benefits from improvements or services that are not special in nature, are not "particular and distinct" and are not "over and above" benefits received by other properties. General benefits are conferred to properties located "in the district," but outside the narrowly-drawn Assessment Area and to "the public at large." General benefits provide "an indirect, derivative advantage" and are not necessarily proximate to the improvements and services funded by the assessments.

A formula to estimate the general benefit is listed below:

General Benefit	=	Benefit to Real Property Outside the Assessment Area	+	Benefit to Real Property Inside the Assessment Area that is Indirect and Derivative	+	Benefit to the Public at Large

Special benefit, on the other hand, is defined in the state constitution as "a particular and distinct benefit over and above general benefits conferred on real property located in the district or to the public at large." A special benefit is conferred to a property if it "receives a direct advantage from the improvement (e.g., proximity to a park)." In this assessment, the overwhelming proportion of the benefits conferred to property is special, since the advantages from the mosquito, vector and disease protection funded by the Assessments

are directly received by the properties in the Assessment Area and are only minimally received by property outside the Assessment Area or the public at large.

Proposition 218 twice uses the phrase "over and above" general benefits in describing special benefit. (Art. XIIID, sections 2(i) & 4(f).) Significantly, without this proposed assessment, only the existing, minimal, diminishing and inconsistent baseline services would be provided. The majority of the Services to be funded by the proposed assessment therefore would be a special benefit because the Services would particularly and distinctly benefit and protect the Assessment Area over and above the minimal baseline benefits and service. However, some of the Services could benefit the public at large and properties outside the Assessment Area. In this report, the general benefit is conservatively estimated and described, and then budgeted so that it is funded by sources other than the assessment.

The Assessments described in this Engineer's Report fund mosquito, vector and disease control services directly provided to property in the Assessment Area. Moreover, as noted in this Report, the Services directly reduce mosquito and vector populations on all property in the Assessment Area. Therefore, in this report, the general benefit is conservatively estimated and described, and then budgeted so that it is funded by sources other than the assessment.

CALCULATING GENERAL BENEFIT

Without the proposed new assessment the VCP would be unable to continue to provide same level of Services. The VCP has determined that all parcels in the Assessment Area would receive a shared direct advantage and special benefit from the Services. The Services would directly and particularly serve and benefit each parcel, and would not be a mere indirect, derivative advantage. As explained above, Proposition 218 relies on the concept of "over and above" in distinguishing special benefits from general benefits. As applied to an assessment proceeding the baseline general benefits are minimal and that the majority of the vector control services, which provide direct advantage to property in the Assessment Area, are over and above the baseline and therefore are special.

Nevertheless, the Services may provide a degree of general benefit, in addition to the predominant special benefit. This section provides a conservative measure of the general benefits from the Assessments.

BENEFIT TO PROPERTY OUTSIDE THE VCP SERVICE AREA

Properties within the Assessment Area receive almost all of the special benefits from the Services because the Services funded by the Assessments will be provided directly to protect property within the Assessment Area from mosquitoes, vectors and vector-borne disease. However, properties adjacent to, but just outside of, the boundaries may receive some benefit from the Services in the form of reduced mosquito populations on property outside the Assessment Area. Since this benefit is conferred to properties outside the VCP boundaries, it contributes to the overall general benefit calculation and will not be funded by the assessment.

A measure of this general benefit is the proportion of Services that would affect properties outside of the Assessment Area. Each year, the VCP will provide some of its Services in areas near the boundaries of the Assessment Area. By abating mosquito populations near the borders of the Assessment Area, the Services could provide benefits in the form of reduced mosquito populations and reduced risk of disease transmission to properties outside the Assessment Area. If mosquitoes were not controlled inside the Assessment Area, more of them would fly from the Assessment Area. Therefore, control of mosquitoes within the Assessment Area provides some benefit to properties outside the Assessment Area but within the normal travel range of vectors, in the form of reduced mosquito populations and reduced vector-borne disease transmission. This is a measure of the general benefits to property outside the Assessment Area because this is a benefit from the Services that is not specially conferred upon property in the assessment area.

The mosquito potential outside the Assessment Area is based on studies of mosquito dispersion concentrations. Based upon a 2003 study in Santa Cruz County average concentration of mosquitoes from the Assessment Area on properties within two miles of the Assessment Area is calculated to be 6%.[23] This relative vector population reduction factor within the destination range is combined with the number of parcels outside the Assessment Area and within the destination range to measure this general benefit. This is calculated as follows:

CRITERIA:

THERE ARE 86,565 PARCELS WITHIN TWO MILES OF, BUT OUTSIDE OF THE ASSESSMENT AREA, THAT MAY RECEIVE SOME MOSQUITO, VECTOR AND DISEASE PROTECTION BENEFIT

6 % PORTION OF RELATIVE BENEFIT THAT IS RECEIVED (FROM STUDY)

THERE ARE 79,620 PARCELS IN THE ASSESSMENT AREA

CALCULATIONS:

TOTAL BENEFIT = 86,565 PARCELS X 6% = 5,194 PARCEL EQUIVALENTS

PERCENTAGE OF OVERALL PARCEL EQUIVALENTS = 5,194 / 79,620 = 6.52%

It should also be noted that the proposed Assessment Area, other than on the ocean front southern boundary, is completely surrounded by other vector control agencies: the Compton Creek Mosquito Abatement District, and the Greater Los Angeles County Vector Control District. Therefore, it is estimated that the general benefit received by properties within two mile radius outside of the Assessment Area offsets the same amount of general benefit received within the Assessment Area from the other two vector control agencies. Therefore, for the overall benefits provided by the Services to the Assessment Area, it is determined that 6.52% of the benefits would be received by the parcels within two miles of the

[23] Tietze, Noor S., Stephenson, Mike F., Sidhom, Nader T. and Binding, Paul L., "Mark-Recapture of *Culex Erythrothorax* in Santa Cruz County, California", Journal of the American Mosquito Control Association, 19(2):134-138, 2003.

Assessment Area boundaries. Recognizing that this calculation is an approximation, this benefit will be rounded up to 6.60%.

BENEFIT TO PROPERTY *INSIDE* THE ASSESSMENT AREA THAT IS *INDIRECT AND DERIVATIVE*

The "indirect and derivative" benefit to property within the Assessment Area is particularly difficult to calculate. As explained above, all benefit within the Assessment Area is special because the mosquito, vector and disease control services in the Assessment Area would provide direct service and protection that is clearly "over and above" and "particular and distinct" when compared with the minimal level of services under current conditions. Further, the properties are within the Assessment Area boundaries and this Engineer's Report demonstrates the direct benefits received by individual properties from mosquito, vector and disease control services.

The Engineer has drawn the Assessment Area to include parcels that will directly receive the Services. (There are a small number of parcels within the VCP Boundary that do not receive special benefit such as certain right of way parcels, etc.) All parcels within the VCP boundaries will directly benefit from the surveillance, monitoring and treatment that will be provided on an equivalent basis throughout the Assessment Area in order to maintain the same improved level of protection against mosquitoes and reduced mosquito populations throughout the area. The surveillance and monitoring sites would be spread on a balanced basis throughout the area. Mosquito and vector control and treatment would be provided as needed throughout the area based on the surveillance and monitoring results. The shared special benefit - reduced mosquito and vector levels and reduced presence of vector-borne diseases - would be received on an equivalent basis by all parcels in the Assessment Area.

Furthermore, all parcels in the Assessment Area would directly benefit from the ability to request service from the VCP and to have a VCP field technician promptly respond directly to the parcel and address the owner's or resident's service need. The fact that a benefit is conferred throughout the assessment area does not make the benefit general rather than special, so long as the assessment area is narrowly drawn and limited to the parcels directly receiving shared special benefits from the service. This concept is particularly applicable in situations involving a landowner-approved assessment-funded extension of a local government service to benefit lands previously not receiving that particular service or receiving only minimal services.

Hence, other than the small general benefit to properties outside the Assessment Area (discussed above) and to the public at large (discussed below), all of the benefits of the Services to the parcels within the Assessment Area are special benefits, and it is not possible or appropriate to separate any indirect or derivative general benefits from the total benefits conferred on parcels in the Assessment Area.

BENEFIT TO THE PUBLIC AT LARGE

With the type and scope of Services to be provided to the Assessment Area, it is very difficult to calculate and quantify the scope of the general benefit conferred on the public at large. Because the Services directly serve and benefit all of the property in the Assessment Area,

any general benefit conferred on the public at large would be small. Nevertheless, there would be some indirect general benefit to the public at large.

The public at large uses the public highways, streets and sidewalks, and when traveling in and through the Assessment Area they will benefit from the Services. A fair and appropriate measure of the general benefit to the public at large therefore is the amount of highway, street and sidewalk area within the Assessment Area relative to the overall land area. An analysis of maps of the Assessment Area shows that approximately 4% of the land area in the Assessment Area is covered by highways, streets and sidewalks. This 4% therefore is a fair and appropriate measure of the general benefit to the public at large within the Assessment Area.

SUMMARY OF GENERAL BENEFITS

Using a sum of the measures of general benefit for the public at large and land outside the Assessment Area, we find that approximately 10.60% of the benefits conferred by the Mosquito, Vector and Disease Control Assessment may be general in nature and should be funded by sources other than the assessment.

General Benefit Calculation

6.60% (Outside the Assessment Area)
+ 0.00% (Inside the Assessment Area – Indirect and Derivative)
+ 4.00% (Public at Large)

= 10.60% (Total General Benefit)

Although this analysis supports the finding that 10.60% of the assessment may provide general benefit only, this number is increased by the Assessment Engineer to 11% to more conservatively ensure that no assessment revenue is used to support general benefit. This additional amount allocated to general benefit also covers general benefit to parcels in the Assessment Area if it is later determined that there is some general benefit conferred on those parcels.

The estimated cost of the Services is $847,784. Of this total budget amount, the VCP must contribute at least $93,256 from sources other than the Mosquito, Vector and Disease Control Assessment. The VCP will contribute $94,310 from Licenses and Permits revenue, and from the Health Department's Public Health Realignment Funds, a portion of which is allocated from the State Department of Public Health for general public health programs (State Vehicle License Fees and sales taxes), which totals over 11.12% of the total budget. This contribution more than offsets any general benefits from the Mosquito, Vector and Disease Control Assessment Services.

ZONES OF BENEFIT

The boundaries of the Assessment Area have been carefully drawn to include all of the properties in the Long Beach Health Department's Bureau of Environmental Health Mosquito

and Vector Control Program that would receive special benefit from the proposed Services. Such parcels are in areas with a material population of people, pets and livestock on the property. The current and future population of property is a conduit of benefit to property because people, pets and livestock are ultimately affected by mosquitoes and vector-borne diseases and the special benefit factors of desirability, utility, usability, livability and marketability are ultimately determined by the population and usage potential of property.

In other words, the boundaries of the Assessment Area have been narrowly drawn to include only properties that will specially benefit from the proposed enhanced level of mosquito and vector control services.

The VCP has reviewed service levels in regard to its core services including surveillance, larviciding, and service requests throughout the Assessment Area, and confirmed that service levels and benefits are essentially equivalent across all parcels within the Assessment Area's boundaries (except as noted below). Regarding service requests, the VCP will respond to any parcel located within the proposed Assessment Area, regardless of how remote, and provide mosquito control services appropriate to the situation.

The VCP uses mosquito traps to collect and quantify species, quantities, concentrations, viral loads, etc. of mosquitoes. The selection of the locations of these traps requires a multi-attribute evaluation, with trap locations changing seasonally and when high concentrations of mosquitoes are identified. VCP staff visits areas within the Assessment Area to observe potential sources of mosquito production, and perform adult and larval mosquito surveillance as appropriate. The VCP reviewed the overall services provided throughout the entire proposed Assessment Area, and compared it with the level of services provided within the main VCP Zone of Benefit A, or Zone A.

The VCP concluded that the area represented by Zone of Benefit B, or Zone B, located at the Marine Stadium and Alamitos Bay, is comprised of the seashore areas in the southern region of the proposed Assessment Area. This lack of habitation, combined with relatively few sources of breeding activity within the zone, necessitates a lower level of surveillance compared to the level required in the proposed Assessment Area. The seashore area, though used recreationally, is publicly-owned land, and the VCP's access to perform surveillance or abatement services is severely curtailed or even restricted in some areas. The VCP analyzed the overall services provided throughout the entire Assessment Area and compared it with the level of services provided within Zone B and determined that Zone B parcels receive a reduction in the level of general surveillance and control services as compared to the entire proposed Assessment Area. As a result, it was calculated, based on the overall distribution of those types of services, that general or routine adult mosquito trapping and control is provided at an 8% reduced level as compared to the same services provided in Zone A. Therefore, parcels located in Zone B - Marine Stadium and Alamitos Bay will be subjected to an 8% assessment reduction.

Similarly, The VCP concluded that parcels located within Zone of Benefit C, or Zone C, at the Long Beach Harbor, and parcels located within Zone of Benefit D, or Zone D, at the Long Beach Airport, do not typically receive the same level of general surveillance as compared to the rest of proposed Assessment Area (Zone A). It was calculated, based on the overall

distribution of that type of service, that general or routine adult mosquito trapping is provided at a 15% reduced level as compared to the same services provided in Zone A. Therefore, parcels located in Zone C – Harbor, and Zone D – Airport, will be subjected to a 15% assessment reduction.

In summary, parcels in each zone would receive the following assessment rates:

- Zone A – Main VCP Assessment Area – 100% of the assessment rate ($8.21)
- Zone B – Marine Stadium and Alamitos Bay – 92% of the assessment rate ($7.55)
- Zone C – Long Beach Harbor – 85% of the assessment rate ($6.98)
- Zone D – Long Beach Airport – 85% of the assessment rate ($6.98)

The Zones B, C and D parcels will be subject to reduced assessments, commensurate with the different benefit level within each of these zones. (If in the future, the routine adult mosquito trapping service is extended into part or all of Zones B, C or D, the boundaries of the affected zones will be modified accordingly.)

METHOD OF ASSESSMENT

As previously discussed, the assessments will fund comprehensive, year-round mosquito and vector control and disease surveillance and control Services that will clearly confer special benefits to properties in the Assessment Area. These benefits can partially be measured by the property owners, guests, employees, tenants, pets and animals who will enjoy a more habitable, safer and more desirable place to live, work or visit. As noted, these benefits ultimately flow to the underlying property.

Therefore, the apportionment of benefit is partially based on people who potentially live on, work at, or otherwise use the property. This methodology of determining benefit to property through the extent of use by people is a commonly used method of apportionment of benefits from assessments.

Moreover, assessments have a long history of use in California and are in large part based on the principle that any benefits from a service or improvement funded by assessments that is enjoyed by tenants and other non-property owners ultimately is conferred to the underlying property.

With regard to benefits and source locations, the Assessment Engineer determined that since mosquitoes readily fly from their breeding locations to all properties in their flight range and since mosquitoes are actually attracted to properties occupied by people or animals, the benefits from mosquito and vector control extend beyond the source locations to all properties that would be a "destination" for mosquitoes and other vectors. In other words, the control and abatement of mosquito and vector populations ultimately confers benefits to all properties that are a destination of mosquitoes and vectors, rather than just those that are sources of mosquitoes.

Although some primary mosquito sources may be located outside of residential areas, residential properties can and do generate their own, often significant, populations of

mosquitoes and vector organisms. For example, storm water catch basins in residential areas in the Assessment Area are a common source of mosquitoes. Moreover, there are many other common residential sources of mosquitoes, such as miscellaneous backyard containers, neglected swimming pools, leaking water pipes and tree holes. Clearly, there is a potential for mosquito sources on virtually all property. More importantly, all properties in the Assessment Area are within the destination range of mosquitoes and most properties are actually within the destination range of multiple mosquito source locations.

Because the Services will be provided throughout the Assessment Area with the same level of control objective, mosquitoes can rapidly and readily fly from their breeding locations to other properties over a large area, and there are current or potential breeding sources throughout the Assessment Area, the Assessment Engineer determined that all similar properties in the Assessment Area have generally equivalent mosquito "destination" potential and, therefore, receive equivalent levels of benefit (except as noted above for Zone B).

In the process of determining the appropriate method of assessment, the Engineer considered various alternatives. For example, a fixed assessment amount per parcel for all residential improved property was considered but was determined to be inappropriate because agricultural lands, commercial property and other property also receive benefits from the assessments. Likewise, an assessment exclusively for agricultural land was considered but deemed inappropriate because other types of property, such as residential and commercial, also receive the special benefit factors described previously.

A fixed or flat assessment was deemed to be inappropriate because larger residential, commercial and industrial properties receive a higher degree of benefit than other similarly used properties that are significantly smaller. (For properties used for commercial purposes, there is clearly a higher benefit provided to a property that covers several acres in comparison to a smaller commercial property that is on a 0.20 acre site. The larger property generally has a larger coverage area and higher usage by employees, customers, tourists and guests that would benefit from reduced mosquito and vector populations, as well as the reduced threat from diseases carried by mosquitoes and other vectors. This benefit ultimately flows to the property.) Larger commercial, industrial and apartment parcels, therefore, receive an increased benefit from the assessments.

In conclusion, the Assessment Engineer determined that the appropriate method of assessment apportionment should be based on the type and use of property, the relative size of the property, its relative population, and usage potential and its destination potential for mosquitoes. This method is further described below.

ASSESSMENT APPORTIONMENT

The special benefits derived from the Mosquito, Vector and Disease Control Assessment are conferred on property and are not based on a specific property owner's occupancy of property or the property owner's demographic status, such as age or number of dependents. However, it is ultimately people who do or could use the property and who enjoy the special benefits described above. The opportunity to use and enjoy property within the Assessment

Area without the excessive nuisance, diminished "livability" or the potential health hazards brought by mosquitoes and the diseases they carry is a special benefit to properties in the Assessment Area. This benefit can be in part measured by the number of people who potentially live on, work at, visit or otherwise use the property, because people ultimately determine the value of the benefits by choosing to live, work and/or recreate in the area, and by choosing to purchase property in the area.[24]

In order to apportion the cost of the Services to property, each property in the Assessment Area is assigned a relative special benefit factor. This process involves determining the relative benefit received by each property in relation to a single family home, or, in other words, on the basis of Single Family Equivalents (SFE). This SFE methodology is commonly used to distribute assessments in proportion to estimated special benefit. For the purposes of this Engineer's Report, all properties are designated an SFE value, which is each property's relative benefit in relation to a "benchmark" parcel in the Assessment Area. The "benchmark" property is the single family detached dwelling on a parcel of less than one acre. This benchmark parcel is assigned one Single Family Equivalent benefit unit or one SFE.

The special benefit conferred upon a specific parcel is derived as a sum function of the applicable special benefit type, such as improved safety on a parcel (i.e., disease risk reduction) and a parcel-specific attributes (such as the number of residents living on the parcel) which supports that special benefit. Calculated special benefit increases accordingly with an increase in the product of special benefit type and supportive parcel-specific attribute.

The calculation of the special benefit for parcels in the Assessment Area from the Services is summarized in the following equation:

$$\text{Special Benefit}_{\text{(per parcel)}} = \sum f\left(\text{Special Benefits, Property Specific Attributes}^{1}\right)_{\text{(per parcel)}}$$

1. Such as use, property type, and size.

RESIDENTIAL PROPERTIES

Certain residential properties in the Assessment Area that contain a single residential dwelling unit and are on a lot of less than or equal to one acre are assigned one Single Family Equivalent or 1.0 SFE. Traditional houses, zero-lot line houses, town homes, and secured mobile homes on a separate parcel (not in a mobile home park) are included in this category of single family residential property.

Single family residential properties in excess of one acre receive additional benefit relative to a single family home on up to one acre, because the larger parcels provide more area for mosquito sources and the mosquito, vector and disease control Services. Therefore, such

[24] Benefits conferred upon property are related to the average number of people who could potentially live on, work at or otherwise could use a property, not how the property is currently used by the present owner.

larger parcels receive additional benefits relative to a single family home on less than one acre and are assigned 1.0 SFE for the residential unit and an additional rate equal to the agricultural rate described below of 0.0021 SFE per one-fifth acre of land area in excess of one acre. Mobile home parcels on a separate parcel and in excess of one acre also receive this additional acreage rate.

Other types of properties with residential units, such as agricultural properties, are assigned the residential SFE rates for the dwelling units on the property and are assigned additional SFE benefit units for the agricultural-use land area on the property.

Properties with more than one residential unit are designated as multi-family residential properties. These properties, along with condominiums, benefit from the Services in proportion to the number of dwelling units that occupy each property, the average number of people who reside in each property, and the average size of each property in relation to a single family home in the Assessment Area. This Report analyzed the City of Long Beach population density factors from the US Census updated through 2016 (which is the most recent data available at the present time) as well as average dwelling unit size for each property type. After determining the Population Density Factor and Square Footage Factor for each property type, an SFE rate is generated for each residential property structure, as indicated in Figure 4 below.

An SFE factor of 0.76 is applied to condominium parcels. The 0.56 per dwelling unit for multi-family residential properties applies to such properties with two to four units (duplex, triplex, fourplex). Properties in excess of five (5) units typically offer on-site management, monitoring and other control services that tend to offset some of the benefits provided by the VCP's Mosquito, Vector and Disease Control Assessment. Therefore, the benefit for properties in excess of five (5) units is determined to be 0.36 SFE per unit for the first 20 units and 0.10 SFE per each additional unit in excess of 20 dwelling units.

FIGURE 4 – RESIDENTIAL ASSESSMENT FACTORS

Type of Residential Property	Pop. Density Equivalent	SqFt Factor	SFE Factor
Single Family Residential	1.00	1.00	**1.00**
Condominium	1.07	0.71	**0.76**
Duplex, Triplex, Fourplex	0.88	0.64	**0.56**
Multi-Family Residential (5+ Units)	0.73	0.49	**0.36**
Mobile Home on Separate Lot	0.96	1.04	**1.00**

Source: 2016 Census, City of Long Beach, and property dwelling size information from the Los Angeles County Assessor data and other sources.

COMMERCIAL/INDUSTRIAL AND WINERY PROPERTIES

Commercial and industrial properties are generally open and operated for more limited times, relative to residential properties. Therefore, the relative hours of operation can be used as a measure of benefits, since employee density also provides a measure of the relative benefit to property. Since commercial and industrial properties are typically open and occupied by employees approximately one-half the time of residential properties, it is reasonable to assume that commercial land uses receive one-half of the special benefit on a land area basis relative to single family residential property.

The average size of a single family home with 1.0 SFE factor in the Assessment Area is 0.20 acres. Therefore, a commercial property with 0.20 acres receives one-half the relative benefit, or a 0.50 SFE factor.

The SFE values for various commercial and industrial land uses are further defined by using average employee densities because the special benefit factors described previously are also related to the average number of people who work at commercial/industrial properties.

To determine employee density factors, this Report utilizes the findings from the San Diego County Association of Governments Traffic Generators Study (the "SANDAG Study") because these findings were approved by the State Legislature which determined the SANDAG Study to be a good representation of the average number of employees per acre of land area for commercial and industrial properties. As determined by the SANDAG Study, the average number of employees per acre for commercial and industrial property is 24. As presented in the following Figure, the SFE factors for other types of businesses are determined relative to their typical employee density in relation to the average of 24 employees per acre of commercial property.

Commercial and industrial properties in excess of 5 acres generally involve uses that are more land intensive relative to building areas and number of employees (lower coverage ratios). As a result, the benefit factors for commercial and industrial property land area in excess of 5 acres is determined to be the SFE rate per fifth acre for the first 5 acres and the relevant SFE rate per each additional acre over 5 acres. Institutional properties that are used for residential, commercial or industrial purposes are also assessed at the appropriate residential, commercial or industrial rate. Properties with commercial/office and residential mixed uses (i.e., commercial uses on the bottom floor and apartments on the upper floors) may be assessed for both uses for the parcel.

Winery properties have the distinction of the being a main attraction for tourism. In fact, recent studies have found that wineries and the viticulture industry draw approximately 5,000,000 tourists per year. Since wineries have a relatively low employee density relative to other commercial properties and since tourists are primarily drawn to winery properties, the benefits for such properties are based on the average employees and tourists per acre. Utilizing data from UC Davis and the California Employment Development Department, this Report finds that the average employees and tourists per acre of winery property is 12. This equates to an SFE factor of 0.25 per 0.20 acres of winery property.

Self-storage and golf course property benefit factors are similarly based on average usage densities. The following Figure lists the benefit assessment factors for such business properties.

AGRICULTURAL, VINEYARDS, DRY RANGELAND, CEMETERY AND GOLF COURSE PROPERTIES

Utilizing research and agricultural employment reports from UC Davis, the California Employment Development Department and other sources, this Report calculated an average usage density of 0.05 people per acre for agriculture property, 0.01 for rangelands and timber, 1.2 for cemeteries, and 3.0 for golf courses. Since these properties typically are a source of mosquitoes and vectors and/or are typically closest to other sources of mosquitoes and other vectors, it is reasonable to determine that the benefit to these properties is twice the usage density ratio of commercial and industrial properties. The SFE factors per 0.20 acres of land area, after adjustment for the usage density, are shown in the following Figure 5.

FIGURE 5 – COMMERCIAL/INDUSTRIAL BENEFIT ASSESSMENT FACTORS

Type of Commercial/Industrial Land Use	Average Employees Per Acre [1]	SFE Units per Fraction Acre [2]	SFE Units per Acre After 5
Commercial	24	**0.500**	0.500
Office	68	**1.420**	1.420
Shopping Center	24	**0.500**	0.500
Industrial	24	**0.500**	0.500
Self Storage or Parking Lot	1	**0.021**	
Wineries [3]	12	**0.250**	
Golf Course	3	**0.033**	
Cemeteries	1.20	**0.050**	
Agriculture / Vineyards	0.05	**0.00210**	
Timberland / Dry Rangeland	0.01	**0.00042**	

1. Source: San Diego Association of Governments Traffic Generators Study, University of California, Davis and other studies and sources.
2. The SFE factors for commercial and industrial parcels indicated above are applied to each fifth acre of land area or portion thereof. Additional acres over five for commercial, office, shopping center and industrial parcels are calculated per acre or portion thereof. (Therefore, the minimum assessment for any assessable parcel in these categories is the SFE Units listed herein.)
3. Wineries and wine production facilities that rest on parcels of land that include agriculture or vineyard uses are assessed the winery rate for the production facility and the agriculture / vineyard rate for the excess land.

VACANT PROPERTIES

The benefit to vacant properties is determined to be proportional to the corresponding benefits for similar type developed properties. However, vacant properties are assessed at a lower rate due to the lack of active benefits, as measured by use by residents, employees, customers and guests. A measure of the benefits accruing to the underlying land is the average value of land in relation to improvements for developed property. An analysis of the assessed valuation data from the City of Long Beach found that for improved properties, the ratio between improved value and land value is 97%. Since vacant properties have very low to zero population/use densities until they are developed, a 50% benefit discount is applied to the valuation factor of 0.97 to account for the current low use density and potential for harm or nuisance to the property owner or his or her residents, employees, customers and guests. The combination of these measures results in a 0.50 factor. It is reasonable to assume, therefore, that approximately 50% of the benefits are related to the underlying land and 50% are related to the day-to-day use of the property. Using this ratio, the SFE factor for vacant parcels is 0.50 per parcel.

It must be noted that in future years, the SFE factors for properties in the proposed Service Area will be reviewed and updated to reflect changes in land use – i.e., vacant land that has been developed, residential land that has been rezoned to commercial – for assessment calculation purposes.

OTHER PROPERTIES

Article XIIID stipulates that publicly owned properties must be assessed unless those properties are reasonably determined to receive no special benefit from the assessment.

All properties that are specially benefited are assessed. Publicly owned property that is used for purposes similar to private residential, commercial, industrial, agricultural or institutional uses is benefited and assessed at the same rate as such privately owned property.

Miscellaneous, small and other parcels such as roads, right-of-way parcels, and common areas typically do not generate significant numbers of employees, residents, customers or guests and have limited economic value. These miscellaneous parcels receive minimal benefit from the Services and are assessed an SFE benefit factor of 0.

DURATION OF ASSESSMENT

The assessment ballot proceeding authorized the Assessment to be levied for fiscal year 2019-20 and every year thereafter, so long as mosquitoes and other vectors remain in existence and the Long Beach Health Department's Bureau of Environmental Health Mosquito and Vector Control Program requires funding from the Assessment for its Services in the Assessment Area. As noted previously, if the Assessment and the duration of the Assessment are approved by property owners in an assessment ballot proceeding, the Assessment can be levied annually after the Long Beach City Council approves an annually updated Engineer's Report, budget for the Assessment, Services to be provided, and other specifics of the Assessment. In addition, the City Council must hold an annual public hearing to continue the Assessment.

APPEALS AND INTERPRETATION

Any property owner who feels that the assessment levied on the subject property is in error as a result of incorrect information being used to apply the foregoing method of assessment, may file a written appeal with the Manager of Long Beach Health Department's Bureau of Environmental Health or his or her designee. Any such appeal is limited to correction of an assessment during the then current fiscal year or, if before July 1, the upcoming fiscal year. Upon the filing of any such appeal, the Bureau Manager or his or her designee will promptly review the appeal and any information provided by the property owner. If the Bureau Manager or his or her designee finds that the assessment should be modified, the appropriate changes shall be made to the assessment roll. If any such changes are approved after the assessment roll has been filed with Los Angeles County for collection, the Bureau Manager or his or her designee is authorized to refund to the property owner the amount of any approved reduction. Any dispute over the decision of the Bureau Manager, or his or her designee, shall be referred to the Director of Health and Human Services. The decision of the Director of Health and Human Services shall be final.

ASSESSMENT

The Long Beach City Council contracted with the undersigned Engineer of Work to prepare and file a report presenting an estimate of costs of Services, a diagram for the benefit assessment for the Assessment Area, an assessment of the estimated costs of Services, and the special and general benefits conferred thereby upon all assessable parcels within the Assessment Area,

The undersigned, by virtue of the power vested in me under Article XIIID of the California Constitution, the Government Code, the Health and Safety Code, and the order of the Long Beach City Council, hereby make the following determination of an assessment to cover the portion of the estimated cost of the Services, and the costs and expenses incidental thereto to be paid by the Mosquito, Vector and Disease Control Assessment.

The Long Beach Health Department's Bureau of Environmental Health Mosquito and Vector Control Program has evaluated and estimated the costs of extending and providing the Services to the Assessment Area. The estimated costs are summarized in Figure 3 and detailed in Figure 6 below.

The amount to be paid for the Services and the expenses incidental thereto, to be paid by the Long Beach Health Department's Bureau of Environmental Health Mosquito and Vector Control Program for fiscal year 2019-20 is generally as follows:

FIGURE 6 – SUMMARY COST ESTIMATE – FY 2019-20 BUDGET

Mosquito, Vector Control and Disease Prevention Operations	$517,321
Materials, Utilities and Supplies	$104,039
Technology and Information Services	$31,500
Fleet Services	$49,500
Indirect Cost	$115,156
Incidental Costs	$30,268
TOTAL BUDGET	$847,784
Less: VCP Contribution	$94,310
NET AMOUNT TO ASSESSMENT	**$753,474**

An Assessment Diagram is hereto attached and made a part hereof showing the exterior boundaries of the Assessment Area. The distinctive number of each parcel or lot of land in the Assessment Area is its Assessor Parcel Number appearing on the Assessment Roll.

I do hereby determine and apportion the net amount of the cost and expenses of the Services, including the costs and expenses incidental thereto, upon the parcels and lots of land within the Mosquito, Vector and Disease Control Assessment, in accordance with the special benefits to be received by each parcel or lot, from the Services, and more particularly set forth in this Engineer's Report.

The assessment determination is made upon the parcels or lots of land within the Assessment Area in proportion to the special benefits to be received by the parcels or lots of land, from the Services.

The assessment is subject to an annual adjustment tied to the Los Angeles-Long Beach-Anaheim, CA Consumer Price Index for All Urban Consumers (CPI-U), as of December of each succeeding year ("CPI"), with a maximum annual adjustment not to exceed 3%. Any change in the CPI in excess of 3% shall be cumulatively reserved as the "Unused CPI" and shall be used to increase the maximum authorized assessment rate in years in which the CPI is less than 3%. The maximum authorized assessment rate is equal to the maximum assessment rate in the first fiscal year the assessment was levied adjusted annually by the minimum of 1) 3% or 2) the change in the CPI plus any Unused CPI as described above.

If property owners in the Assessment Area, in an assessment ballot proceeding, approve the initial fiscal year benefit assessment for special benefits to their property including the CPI adjustment schedule, the assessment may be levied annually and may be adjusted by up to the maximum annual CPI adjustment without any additional assessment ballot proceeding. In the event that in future years the assessments are levied at a rate less than the maximum authorized assessment rate, the assessment rate in a subsequent year may be increased up to the maximum authorized assessment rate without any additional assessment ballot proceeding.

Each parcel or lot of land is described in the Assessment Roll by reference to its parcel number as shown on the Assessor's Maps of the Los Angeles County for the fiscal year 2019-20. For a more particular description of the property, reference is hereby made to the deeds and maps on file and of record in the office of the County Assessor of Los Angeles County.

I hereby place opposite the Assessor Parcel Number for each parcel or lot within the Assessment Roll, the proposed amount of the assessment for fiscal year 2019-20 for each parcel or lot of land within the Mosquito, Vector and Disease Control Assessment Area.[25]

Dated: April 10, 2019

Engineer of Work

By: _____

John W. Bliss, License No. C052091

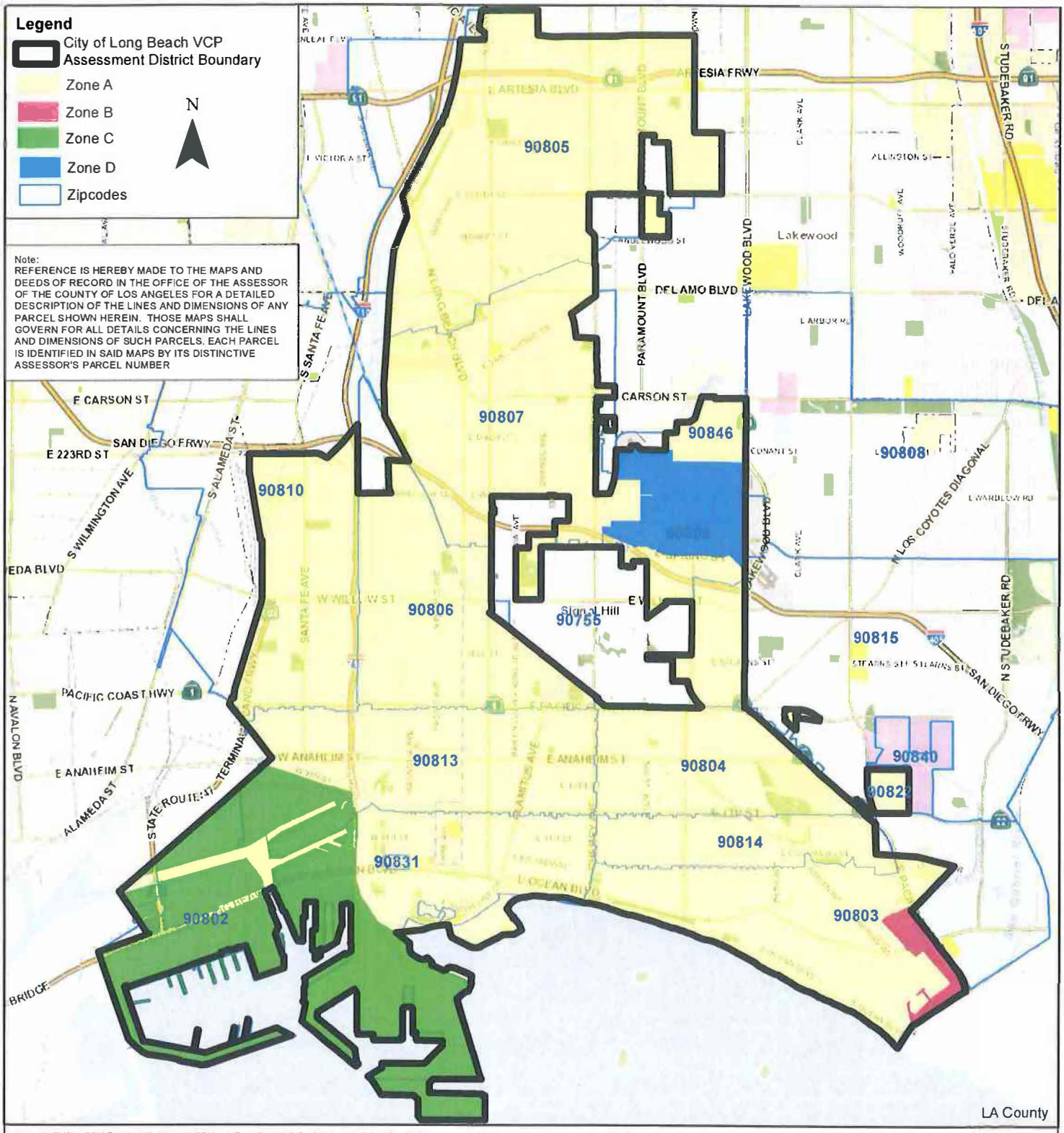
[25] Each parcel has a uniquely calculated assessment based on the estimated level of special benefit to the property as determined in accordance with this Engineer's Report.

ASSESSMENT ROLL

Reference is hereby made to the Assessment Roll in and for the assessment proceedings on file in the office of the Long Beach Health Department's Bureau of Environmental Health Mosquito and Vector Control Program, as the Assessment Roll is too voluminous to be bound with this Report.

ASSESSMENT DIAGRAM

The boundaries of the proposed Mosquito, Vector and Disease Control Assessment are displayed on the following Assessment Diagram.



FILED IN THE OFFICE OF THE CITY CLERK, CITY OF LONG BEACH, CALIFORNIA, THIS _____DAY OF_____, 2019.

_____
CITY CLERK

RECORDED IN THE OFFICE OF THE DIRECTOR OF HEALTH & HUMAN SERVICES, CITY OF LONG BEACH, CALIFORNIA, THIS _____ DAY OF _____, 2019.

_____
DIRECTOR OF HEALTH & HUMAN SERVICES

AN ASSESSMENT WAS CONFIRMED AND LEVIED BY THE CITY COUNCIL, CITY OF LONG BEACH, ON THE LOTS, PIECES AND PARCELS OF LAND ON THIS ASSESSMENT DIAGRAM ON THE _____ DAY OF _____, 2019 FOR THE FISCAL YEAR 2019-20 AND SAID ASSESSMENT DIAGRAM AND THE ASSESSMENT ROLL FOR SAID FISCAL YEAR WERE FILED IN THE OFFICE OF THE COUNTY AUDITOR OF LOS ANGELES COUNTY, CALIFORNIA, ON THE _____ DAY OF _____, 2019. REFERENCE IS HEREBY MADE TO SAID RECORDED ASSESSMENT ROLL FOR THE EXACT AMOUNT OF EACH ASSESSMENT LEVIED AGAINST EACH PARCEL OF LAND.

_____
CITY CLERK

FILED THIS _____ DAY OF _____, 2019, AT THE HOUR OF _____O'CLOCK ___. M. IN THE OFFICE OF THE COUNTY AUDITOR OF THE LOS ANGELES COUNTY, STATE OF CALIFORNIA, AT THE REQUEST OF THE CITY OF LONG BEACH CITY COUNCIL.

_____
COUNTY AUDITOR, LOS ANGELES COUNTY

SCI Consulting Group
707-430-4300

City of Long Beach
Department of Health and Human Services
Bureau of Environmental Health Vector Control Program
Mosquito, Vector and Disease Control Assessment District Diagram