Attachment 7

# Garden Grove Municipal Code Amendment for Conversion of Relocated Billboards within SR-22 Freeway Corridor to Electronic Billboards and Relocation and Reconstruction of Electronic Billboard at 11615 Cardinal Circle
# Initial Study and Mitigated Negative Declaration


**Lead Agency**
City of Garden Grove
11222 Acacia Parkway
Garden Grove, CA 92840


GARDEN GROVE


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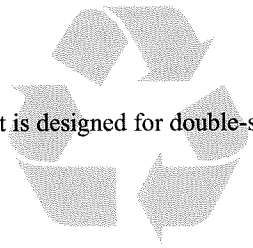

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# Table of Contents


**1 Introduction..... 1**
1.1 – Purpose of CEQA ..... 1
1.2 – Public Comments ..... 2
1.3 – Availability of Materials ..... 3

**2 Project Description ..... 5**
2.1 – Project Title ..... 5
2.2 – Lead Agency Name ..... 5
2.3 – Contact Person ..... 5
2.4 – Project Location ..... 5
2.5 – Project Sponsor's Name ..... 5
2.6 – General Plan Land Use Designation ..... 5
2.7 – Zoning District ..... 5
2.8 – Project Description ..... 5
2.9 – Surrounding Land Uses ..... 8
2.10 – Environmental Setting ..... 8
2.11 – Required Approvals ..... 9
2.12 – Other Public Agency Whose Approval Is Required ..... 9
2.13 – Regulatory Provisions ..... 9

**3 Determination... ..... 25**
3.1 – Environmental Factors Potentially Affected ..... 25
3.2 – Determination ..... 25

**4 Evaluation of Environmental Impacts ..... 27**
4.1 – Aesthetics ..... 27
4.2 – Agriculture and Forest Resources ..... 31
4.3 – Air Quality ..... 33
4.4 – Biological Resources ..... 38
4.5 – Cultural Resources ..... 41
4.6 – Geology and Soils ..... 43
4.7 – Greenhouse Gas Emissions ..... 47
4.8 – Hazards and Hazardous Materials ..... 49
4.9 – Hydrology and Water Quality ..... 52
4.10 – Land Use and Planning ..... 55
4.11 – Mineral Resources ..... 57
4.12 – Noise ..... 58
4.13 – Population and Housing ..... 63
4.14 – Public Services ..... 64
4.15 – Recreation ..... 65
4.16 – Transportation and Traffic ..... 66
4.17 – Utilities and Service Systems ..... 70
4.18 – Mandatory Findings of Significance ..... 72

**5 References..... ..... 75**
5.1 – List of Preparers ..... 75

**6 Summary of Mitigation Measures ..... 77**

**7 Appendix Materials ..... 79**
Appendix A Proposed Garden Grove Municipal Code Amendment Section 9.20.110
Appendix B Air Quality Modeling Data

## List of Tables

Table 1 South Coast Air Basin Attainment Status – Orange County ..... 35
Table 2 Tentative Construction Schedule ..... 35
Table 3 Unmitigated Maximum Daily Construction Emissions (lbs/day) ..... 36
Table 4 Greenhouse Gas Emissions Inventory ..... 48
Table 5 Typical Reference Noise Emissions Levels from Construction Equipment ..... 60
Table 6 Reference Vibration Source Amplitudes for Construction Equipment ..... 61
Table 7 Vibration Damage Potential Threshold Criteria ..... 61
Table 8 Vibration Annoyance Potential Threshold Criteria ..... 61

## List of Exhibits

Exhibit 1 Regional and Vicinity Map ..... 11
Exhibit 2 Site Plan ..... 13
Exhibit 3 Proposed Location ..... 15
Exhibit 4 Proposed Location Renderings ..... 17
Exhibit 5 Column Placement ..... 19
Exhibit 6 Clear Channel Billboard Inventory Map ..... 21
Exhibit 7 SR-22 Corridor (300 ft radius) ..... 23

# 1 Introduction

The City of Garden Grove (Lead Agency) has received an application from Clear Channel Outdoors (project applicant) proposing (i) an amendment to the Garden Grove Municipal Code to allow existing legal non-conforming off-premise signs (billboards) located on, or relocated to, property adjacent to State Route 22 (SR-22) to be converted to digital (electronic) displays, (ii) approval of a site plan application for the construction of a relocated off-premise digital sign adjacent to State Route 22 (SR-22), and (iii) approval of an associated relocation agreement. Specifically, the applicant proposes the removal of four (4) existing non-electronic billboard sign faces and associated structures and the construction and operation of one (1) new outdoor advertising structure (billboard) utilizing a state-of-the-art two-sided digital display, in accordance with the City of Garden Grove billboard relocation regulations (Garden Grove Municipal Code Section 9.20.110). Digital or electronic signs are currently not generally permitted within the City of Garden Grove and moving forward with the application will require that the City to amend Municipal Code Section 9.20.110 to permit billboards relocated to property along the State Route 22 (SR-22) freeway pursuant to Section 9.20.110 to be converted to electronic billboards and to establish pertinent regulations governing such electronic billboards. In conjunction with the application and Municipal Code Amendment, the applicant and City will be entering into a relocation agreement pertaining to the removed and relocated billboards.

Adoption of the Municipal Code Amendment, approval of the site plan application, and approval of the relocation agreement constitute a *project* that is subject to review under the California Environmental Quality Act (CEQA) 1970 (Public Resources Code, Section 21000 et seq.), and the State CEQA Guidelines (California Code of Regulations, Section 15000 et seq.). This Initial Study has been prepared to assess the short-term, long-term, and cumulative environmental impacts that could result from the project. This report has been prepared to comply with Section 15063 of the State CEQA Guidelines, which sets forth the required contents of an Initial Study. These include:

- A description of the project, including the location of the project (Section 2)
- Identification of the environmental setting (Section 2.11)
- Identification of environmental effects by use of a checklist, matrix, or other methods, provided that entries on the checklist or other form are briefly explained to indicate that there is some evidence to support the entries (Section 4)
- Discussion of ways to mitigate significant effects identified, if any (Section 4)
- Examination of whether the project is compatible with existing zoning, plans, and other applicable land use controls (Section 4.10)
- The name(s) of the person(s) who prepared or participated in the preparation of the Initial Study (Section 5)

## *1.1 – Purpose of CEQA*

The body of State law known as CEQA was enacted in 1970 and has been amended since. The legislative intent of CEQA is established in Section 21000 of the California Public Resources Code as follows:

The Legislature finds and declares as follows:

a) The maintenance of a quality environment for the people of this State now and in the future is a matter of statewide concern.
b) It is necessary to provide a high-quality environment that at all times is healthful and pleasing to the senses and intellect of man.
c) There is a need to understand the relationship between the maintenance of high-quality ecological systems and the general welfare of the people of the state, including their enjoyment of the natural resources of the state.
d) The capacity of the environment is limited, and it is the intent of the Legislature that the government of the State takes immediate steps to identify any critical thresholds for the health and safety of the people of the state and take all coordinated actions necessary to prevent such thresholds being reached.
e) Every citizen has a responsibility to contribute to the preservation and enhancement of the environment.
f) The interrelationship of policies and practices in the management of natural resources and waste disposal requires systematic and concerted efforts by public and private interests to enhance environmental quality and to control environmental pollution.

g) It is the intent of the Legislature that all agencies of the state government which regulate activities of private individuals, corporations, and public agencies which are found to affect the quality of the environment, shall regulate such activities so that major consideration is given to preventing environmental damage, while providing a decent home and satisfying living environment for every Californian.

As set forth in Public Resources Code Section 21001, the Legislature further finds and declares that it is the policy of the state to:

a) Develop and maintain a high-quality environment now and in the future, and take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state.
b) Take all action necessary to provide the people of this state with clean air and water, enjoyment of aesthetic, natural, scenic, and historic environmental qualities, and freedom from excessive noise.
c) Prevent the elimination of fish or wildlife species due to man's activities, insure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities and examples of the major periods of California history.
d) Ensure that the long-term protection of the environment, consistent with the provision of a decent home and suitable living environment for every Californian, shall be the guiding criterion in public decisions.
e) Create and maintain conditions under which man and nature can exist in productive harmony to fulfill the social and economic requirements of present and future generations.
f) Require governmental agencies at all levels to develop standards and procedures necessary to protect environmental quality.
g) Require governmental agencies at all levels to consider qualitative factors as well as economic and technical factors and long-term benefits and costs, in addition to short-term benefits and costs and to consider alternatives to proposed actions affecting the environment.

A concise statement of legislative policy with respect to public agency consideration of projects for some form of approval is found in Section 21002 of the Public Resources Code:

> The Legislature finds and declares that it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects. The Legislature further finds and declares that in the event specific economic, social, or other conditions make infeasible such project alternatives or such mitigation measures, individual projects may be approved in spite of one or more significant effects thereof.

## *1.2 – Public Comments*

Comments from all agencies and individuals are invited regarding the information contained in this Initial Study. Such comments should explain any perceived deficiencies in the assessment of impacts, identify the information that is purportedly lacking in the Initial Study or indicate where the information may be found. All comments on the Initial Study are to be submitted to:

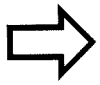
Lee Marino, Senior Planner
City of Garden Grove, Community Development Department
11222 Acacia Parkway, Garden Grove, CA 92840
Phone: (714) 741-5302
Email: leem@ci.garden-grove.ca.us

The deadline for comments is September 11, 2014. Following this 30-day period of circulation and review of the Initial Study and Mitigated Negative Declaration, in accordance with the provision of Section 15073 of the Public Resources Code, all comments will be considered by the City of Garden Grove prior to adoption.

## 1.3 – Availability of Materials

All materials related to the preparation of this Initial Study are available for public review. To request an appointment to review these materials, please contact:

Lee Marino, Senior Planner
City of Garden Grove, Community Development Department
11222 Acacia Parkway, Garden Grove, CA 92840
Phone: (714) 741-5302
Email: leem@ci.garden-grove.ca.us



# 2 Project Description

## 2.1 – Project Title

Municipal Code Amendment for Conversion of Relocated Billboards within SR-22 Freeway Corridor to electronic Billboards and Relocation and Reconstruction of electronic billboard at 11615 Cardinal Circle

## 2.2 – Lead Agency Name

City of Garden Grove
Community Development Department
11222 Acacia Parkway
Garden Grove, CA 92840

## 2.3 – Contact Person

Lee Marino, City Planner
(714) 741-5302
leem@ci.garden-grove.ca.us

## 2.4 – Project Location

The proposed Municipal Code Amendment may impact those properties located within 300 feet of either edge of California State Route 22 (SR-22) in the City of Garden Grove. The address on which the proposed relocated electronic sign to be constructed will be located at 11615 Cardinal Circle, Garden Grove, CA 92843

## 2.5 – Project Sponsor's Name

Clear Channel Outdoor
19320 Harborgate Way
Torrance, CA 90501

## 2.6 – General Plan Land Use Designation

Heavy Commercial, Light; Commercial Residential/Commercial Mixed Use 1; Industrial/Residential Mixed Use 1: and International West Mixed Use

## 2.7 – Zoning District

Limited Industrial (M-1); Commercial Planned Unit Developments; Industrial Planned Unit Developments; Office Professional (O-P); Neighborhood Commercial (C-1); Community Commercial (C-2); Heavy Commercial (C-3); Harbor Corridor Specific Plan-Transitional Zone South (HSCP-TZS); Community Center Specific Plan-Office Professional 59 (CCSP-OP59); and Industrial Park (M-P) [Note: Billboards subject to the Outdoor Advertising Act may only be located on properties with industrial or commercial zoning designations.]

## 2.8 – Project Description

The City of Garden Grove has received an application from Clear Channel Outdoors (project applicant) proposing (i) an amendment to the Garden Grove Municipal Code to allow existing legal non-conforming off-premise signs (billboards) located on, or relocated to, property adjacent to State Route 22 (SR-22) to be converted to digital (electronic) displays, (ii) approval of a site plan application for the construction of off-premise digital sign along SR-22, and (iii) approval of an associated relocation agreement.

**Project Description**

The project applicant proposes to remove four (4) existing non-electronic poster-sized billboard sign faces and associated structures in the City (locations to be determined) and to construct and operate one (1) new outdoor advertising structure (Billboard) utilizing a state-of-the-art two-sided digital display. The proposed digital billboard will be located on a parcel along the south side of SR-22. Column placement of the billboard is located at 11615 Cardinal Circle, in the northern side of the parking lot of an industrial site. The billboard structure will be up to 75 feet high, as measured from the finished grade on which the base of the support structure will be erected, and up to 45 feet above the grade of adjacent SR-22. The proposed digital display area will be smaller than the traditional static display billboards, with the digital display area being approximately 14 feet high by 48 feet wide. The proposed location and billboard renderings are shown in Exhibit 3 (Proposed Location) and Exhibit 4 (Proposed Location Renderings).

With regard to removal of existing billboards, the applicant has provided the City with eight billboard locations throughout the City, of which four will be chosen for removal. The four existing billboard faces to be removed have not been determined yet. These four billboard sites will be selected by City staff after a review process of all the potential sites. The locations of the eight existing billboards are mapped and listed in Exhibit 6 (Clear Channel Billboard Inventory Map).

The construction of new billboards in the City of Garden Grove is prohibited. However, pursuant to Garden Grove Municipal Code Section 9.20.110, the owner of an existing legal non-conforming billboard located within the City may be apply to relocate the billboard to another location within the City, subject to site plan approval by the Planning Commission or City Council. All existing legal non-conforming billboards located in the City are non-electronic, and the Municipal Code currently does not expressly permit relocated billboards to be converted to electronic billboards. Section 9.20.110 also currently limits the permitted height of relocated billboards to 50 feet.

In order for the proposed application to be approved, the Garden Grove Municipal Code will need to be amended to permit relocated billboards on the Garden Grove (22) Freeway Corridor (defined as the area within the City comprised of land within 300 hundred feet of either edge of the California State Route 22 Freeway shown in Exhibit 7) to be electronic and to specify the permitted height and size of any such signs. An amendment to Section 9.20.110 (Billboards) of the Garden Grove Municipal Code is proposed in conjunction with the proposed LED billboard project.

The proposed Municipal Code Amendment would permit the owner of an existing billboard within the city to apply to the City to convert and/or relocate and convert such billboard to an electronic billboard, provided such relocated and/or converted billboard is located within the Garden Grove (22) Freeway Corridor. Electronic billboards would continue to be prohibited outside of the Garden Grove (22) Freeway Corridor. Conversion of an existing billboard to an electronic billboard would be deemed to be a relocation of an existing billboard. The conversion and/or relocation and conversion of an electronic billboard within the Garden Grove (22) Freeway Corridor would be subject to discretionary approval of a site plan pursuant to the provisions of Subsections 9.20.110.B and C of the Garden Grove Municipal Code, entry into a relocation agreement between the owner and the City pursuant to California Business and Professions Code Section 5412, and compliance with specified requirements. Pursuant to the proposed Municipal Code Amendment, all such electronic billboards would be subject to the following minimum criteria and conditions:

a. An electronic billboard may only be located within the Garden Grove (22) Freeway Corridor.

b. Electronic billboards shall comply with all applicable location, distance, size, operational, permit or licensing, and/or other requirements or limits imposed by federal or state law, including, without limitation, the California Outdoor Advertising Act, California Business and Professions Code Section 5200, et. seq., and its implementing regulations, including applicable amendments thereto. To the extent a conflict arises between any provisions of this Section and applicable federal or state law, state or federal law shall control.

c. Each sign face of an electronic billboard shall be oriented primarily for viewing from the Garden Grove (22) Freeway and shall be oriented away from any residentially zoned property.

d. No electronic billboard shall be located on or within 350 feet of any residentially zoned property, as measured from the structural support column of the electronic billboard to the property line.

e. No electronic billboard shall be located within 500 feet of any other billboard located on the same side of the freeway or within 1,000 feet of any other electronic billboard or on-premise electronic sign located on the same side of the freeway.

f. The permitted height of an electronic billboard shall be determined through the site plan review process and shall be limited to the maximum height necessary to ensure adequate visibility of the display from the Garden Grove (22) Freeway. Requested height of an electronic billboard shall be justified through a balloon or flag test, or other similar test, conducted at the applicant's cost. Unless special circumstances necessitate a taller sign, as demonstrated through a balloon or flag test, or other similar test, no electronic billboard shall exceed sixty (60) feet in height, as measured from finished grade to the top of the billboard structure.

g. The area of each electronic billboard sign face, including framing and trim, shall not exceed 680 square feet.

h. Electronic billboard displays shall contain still or static messages or images only, and no part of the sign structure or image being displayed may move or present the appearance or optical illusion of movement, or include flashing, blinking, or traveling lighting, the varying of light intensity, or any other means not providing constant illumination. Each static message or image shall be displayed for a minimum of eight (8) consecutive seconds before changing, and the transition or blank screen time between one display message and the next shall not exceed one (1) second.

i. The maximum intensity of light output produced by an electronic billboard display shall be established in relation to the immediate ambient lighting, and each electronic billboard shall incorporate an automatic light sensing device that will adjust the brightness or intensity of light output as ambient light conditions change. The maximum measurable light output of an electronic billboard shall not exceed 0.3 foot-candles above the ambient light level at any time, as measured using a foot-candle meter at a pre-set distance perpendicular to the display face of the electronic billboard. The pre-set distance for measurement of intensity of light output with a foot-candle meter shall vary depending on the size of the sign face, as follows:

| Nominal Sign Face Size | Distance To Be Measured From |
|---|---|
| 12' x 25' | 150' |
| 10'-6" x 36' | 200' |
| 14' x 48' or Greater | 250' |

j. Electronic billboard owners and/or operators shall make space available for the display of emergency messaging in accordance with local, regional, and/or state protocols.

k. As a condition to approval of the relocation and/or conversion of a billboard to an electronic billboard, the owner of the electronic billboard shall execute a relocation agreement with the City pursuant to California Business and Professions Code Section 5412 on terms approved by the city council in its sole and absolute discretion. At a minimum, such a relocation agreement shall (i) require the permanent removal of a minimum of two (2) existing billboard faces within the city for each new electronic billboard face erected or installed, (ii) provide for mitigation by the owner of aesthetic and/or other impacts caused by the electronic billboard(s), (iii) require the owner to comply with any and all required mitigation measures, conditions of approval, and applicable provisions of this Section and this Code; (iv) provide for the payment by the owner of applicable fees and costs; (v) require each owner to indemnify, defend and hold harmless the City from any and all claims, lawsuits, awards and judgments, including any reasonable attorney's fees and court costs, that may arise from the approval of the relocation and/or conversion of a billboard to an electronic billboard and/or the removal of other existing billboards, pursuant to this Section or any other provision of the Code, subject to the terms of the agreement; and (vi) require the owner(s)/operator(s) of the electronic billboard to donate up to five percent (5%) of the total advertising time on the electronic billboard to community events, as requested by the City Manager. Nothing herein shall be construed to require the city enter into such an agreement or to allow the relocation of an existing billboard or the conversion of an existing billboard to an electronic billboard.

l. The owner of an electronic billboard authorized pursuant to this Section may, at its sole option, remove the digital display unit(s) from the billboard structure at any time, for any reason, and temporarily or permanently replace such digital display unit(s) with state-of-the-art non-electronic static sign faces of the same or smaller dimensions, which may include external illumination.

Provided the applicant's site plan application is approved, it is anticipated that the project applicant will also enter into a relocation agreement with the City of Garden Grove consistent with the terms of the proposed Municipal Code Amendment and conditions of the site plan approval. The relocation agreement will (i) provide for the permanent removal of four existing billboard sign faces and associated structures and the installation of the replacement two-sided digital billboard at 11615 Cardinal Circle in accordance with the approved site plan; (ii) provide for mitigation by the owner of any aesthetic and/or other impacts caused by the electronic billboard, (iii) require the owner to comply with any and all required mitigation measures, conditions of approval, and applicable Municipal Code provisions; (iv) provide for the payment by the owner of applicable fees and costs; (v) require the owner to indemnify, defend and hold harmless the City from any and all claims, lawsuits, awards and judgments, including any reasonable attorney's fees and court costs, that may arise from the approval of the relocation and/or conversion of a billboard to an electronic billboard and/or the removal of other existing billboards, pursuant to this Section or any other provision of the Code, subject to the terms of the agreement; and (vi) require the owner(s)/operator(s) of the electronic billboard to donate up to five percent (5%) of the total advertising time on the electronic billboard to community events, as requested by the City Manager.

### Background on Electronic Display Billboards

A billboard is a permanent structure used for the display of messages, including both off-site commercial messages which are not related to the provision of services or the sale of products available on the subject site, as well as used for the display of noncommercial messages. Electronic display billboards are an emerging media type. An electronic display billboard consists of a display surface that supports an image generated by light emitting diodes (LEDs). The image on the sign is static for a period of time before cycling to the next image. The images are changed remotely via computer. Electronic display billboards provide a remote, non-manual way to change billboard "copy" and offer greater flexibility of use than conventional billboards. Typically, messages rotate continuously, with each static image on display for a minimum of 8 seconds. Although the LED display technology allows for scrolling, flashing, or motion video, moving images on digital billboards are generally prohibited by federal, State, and local regulations.

LED displays are equipped with sensors that modify the brightness of the sign in response to ambient lighting conditions. During the day, the display is brighter to provide the necessary contrast to allow the image to be visible. At night, the LED display can be dimmed to reduce glare.

## 2.9 – Surrounding Land Uses

Land uses within the vicinity of the project area potentially impacted by the proposed Municipal Code Amendment include industrial, commercial, open space (parks), schools, residential land uses, and a portion of the OCTA right-of-way.

The electronic billboard proposed to be erected at 11615 Cardinal Circle is located on a parcel immediately adjacent to the SR-22 freeway right-of-way. The parcel currently contains a multi-tenant industrial development with multiple buildings. Surrounding land uses include industrial uses to the south and west, the OCTA right-of-way to the west, and the SR-22 Freeway to the north. There are no adjacent residential areas near the proposed billboard location.

## 2.10 – Environmental Setting

The project area will be located along a section of SR-22 that traverses Garden Grove. Garden Grove is located in the central portion of Orange County, bounded by the cities of Anaheim, Stanton, and Cypress to the north, Los Alamitos to the south, Santa Ana to the south and southwest, and Orange to the east. The Garden Grove freeway (SR-22) runs in an east-west direction through the City. Both the Santa Ana Freeway (Interstate 5) to the northeast and the San Diego Freeway (Interstate 405) to the southwest provide connections to SR-22. The City's planning area encompasses approximately 11,470 acres. Exhibit 1 (Regional and Vicinity Map) illustrates Garden Grove's location within Orange County and its local context.

Commercial uses are located along major arterial routes and industrial uses are located in the northern portion of the City. Garden Grove is fully urbanized, with limited vacant land available for development. The project vicinity is completely urbanized and built out.

## 2.11 – Required Approvals

In addition to adoption of an amendment of Section 9.20.110 of the Garden Grove Municipal Code and entry into a relocation agreement with the City, the project applicant will be required to procure building permits, construction and demolition permits, and any permits as required by the California Department of Transportation (Caltrans).

## 2.12 – Other Public Agency Whose Approval Is Required

As Caltrans has established regulations for highway-oriented signs, appropriate clearances from Caltrans to ensure compliance with the guidelines will be required.

## 2.13 – Regulatory Provisions

**Federal:** The federal Highway Beautification Act of 1965 (23 U.S.C.131) provides for control of outdoor advertising, including removal of certain types of signs, along the interstate highway system. The Act is enforced by the Federal Highway Administration (FHWA). As part of its enforcement effort, the FHWA has entered into agreements regarding the Act with state departments of transportation. The agreements with California are described under the State provisions, below.

In addition, the FHWA has responded to the development of signs that present changing messages, either mechanically or digitally, with an interpretation of its agreements with the states pursuant to the Highway Beautification Act. The FHWA discussed changeable message signs in a Memorandum dated July 17, 1996, concluding that a state could reasonably interpret the provisions of its agreement with the FHWA "...to allow changeable message signs."

The FHWA issued a subsequent memorandum on September 25, 2007 on the subject of off-premises changeable electronic variable message signs (CEVMS). The memorandum stated that proposed laws, regulations, and procedures that allowed changeable message signs subject to acceptable criteria would not violate the prohibition on "intermittent, flashing, or moving" signs as used in the state agreements. The 2007 memorandum identified ranges of acceptability relating to key location and operational characteristics, which have resulted in consistent basic guidelines throughout the country:

- Brightness: The sign brightness should be adjusted to respond to changes in light levels.
- Duration of Message: Duration of display is generally between 4 and 10 seconds; 8 seconds is recommended.
- Transition Time: Transition between messages is generally between 1 and 4 seconds; 1 to 2 seconds is recommended.
- Spacing: Spacing between signs should not be less than the minimum specified for other billboards, or greater if deemed required for safety.
- Locations: Location criteria are the same as for other signs unless it is determined that specific locations are inappropriate.

The memorandum also refers to other standards that have been found helpful to ensure driver safety, including a default designed to freeze the display in one still position if a malfunction occurs; a process for modifying displays and lighting levels where directed by the state departments of transportation to assure safety of the motoring public; and requirements that a display contain static messages without movement such as animation, flashing, scrolling, or intermittent or full-motion video.

**State:** The California Department of Transportation (Caltrans) is involved in the control of "off-site" displays along state highways. Such displays advertise products or services of businesses located on properties other than that

which the display is located. Caltrans does not regulate on-site displays. The Outdoor Advertising act contains a number of provisions relating to the construction and operation of billboards:

- The sign must be constructed to withstand a wind pressure of 20 pounds per square feet of exposed surface (§5401);
- No sign shall display any statements or words of an obscene, indecent, or immoral character (§5402);
- No sign shall display flashing, intermittent or moving light or lights (§5403(h));
- Signs are restricted from areas within 300 feet of an intersection of highways or of highway and railroad right-of-ways, but a sign may be located at the point of interception , as long as a clear view is allowed for 300 feet, and no sign shall be installed that would prevent a traveler from obtaining a clear view of approaching vehicles for a distance of 500 feet along the highway (§5404); and
- Message center signs may not include any illumination or message change that is in motion or appears to be in motion or that changes or exposes a message for less than four seconds. No message center sign may be located within 500 feet of an existing billboard, or 1,000 feet of another message center display, on the same side of the highway (§5405);
- No advertising display may be placed or maintained on property adjacent to a section of a freeway that has been landscaped if the advertising display is designed to be viewed primarily by persons traveling on the main–traveled way of the landscaped freeway (§ 5440).

Some freeways are classified as "landscaped freeways." A landscaped freeway is defined as one that is now, or may in the future be, improved by the planting of lawns, trees, shrubs, flowers, or other ornamental vegetation requiring reasonable maintenance on one or both sides of the freeway (§5216). Off-premise displays are not allowed along landscaped freeways except when approved as part of relocation agreements. However, Caltrans has interpreted these provisions as allowing new billboards along such freeway segments if a relocation agreement has been approved pursuant to §5412 of the Outdoor Advertising Act.

Additional restrictions on outdoor signage are found in the California Vehicle Code. Vehicle Code §21466.5 prohibits the placing of any light source "...of any color of such brilliance as to impair the vision of drivers upon the highway." Specific standards for measuring light sources are provided. The restrictions may be enforced by Caltrans, the California Highway Patrol, or local authorities.

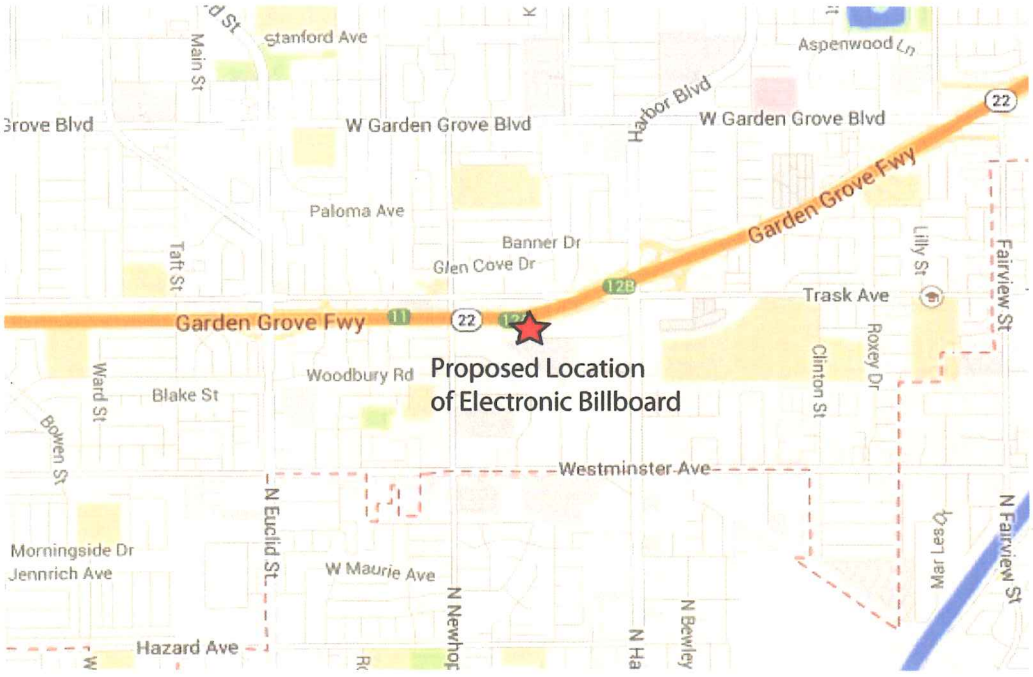
The Federal Highway Administration has entered into written agreements with various states as part of implementation of the Highway Beautification Act, including written agreements dated May 1965 and February 1968. The agreements generally provide that the State will control the construction of all outdoor advertising signs, displays, and devices within 660 feet of the interstate highway right-of-way. The agreements provide that such signs shall be erected only in commercial or industrial zones, and are subject to the following restrictions:

- No signs shall imitate or resemble any official traffic sign, signal, or device, nor shall signs obstruct or interfere with official signs;
- No signs shall be erected on rocks or other natural features;
- Signs shall be no larger than 25 feet in height and 60 feet in width, excluding border, trim, and supports;
- Signs on the same side of the freeway must be separated by at least 500 feet; and
- Signs shall not include any flashing, intermittent or moving lights, and shall not emit light that could obstruct or impair the vision of any driver.

California regulates outdoor advertising in the Outdoor Advertising Act (Business and Professions Code §5240 et seq.). Caltrans enforces the law and regulations. Caltrans requires applicants for new outdoor lighting to demonstrate that the owner of the parcel consents to the placement sign, that the parcel on which the sign would be located is zoned commercial or industrial, and that local building permits are obtained and complied with. A digital billboard is identified as a "message center" in the statute, which is an advertising display where the message is changed more than once every two minutes, but no more than once every four seconds (Business and Professions Code §5216.4).

Source: Google Maps

Regional




Source: Google Maps

Vicinity

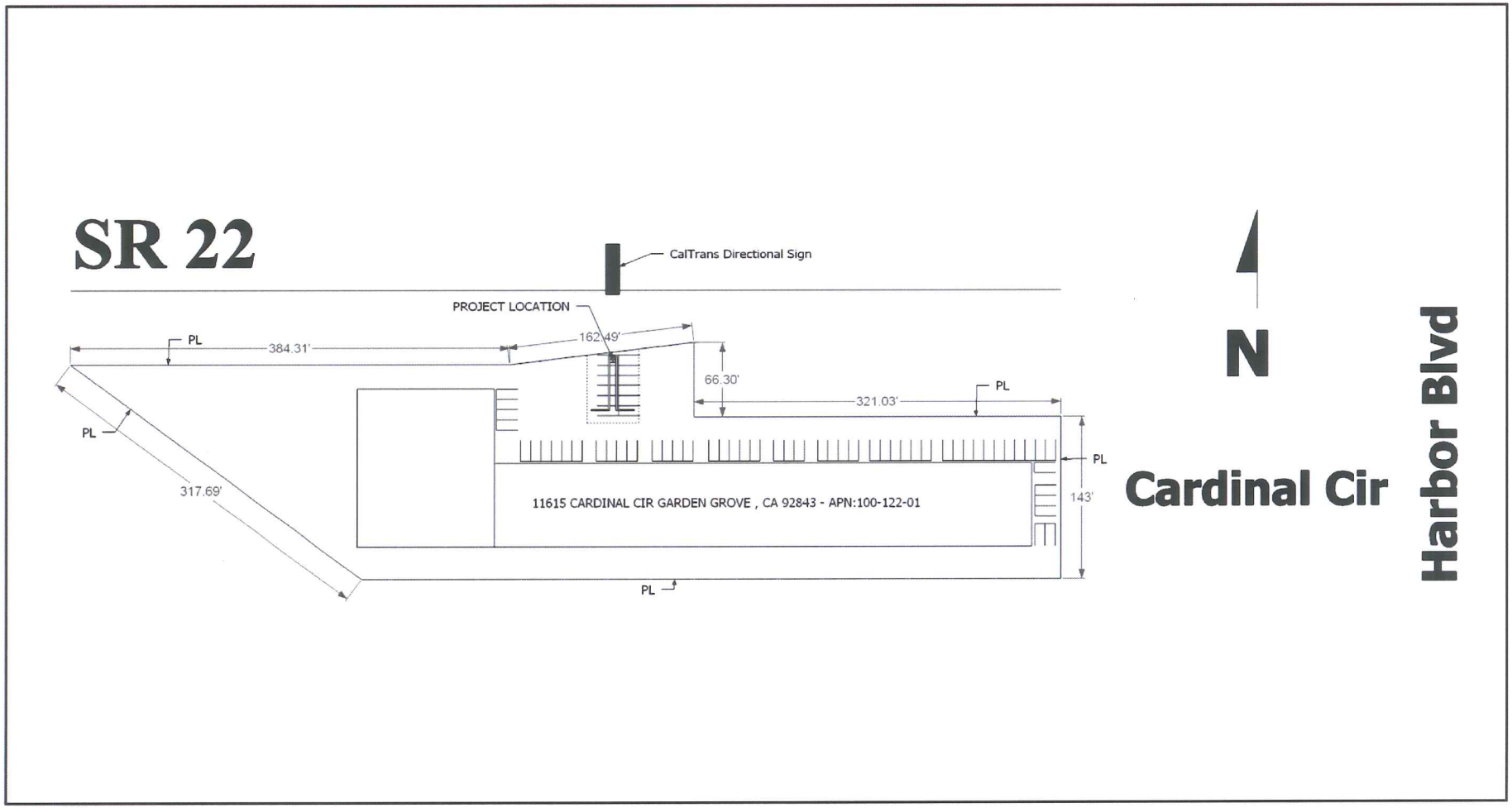
http://www.migcom.com

MIG Hogle-Ireland

# Exhibit 1 Regional and Vicinity Map

Garden Grove LED Billboard Project

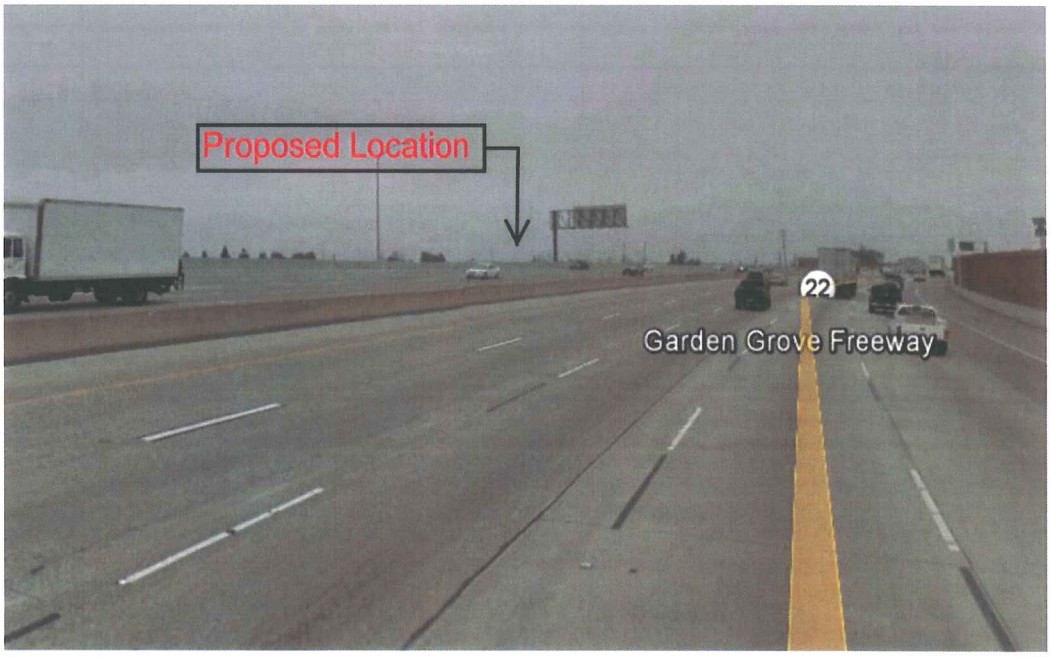
Garden Grove, California




Source: Clear Channel

Source: Clear Channel

West Facing




Source: Clear Channel

East Facing

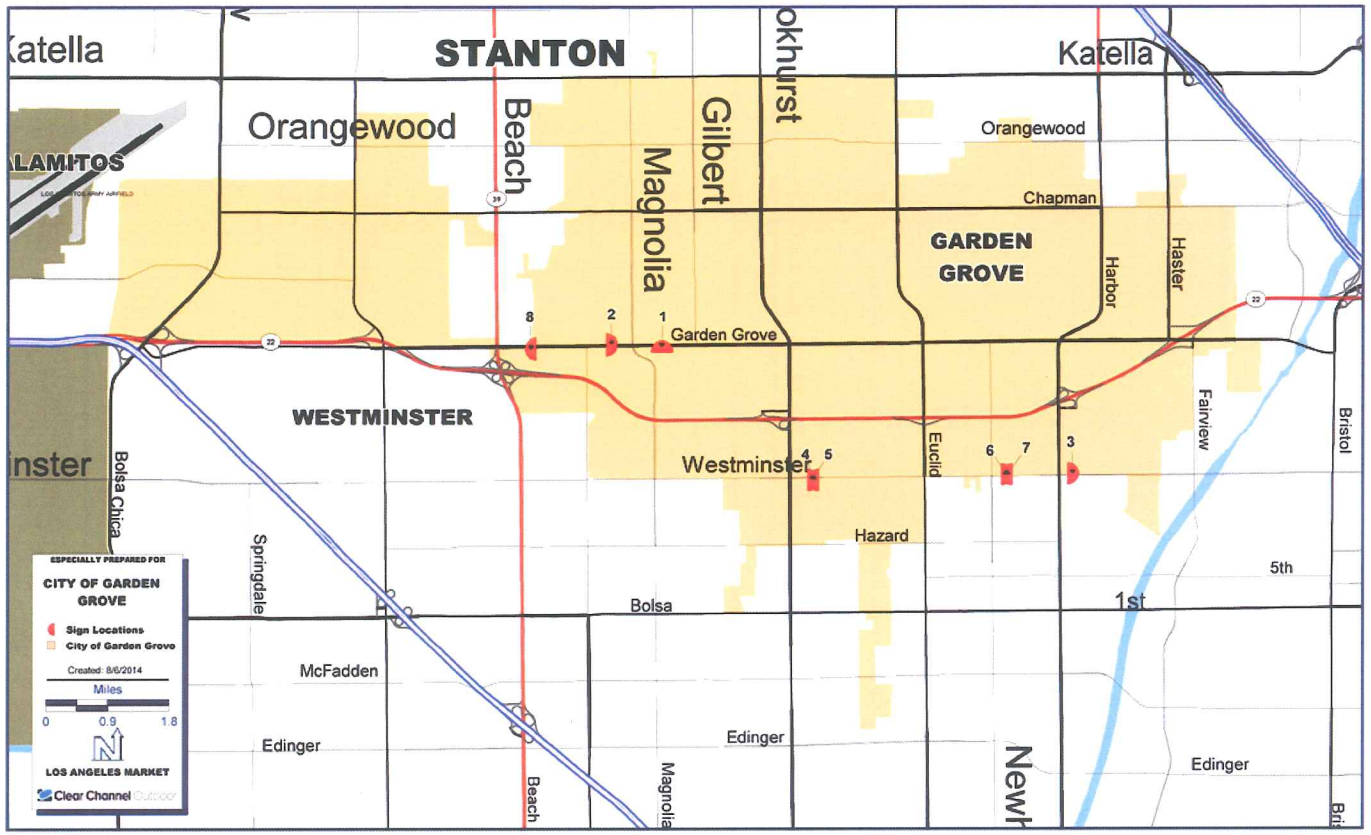
Source: Clear Channel

West Facing

Source: Clear Channel

East Facing

Source: Clear Channel




Source: Clear Channel

| Location | Panel | Location Description |
|---|---|---|
| 1 | 004025 | Cannery CL 40ft N/O Garden Grove F/S - 1 |
| 2 | 004452 | Garden Grove NS 800ft W/O Magnolia F/W - 1 |
| 3 | 005664 | Westminster NS 500ft E/O Harbor F/W - 1 |
| 4 | 005652 | Westminster SS 200ft E/O Flower F/W - 1 |
| 5 | 005653 | Westminster SS 200ft E/O Flower F/E - 2 |
| 6 | 005662 | Westminster NS 500ft E/O Newhope F/W - 1 |
| 7 | 005663 | Westminster NS 500ft E/O Newhope F/E - 2 |
| 8 | 004451 | Garden Grove SS 735ft W/O Monroe F/E - 1 |

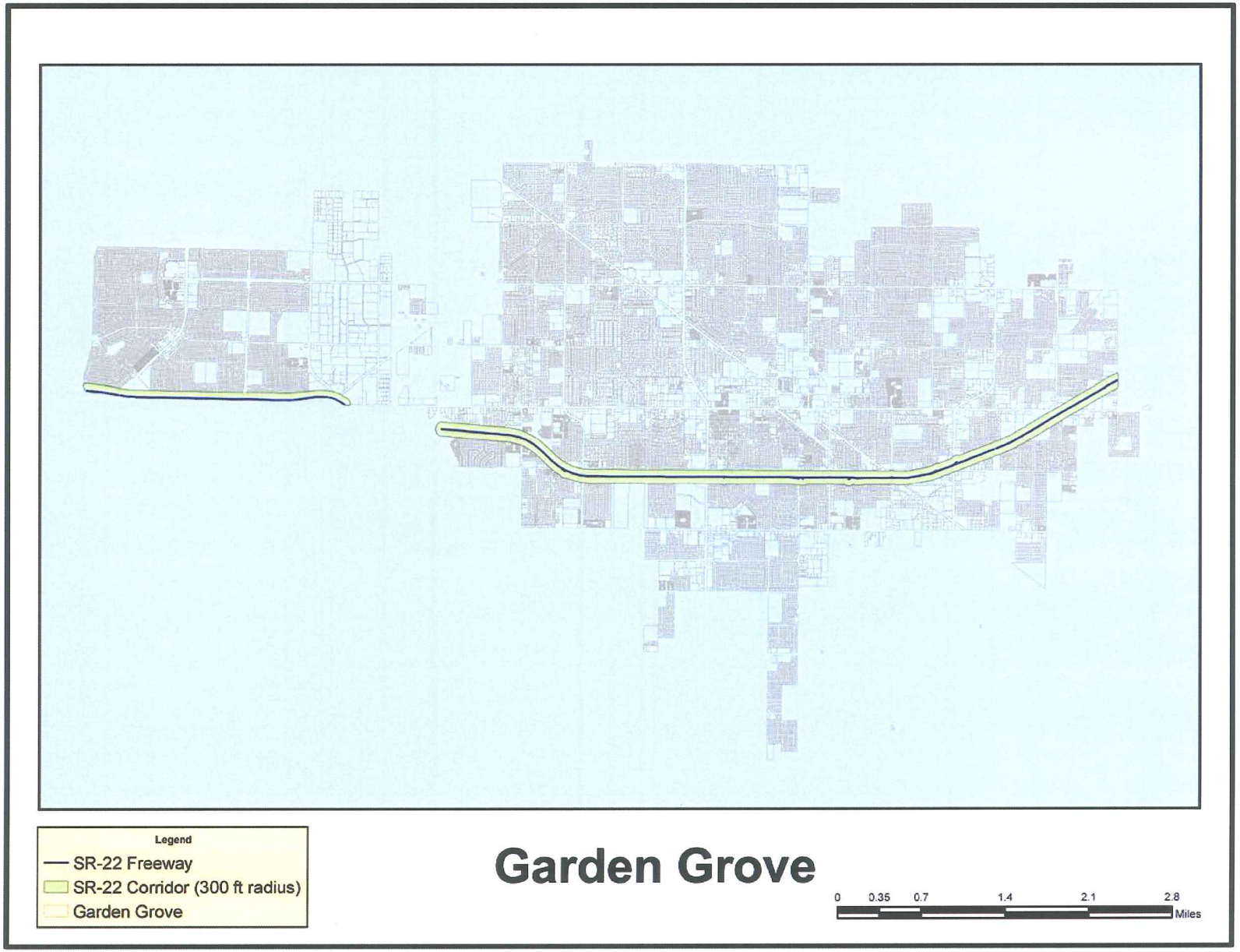



Exhibit 7 SR-22 Corridor (300 ft radius)

Garden Grove LED Billboard Project

Garden Grove, California

## 3.1 – Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a 'Potentially Significant Impact' as indicated by the checklist on the following pages.

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Aesthetics | ☐ | Agriculture Resources | ☐ | Air Quality |
| ☐ | Biological Resources | ☐ | Cultural Resources | ☐ | Geology /Soils |
| ☐ | Greenhouse Gas Emissions | ☐ | Hazards & Hazardous Materials | ☐ | Hydrology / Water Quality |
| ☐ | Land Use / Planning | ☐ | Mineral Resources | ☐ | Noise |
| ☐ | Population / Housing | ☐ | Public Services | ☐ | Recreation |
| ☐ | Transportation/Traffic | ☐ | Utilities / Service Systems | ☐ | Mandatory Findings of Significance |

## 3.2 – Determination

| | |
|---|---|
| ☐ | I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared. |
| ☑ | I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared. |
| ☐ | I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required. |
| ☐ | I find that the proposed project MAY have a 'potentially significant impact' or 'potentially significant unless mitigated' impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed. |
| ☐ | I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required. |

Name: Lee Marino, Senior Planner

Date 8-12-14

# 4 Evaluation of Environmental Impacts

## 4.1 – Aesthetics

Would the project:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Have a substantial adverse effect on a scenic vista? | ☐ | ☐ | ☐ | ☑ |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within view from a state scenic highway? | ☐ | ☐ | ☐ | ☑ |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | ☐ | ☐ | ☑ | ☐ |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | ☐ | ☑ | ☐ | ☐ |

a) **No Impact.** A scenic vista is defined by a generally uninterrupted view of the horizon creating an aesthetic viewpoint. Scenic vistas can be impacted by development in two ways. First, a structure may be constructed that blocks the view of a vista. Second, the vista itself may be altered (i.e., development on a scenic hillside). The City of Garden Grove General Plan Update Program EIR indicates that no scenic vistas or other scenic resources have been identified within the City boundaries.[1]

The proposed project area is located within the SR-22 freeway corridor, within a fully urbanized area visually dominated by commercial land uses and surface street features. As such, the proposed project will result in no impact with respect to view of a scenic vista.

b) **No Impact.** The project area is not adjacent to a designated state scenic highway or eligible state scenic highway, as identified on the California Scenic Highway Mapping System.[2] The Garden Grove General Plan EIR does not identify any scenic resources within the City.[3] The project site is located in a previously developed, urbanized area, and contains no scenic resources. Therefore no impact to scenic resources visible from a state scenic highway will occur from either the adoption of the Code Amendment, removal of the four existing billboards, or the relocation and installation of the new electronic billboard.

c) **Less Than Significant Impact.** Installation of an electronic billboard could result in a significant impact if it resulted in substantial degradation of the existing visual character or quality of the site and its surroundings. Degradation of visual character or quality is defined by substantial changes to the existing site appearance through construction of structures such that they are poorly designed or conflict with the site's existing surroundings.

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[1] RBF Consulting. City of Garden Grove General Plan Update Program EIR, Section 5.3 Aesthetics. May 2008.

[2] California Department of Transportation. California Scenic Highway Mapping System: Orange County. <http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm> [Accessed August 4, 2014.]

[3] City of Garden Grove. The City of Garden Grove Municipal Code, 2014.

Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Pursuant to Garden Grove Municipal Code Section 9.20.110, relocation of existing legal non-conforming billboards in the City to the Garden Grove (22) Freeway Corridor is already permitted subject to discretionary site plan approval. The proposed Municipal Code Amendment would merely permit the owner of an existing billboard within the city to apply to the City to convert and/or relocate and convert such billboard to an electronic billboard, provided such relocated and/or converted billboard is located within the Garden Grove (22) Freeway Corridor and satisfies all applicable state and federal laws and regulations and the additional, more stringent, development standards and criteria set forth in the proposed Amendment. Electronic billboards would continue to be prohibited outside of the Garden Grove (22) Freeway Corridor. Individual relocations and/or conversions of static-faced billboards to electronic billboards will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City. No aesthetic impacts will occur as a result of the adoption of the proposed Amendment.

Installation and/or operation of the billboard at 11615 Cardinal Circle will not substantially alter the existing visual character of the site or area, as the LED billboard will be located on or adjacent to an industrial land use (which is not considered a light-sensitive use). Currently, warehouse/industrial buildings occupy the site at which the new relocated/converted billboard will be located. The proposed LED billboard will not substantially alter the existing visual character of this location. All existing buildings and landscaping features will be retained with the proposed project. City staff will review the proposed design as part of the approval process, and design parameters will be imposed by the City based on Section 9.20.110 of the Zoning Code (Billboards).[4] In addition, the removal of the four existing billboard faces and associated structures will not substantially alter the existing visual character of the site or area. Impacts are considered beneficial as billboards are being removed.

With regard to views of the proposed billboard (and/or future billboards) from SR-22, while arguably disliked by some people, highway-oriented signs are not demonstrably negative in character such that they could be seen to degrade existing visual character in an area with existing highway-oriented commercial uses and signage. Additionally, as discussed above, the proposed new relocated/converted sign and any future signs will not conflict with any protected views and are consistent with surrounding uses.

Construction of the billboard will result in short-term impacts to the existing visual character and quality of the area. Construction activities will require the use of equipment and storage of materials within the project site. However, construction activities are temporary and will not result in any permanent visual impact. Project construction will not result in the removal of landscaping in the immediate vicinity of the proposed new billboard column location since no landscaping is located in the vicinity. Therefore, no mature trees or shrubs will be removed.

Per the proposed amendment of Municipal Code Section 9.20.110, *the permitted height of the electronic billboard shall be determined through the site plan review process... [and] unless special circumstances necessitate a taller sign, as demonstrated through a balloon or flag test, or other similar test, no electrical billboard shall exceed sixty (60) feet in height.*[5] Upon project completion, the proposed project will include a new billboard structure, with two digital sign faces. The height of the billboard structure has not yet been determined but the applicant anticipates that the proposed billboard could extend up to but will not exceed 75 feet in height, as measured from the grade where the support structure will be located. The applicant has indicated that this height is necessary due to the SR-22 freeway grade and the need to provide adequate clearance and visibility along SR-22. The draft Zoning Ordinance amendment states that "the permitted height of an electronic billboard shall be determined through the site plan review process and shall be limited to the maximum height necessary to ensure adequate visibility of the display from the Garden Grove (22) Freeway." Thus, the proposed height will not violate the provisions of the draft regulations and thus will not cause visual impacts due to conflict with regulations crafted to protect the aesthetic qualities of the City. Therefore, impacts will be less than significant.

d) **Less Than Significant Impact with Mitigation Incorporated.** Excessive or inappropriately directed lighting can adversely impact night-time views by reducing the ability to see the night sky and stars. Glare can be caused from unshielded or misdirected lighting sources. Reflective surfaces (i.e., polished metal) can also cause glare. Impacts associated with glare range from simple nuisance to potentially dangerous situations (i.e., if glare is directed into the eyes of motorists). Electronic display billboards rely on LED (light emitting diode) technology to display messages on a

[4] City of Garden Grove. The City of Garden Grove Municipal Code, 2014.
[5] Ibid.

display screen. The lighting of each proposed sign face is designed to make the message displays visible to passing motorists. LED billboard technology allows sign brightness to be adjusted automatically depending on ambient lighting and weather conditions (this is also a requirement of the proposed Municipal Code Amendment). The display, for example, is brighter in the daytime than in darkness, and responds to changes in the ambient light conditions.

The proposed removal of four existing billboard faces and associated structures will not result in any light or glare impacts.

Any relocated and/or converted electronic billboard constructed within the Garden Grove (22) Freeway Corridor will be required to comply with all applicable regulations or limits imposed by state and/or federal law. As one example, California Vehicle Code Section 21466.5 requires the lighting intensity level of billboard copy to be adjusted based on ambient light levels as follows:

> "No person shall place or maintain or display, upon or in view of any highway, any light of any color of such brilliance as to impair the vision of drivers upon the highway. A light source shall be considered vision impairing when its brilliance exceeds the values listed below. The brightness reading of an objectionable light source shall be measured with a 1½ degree photoelectric brightness meter placed at the driver's point of view. The maximum measured brightness of the light source within 10 degrees from the driver's normal line of sight shall not be more than 1,000 times the minimum measured brightness in the driver's field of view, except that when the minimum measured brightness in the field of view is 10 foot-lamberts of less, the measured brightness of the light source in foot-lambert shall not exceed 500 plus 100 times the angle, in degrees, between the driver's line of sight and the light source."[6]

Although these restrictions have been imposed for traffic safety reasons, the resulting controls effectively regulate the operation of digital billboard signs to ensure that individual signs do not create a substantial new source of light or glare.

Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact from new sources of light or glare. The proposed Municipal Code Amendment would merely permit the owner of an existing billboard within the city to apply to the City to convert and/or relocate and convert such billboard to an electronic billboard, provided such relocated and/or converted billboard is located within the Garden Grove (22) Freeway Corridor and satisfies all applicable state and federal laws and regulations and the additional, more stringent, development standards and criteria set forth in the proposed Amendment. Electronic billboards would continue to be prohibited outside of the Garden Grove (22) Freeway Corridor. Individual relocations and/or conversions of static-faced billboards to electronic billboards will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City. Further, pursuant to the proposed Amendment, each sign face of an electronic billboard is required to be oriented primarily for viewing from the Garden Grove (22) Freeway and to be oriented away from any residentially zoned property. In addition, the proposed Amendment will impose strict limits on the permitted light intensity of electronic billboards consistent with state law and industry standards.

In addition to the state law and Municipal Code requirements discussed above, the proposed sign at 11615 Cardinal Circle will comply with guidelines of the Outdoor Advertising Association of America (OAAA). These guidelines specify that lighting levels from a digital billboard will not exceed 0.3 foot-candles over ambient levels, as measured using a foot candle meter at a pre-set distance based on the size of the sign. For the proposed billboard, measuring 14 feet by 48 feet, this distance will be 250 feet.[7] The OAAA guidelines draw from recommendations in the OAAA-commissioned report, Digital Billboard Recommendations and Comparisons to Conventional Billboards.[8] This report developed a method for specification of brightness limits for LED signs based on accepted practice by the Illuminating Engineering Society of North America (IESNA). The report established criteria for brightness limits based on billboard-to-viewer measurements for standardized billboard categories. The recommended brightness level is 0.3 foot-candles above ambient light conditions. Luminance can be measured simply by using a foot-candle meter held at a height of approximately five feet and aimed towards a sign consistent with the sign-to-viewer distance. A reading of no more than 0.3 foot-candles above ambient light conditions will indicate compliance.

The proposed sign will also comply with the guidelines established by CalTrans for freeway oriented signage.

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[6] California Business and Professions Code Section 5403 and California Vehicle Code Section 214466.5.

[7] Outdoor Advertising Association of America. Brightness Criteria.
<http://www.oaaa.org/legislativeandregulatory/digital/brightnesscriteria.aspx> [Accessed August 4, 2014.]

[8] Lewin, Ian. Lighting Sciences, Inc. Digital Billboard Recommendations and Comparisons to Conventional Billboards. 2007.

To ensure initial and continued compliance with these standards are achieved, the following mitigation measures are included:

**Mitigation Measure AE-1:** The applicant shall demonstrate compliance with a maximum 0.3 foot-candle increase over ambient light at 250 feet from the sign face at all times upon initial start-up through field testing. If subsequent complaints consisting of direct personal impacts are received by the City of Garden Grove, the City shall require the applicant to fund follow-up field testing by an independent contractor or City staff trained in the use of a handheld photometer to demonstrate continued compliance and/or to determine the light intensity level that is necessary to reduce the direct personal impacts to a non-nuisance level.

**Mitigation Measure AE-2:** The electronic display billboard shall include sensors which automatically lower light output in accordance with atmospheric conditions (i.e. cloudy or overcast weather). During sign operation, the dimness setting of the LED sign shall be adjusted in real time so it does not exceed the level of illumination identified under Mitigation Measure AE-1.

Impacts related to light and glare will be reduced to less-than-significant levels with the mitigation incorporated.

## 4.2 – Agriculture and Forest Resources

Would the project:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | ☐ | ☐ | ☐ | ☑ |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | ☐ | ☐ | ☐ | ☑ |
| c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104 (g))? | ☐ | ☐ | ☐ | ☑ |
| d) Result in loss of forest land or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☑ |
| e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☑ |

a) **No Impact.** All existing billboards in the City that will be removed and any relocated and/or converted billboards located within the Garden Grove (22) Freeway Corridor will be located in fully developed, urbanized areas that do not contain agriculture or forest uses. The map of Important Farmland in California (2010) prepared by the Department of Conservation does not identify any of the property potentially affected by the project as being Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.[9] In addition, the Garden Grove General Plan does not identify any areas for agriculture use. Therefore, there will be no conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance to a non-agricultural use as a result of this project. Further, due to its administrative nature, the proposed Municipal Code Amendment will not result in any physical change in the environment. No impact will occur.

b) **No Impact.** There is no existing agriculture zoning or uses on or near the properties at which the existing billboards will be removed or the properties within the Garden Grove (22) Freeway Corridor on which electronic billboards will be relocated and/or converted. The site at 11615 Cardinal Circle on which the new electronic display billboard is proposed to be located is zoned Limited Industrial (M-1), which does not permit agricultural uses. No Williamson Act contracts are active for the project site.[10] Therefore, there will be no conflict with existing zoning for agricultural use or a Williamson Act contract. In addition, due to its administrative nature, the proposed Municipal Code Amendment will not result in any

[9] California Department of Conservation. Farmland Mapping and Monitoring Program, 2008.

[10] California Department of Conservation. Williamson Act Program, 2008.

physical change in the environment, and any subsequent relocations and/or conversion of electronic billboards will be subject to a more detailed level of environmental scrutiny. No impact will occur.

c) **No Impact.** Public Resources Code Section 12220(g) identifies forest land as *land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.* There is no forest land or timberland in the City of Garden Grove. All properties potentially affected by the project and surrounding properties are not currently being managed or used for forest land as identified in Public Resources Code Section 12220(g). The USDA Forest Service vegetation maps for the project site identify the project site as *urban* type, indicating that it is not capable of growing industrial wood tree species.[11] The project site and surrounding areas are fully urbanized. The project site and surrounding properties are not zoned for forest land or timberland production. Further, due to its administrative nature, the proposed Municipal Code Amendment will not result in any physical change in the environment. No impact will occur.

d) **No Impact.** There is no forest land in the City of Garden Grove. All properties potentially affected by the project were previously developed in fully urbanized areas; thus, there will be no loss of forest land or conversion of forest land to non-forest use as a result of this project. Further, due to its administrative nature, the proposed Municipal Code Amendment will not result in any physical change in the environment. No impact will occur.

e) **No Impact.** All properties potentially affected by the project are within an urban environment. There are no agriculture or forest land uses in this area. Therefore, no conversion of farmland or forest land to non-agricultural or non-forest uses will occur. Further, due to its administrative nature, the proposed Municipal Code Amendment will not result in any physical change in the environment.

[11] USDA Forest Service. Pacific Southwest Region. EvegTile51A__02_03_v2. 2007

# 4.3 – Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Conflict with or obstruct implementation of the applicable air quality plan? | ☐ | ☐ | ☐ | ☑ |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | ☐ | ☐ | ☑ | ☐ |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | ☐ | ☐ | ☑ | ☐ |
| d) Expose sensitive receptors to substantial pollutant concentrations? | ☐ | ☐ | ☐ | ☑ |
| e) Create objectionable odors affecting a substantial number of people? | ☐ | ☐ | ☐ | ☑ |

a) **No Impact.** Garden Grove is located within the South Coast Air Basin (Basin) under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAQMD and the Southern California Association of Governments (SCAG) are responsible for formulating and implementing the Air Quality Management Plan (AQMP) for the Basin. The AQMP is a series of plans adopted for the purpose of reaching short- and long-term goals for those pollutants for which the Basin is designated as a "nonattainment" area because it does not meet federal and/or state Ambient Air Quality Standards (AAQS). To determine consistency between the project and the AQMP, the project must comply with all applicable SCAQMD rules and regulations, comply with all proposed or adopted control measures, and be consistent with the growth forecasts utilized in preparation of the Plan.

A significant impact could occur if the proposed project conflicts with or obstructs implementation of the South Coast Air Basin 2012 AQMP. Conflicts and obstructions that hinder implementation of the AQMP can delay efforts to meet attainment deadlines for criteria pollutants and maintaining existing compliance with applicable air quality standards. Pursuant to the methodology provided in Chapter 12 of the *1993 SCAQMD CEQA Air Quality Handbook*, consistency with the South Coast Air Basin 2012 AQMP is affirmed when a project: 1) does not increase the frequency or severity of an air quality standards violation or cause a new violation and 2) is consistent with the growth assumptions in the AQMP. Consistency review is presented below.

Due to its administrative nature, the proposed Municipal Code Amendment will not result in any physical change in the environment. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

The proposed removal of the existing billboards and erection of the billboard at 11615 Cardinal Circle will result in short-term construction emissions that are less than the CEQA significance thresholds established by the SCAQMD, as

demonstrated in this Initial Study. In addition, the operation of the billboard at 11615 Cardinal Circle will result in long-term pollutant emissions that are less than the CEQA significance emissions thresholds established by the SCAQMD, as demonstrated in this Initial Study. Therefore, the project will not result in an increase in the frequency or severity of any air quality standards violation and will not cause a new air quality standard violation.

The CEQA Air Quality Handbook indicates that consistency with AQMP growth assumptions must be analyzed for new or amended General Plan elements, Specific Plans, and 'significant projects.' Significant projects include airports, electrical generating facilities, petroleum and gas refineries, designation of oil drilling districts, water ports, solid waste disposal sites, and off-shore drilling facilities. This project does not involve a General Plan Amendment, Specific Plan, and is not considered a "significant project". Furthermore, the project will not involve any new housing or employment uses which will affect population or employment growth.

Based on the consistency analysis presented above, the proposed project will not conflict with the AQMP; no impact will occur.

b) **Less Than Significant Impact.** A project may have a significant impact if project related emissions will exceed federal, State, or regional standards or thresholds, or if project-related emissions will substantially contribute to existing or project air quality violations. The proposed project is located within the South Coast Air Basin, where efforts to attain state and federal air quality standards are governed by the South Coast Air Quality Management District (SCAQMD). Both the State of California (State) and the Federal government have established health-based ambient air quality standards (AAQS) for seven air pollutants (known as 'criteria pollutants'). These pollutants include ozone ($O_3$), carbon monoxide (CO), nitrogen dioxide ($NO_2$), sulfur dioxide ($SO_2$), inhalable particulate matter with a diameter of 10 microns or less ($PM_{10}$), fine particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$), and lead (Pb). The State has also established AAQS for additional pollutants. The AAQS are designed to protect the health and welfare of the populace within a reasonable margin of safety. Where the state and federal standards differ, California AAQS are more stringent than the national AAQS.

Air pollution levels are measured at monitoring stations located throughout the air basin. Areas that are in nonattainment with respect to federal or state AAQS are required to prepare plans and implement measures that will bring the region into attainment. Table 1 (South Coast Air Basin Attainment Status-Orange County) summarizes the attainment status in the project area for the criteria pollutants. Discussion of potential impacts related to short-term construction impacts and long-term operational impacts are presented below.

**Table 1**
**South Coast Air Basin Attainment Status – Orange County**

| Pollutant | Federal | State |
|---|---|---|
| $O_3$ (1-hr) | N/A | Nonattainment |
| $O_3$ (8-hr) | Nonattainment | Nonattainment |
| $PM_{10}$ | Nonattainment | Nonattainment |
| $PM_{2.5}$ | Nonattainment | Nonattainment |
| CO | Attainment | Attainment |
| $NO_2$ | Attainment | Nonattainment |
| $SO_2$ | Attainment | Attainment |
| Pb | Nonattainment | Nonattainment |

*Sources: CARB 2011, U.S. EPA 2012*

**Construction Emissions**

Due to its administrative nature, the proposed Municipal Code Amendment will not result in any physical change in the environment. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

The California Emissions Estimator Model (CalEEMod) version 2011.1.1 was utilized to estimate emissions from the proposed construction activities (see Appendix B, Air Quality Modeling Data) related to the specific electronic billboard relocation and conversion proposed by the project applicant. Estimated construction phase lengths were provided by the applicant, as summarized in Table 2 (Tentative Construction Schedule). The billboard structure will require an estimated 10 days for construction and removal of existing billboards will require an estimated two days. A general start date was chosen in late fall of 2014.

**Table 2**
**Tentative Construction Schedule**

| Phase | Start | End | Days |
|---|---|---|---|
| Remove Existing (4) Billboards (Demolition) | 11/3/2014 | 11/4/2014 | 2 |
| Drilling (Grading) | 11/5/2014 | 11/5/2014 | 1 |
| Set Caisson Foundation (Site Preparation) | 11/6/2014 | 11/6/2014 | 1 |
| Set Sign Column (Building Construction) | 11/7/2014 | 11/7/2014 | 1 |
| Install Super Structure (Building Construction) | 11/10/2014 | 11/10/2014 | 1 |
| Install LED Displays (Building Construction | 11/11/2014 | 11/11/2014 | 1 |
| Install Arch. Claddings, Elec. Conduits, Camera Arms (Building Construction) | 11/12/2014 | 11/18/2014 | 5 |
| | | **Total** | **12** |

*Source: Clear Channel Outdoor, 2014*

The maximum (summer or winter) results of the analysis are summarized in Table 3 (Unmitigated Maximum Daily Construction Emissions). The model indicates that no criteria pollutants will exceed the daily emissions thresholds established by SCAQMD; therefore, construction impacts will be less than significant.

**Table 3**
**Unmitigated Maximum Daily Construction Emissions (lbs/day)**

| Year | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| 2014 | 5.33 | 78.93 | 53.05 | 0.15 | 5.27 | 2.69 |
| SCAQMD Threshold | 75 | 100 | 550 | 150 | 150 | 55 |
| **Potential Impact?** | **No** | **No** | **No** | **No** | **No** | **No** |

*Source: MIG | Hogle-Ireland 2014*
*Note: Volatile organic compounds are measured as reactive organic compounds*

**Operational Emissions**
Due to its administrative nature, the proposed Municipal Code Amendment will not result in any physical change in the environment. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

The proposed billboard at 11615 Cardinal Circle will not have any direct operational impacts that will affect air quality. It is assumed that over a period of time the portion of the column without aluminum cladding will be repainted, resulting in emissions from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings as part of maintenance. The proposed project will not impact traffic levels, as such no mobile-source emissions impacts will occur, including carbon monoxide impacts. It is assumed that due to the multitude of LED lights inherent in the billboard sign, the electricity consumption of the new sign will increase over that of the existing signs that utilize three to four halogen lamps each, despite higher energy-efficiency of LED lights. However, as no mobile sources or direct emissions are associated with operation of the new sign, the proposed project's operational emissions are anticipated to be nominal and concluded to be less than significant.

c) **Less Than Significant Impact.** .
The SCAQMD has prepared an Air Quality Management Plan (AQMP) to set forth a comprehensive and integrated program that will lead the Basin into compliance with the federal 24-hour $PM_{2.5}$ air quality standard, and to provide an update to the SCAQMD's commitments toward meeting the federal 8-hour ozone standards. The Basin is currently in non-attainment for State and federal criteria pollutants ozone, nitrogen dioxide, and fine particulate matter ($PM_{2.5}$ and $PM_{10}$).[12]

Due to its administrative nature, the proposed Municipal Code Amendment will not result in any physical change in the environment. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

Cumulative short-term, construction-related emissions and long-term, operational emissions from the specific billboard relocation and conversion project proposed by the project applicant will not contribute considerably to any potential cumulative air quality impact because short-term project and operational emissions will not exceed any SCAQMD daily threshold. The project will contribute very minimal amounts of criteria pollutants to the area during short-term project construction and none at all during operation. In addition, new electronic display billboards are required to comply with SCAQMD rules and regulations aimed at reducing construction-related pollutant emissions, including fugitive dust and other particulates, as well as organic compounds and other ozone precursors found in paints and other coatings. The proposed project does not change or otherwise interfere with the regional pollutant control strategies of the AQMP. Impacts will be less than significant.

d) **No Impact.** Due to its administrative nature, the proposed Municipal Code Amendment will not result in any physical change in the environment. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

[12] United States Environmental Protection Agency. The Green Book Nonattainment Areas for Criteria Pollutants. www.epa.gov/oar/oaqps/greenbk/index.html [July, 2013]

The specific billboard relocation and conversion project proposed by the project applicant is not classified as a sensitive land use because it does not cater specifically or generally to sensitive receptors such as children or the elderly; therefore the project will not result in exposing existing pollutant concentrations to new sensitive receptors. There are no existing sensitive uses in the immediate vicinity. In the surrounding area, sensitive uses include Peters Elementary School to the north, Santiago High School, Clinton Elementary School, and Orangewood Academy to the east, and Woodbury Elementary School to the southwest. Air quality impacts due to Toxic Air Contaminants (TACs), carbon monoxide and localized emissions as they relate to sensitive receptors are expected to be low to nil as the proposed project construction and operations phases will not directly create any significant air quality impacts.

**Toxic Air Contaminants**
Construction of the proposed billboard and removal of the four existing billboards will result in very short-term emissions from the use of on-site equipment to prepare the site and remove the existing billboards, drill foundation holes, and install the new structure for two new billboard faces. The expected period of construction is two days for demolition (removal of existing billboards) and 10 days for the new electronic billboard and emission levels were concluded to be low, as indicated in Section 4.3b above. Nearby homes, hospitals, hotels, and schools, therefore, will not be exposed to significant concentrations of TACs during the short-term construction period. No impact will occur.

**Carbon Monoxide**
A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. The potential for violation of State and federal CO standards at study area intersections and exposure to sensitive receptors at those intersections is addressed using the methodology outlined in the Transportation Project-Level Carbon Monoxide Protocol (Caltrans CO Protocol). According to the CO Protocol, projects may worsen air quality if they significantly increase the percentage of vehicles in cold start modes by two percent or more; significantly increase traffic volumes (by five percent or more) over existing volumes; or worsen traffic flow by increasing average delay at intersections operating at Level of Service (LOS) E or F. The installation and operation of the proposed LED billboard sign faces and structure will not directly increase the volume of vehicles in cold start mode over what is already occurring, nor will the project have any impact on traffic volumes as no vehicle trips are associated with operation of the proposed project. Therefore, there will not be any potential for increasing CO hotspots. No impact will occur.

**Localized Significance Thresholds**
In addition to the mass daily emission thresholds established by the SCAQMD, short-term on-site emissions of $NO_2$, CO, $PM_{10}$, and $PM_{2.5}$ are examined for local impacts to nearby sensitive receptors. The closest receptors will be Woodbury Elementary School to the southwest of the project site.

The SCAQMD methodology is called localized significance thresholds (LST). To assess local air quality impacts for development projects of five acres or less without complex dispersion modeling, the SCAQMD developed screening "lookup" tables to assist lead agencies in evaluating impacts. Construction of the project will result in very short-term emissions from the use of on-site equipment to prepare the site, drill new foundations, and install the proposed LED billboard. The expected period of construction is a few days, and emissions are not in excess of any significance thresholds identified in the LST tables.[13] Therefore, nearby homes and other sensitive receptors will not be exposed to significant concentrations of on-site emissions during the short-term construction period and during operation. No impact will occur.

e) **No Impact.** According to the CEQA Air Quality Handbook, land uses associated with odor complaints include agricultural operations, wastewater treatment plants, landfills, and certain industrial operations (such as manufacturing uses that produce chemicals, paper, etc.). Odors are typically associated with industrial projects involving the use of chemicals, solvents, petroleum products, and other strong-smelling elements used in manufacturing processes, as well as sewage treatment facilities and landfills. The specific billboard relocation and conversion project proposed by the project applicant does not include any of the above noted uses or process; no impact will occur. In addition, due to its administrative nature, the proposed Municipal Code Amendment will not result in any physical change in the environment. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

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[13] South Coast Air Quality Management District. Localized Significance Thresholds.
<http://www.aqmd.gov/ceqa/handbook/lst/appC.pdf>

## 4.4 – Biological Resources

Would the project:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | ☐ | ☐ | ☐ | ☑ |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service? | ☐ | ☐ | ☐ | ☑ |
| c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | ☐ | ☐ | ☐ | ☑ |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | ☐ | ☐ | ☐ | ☑ |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | ☐ | ☐ | ☐ | ☑ |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | ☐ | ☐ | ☐ | ☑ |

a) **No Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

The site at 11615 Cardinal Circle on which the proposed billboard is to be located is developed with limited industrial and surface parking. Landscaping currently exists on site; however, this ornamental vegetation is not habitat of any species identified as a candidate, sensitive, or special status species. Neither the site at which the electronic billboard will be erected, nor the sites at which existing billboards may be removed, are identified as critical habitat for Threatened and Endangered Species.[14] Considering the highly developed nature of the project sites and surrounding areas, the probability of existence of designated species under the federal Endangered Species Act or California Special Concern Species is low. The proposed project will, therefore, not have a substantial adverse effect on any species identified as a candidate, sensitive, or special-status species in local or regional plans or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. Considering the lack of habitat on the property, no impacts to wildlife species of concern will occur.

b) **No Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

The proposed billboard site at 11615 Cardinal Circle, as well as each site at which an existing billboard may be removed, is located on developed land. The site has been graded, previously developed, and has landscaping consisting of non-native, ornamental plants. There is no riparian habitat onsite. As such, no impact to riparian habitat or other sensitive natural habitat will occur.

c) **No Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

According to the federal National Wetlands Inventory, neither the proposed billboard site at 11615 Cardinal Circle, nor any of the sites at which existing billboards may be removed, contain any wetlands. No impact will occur.

d) **No Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

The proposed billboard site at 11615 Cardinal Circle, as well as each site at which an existing billboard may be removed, is located in a fully urbanized area and does not support movement of native resident or migratory fish or wildlife species. The proposed electronic billboard sign will be constructed on previously developed land and will thus have no effect on any natural resources that could support wildlife or fish movement. No impact will occur.

e) **No Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

The City of Garden Grove does not have any local policies protecting biological resources, including no tree preservation ordinance. With respect to the specific electronic billboard relocation and conversion project proposed by the project applicant, any existing trees or shrubs currently existing on-site are proposed to remain in place. The project will not affect any natural biological resources; therefore the project will not result in any conflicts with local or other policies or standards to protect such resources. No Impact will occur.

f) **No Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations

[14] U.S. Fish and Wildlife Service. FWS Critical Habitat for Threatened & Endangered Species. <http://criticalhabitat.fws.gov/> [Accessed August 4, 2014]

and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

Neither the proposed billboard site at 11615 Cardinal Circle, nor any of the sites at which existing billboards will be removed, are within the planning area of any Habitat Conservation Plan[15] or a Natural Community Conservation Plan area,[16] or other approved local, regional or state habitat conservation plan. No impact will occur.

[15] US Fish & Wildlife Services. Habitat Conservation Plans: Summary Report. <www.ecos.fws.gov/conserv_plans/servlet/gov.doi.hcp.servlets.PlanReport> [Accessed August 4, 2014]

[16] California Department of Fish and Game. Natural Community Conservation Planning: Status of NCCP Planning Efforts. <www.dfg.ca.gov/habcon/nccp/status/> [Accessed August 4, 2014]

## 4.5 – Cultural Resources

Would the project:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5? | ☐ | ☐ | ☐ | ☑ |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5? | ☐ | ☐ | ☑ | ☐ |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | ☐ | ☐ | ☑ | ☐ |
| d) Disturb any human remains, including those interred outside of formal cemeteries? | ☐ | ☐ | ☑ | ☐ |

a) **No Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

The Garden Grove General Plan EIR indicates that there are 132 locally significant buildings within the City. Appendix M of the General Plan EIR provides a complete list of buildings inventoried and their identified local significance. However, the proposed billboard site at 11615 Cardinal Circle, as well as each site at which an existing billboard may be removed, are not listed in the EIR as locally significant buildings and do not satisfy any of the criteria for a historic resource defined in Section 15064.5 of the State CEQA Guidelines. Furthermore, the project does not involve any changes to existing buildings; the only proposed change is the removal of four existing freestanding billboard sign faces and associated structures and the construction of one new freestanding billboard structure. As such, the proposed project will not cause an adverse change in the significance of a historical resource, and impacts to historic resources are not anticipated. No impact will occur.

b-c) **Less than Significant Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

Garden Grove is completely urbanized and largely built-out and does not contain any known archeological or paleontological resources.[17] Given that most of the City has been substantially disturbed by previous construction, it is unlikely that any cultural resources that may have existed at one time will be unearthed or disturbed due to construction activities associated with the proposed project.

In the unlikely event that archaeological or paleontological materials are uncovered during the removal of existing billboards or the construction of the new electronic display billboard, Mitigation Measure CR-1 listed in the Garden Grove General Plan EIR shall be incorporated to ensure that uncovered resources are evaluated, left in place if possible, or

[17] RBF Consulting. City of Garden Grove General Plan Update Program EIR, Section 5.17 Cultural Resources. May 2008.

curated as recommended by a qualified archeologist or paleontologist. Impacts to buried cultural resources will be less than significant.

**General Plan EIR Mitigation Measure CR-1:**

> During excavation and grading activities of any future development project, if archaeological resources are discovered the project contractor shall stop all work and shall retain a qualified archaeologist to evaluate the significance of the finding and appropriate course of action. Salvage operation requirements pursuant to Section 15064.5 of the *CEQA Guidelines* shall be followed and the treatment of discovered Native American remains shall comply with State codes and regulations of the Native American Heritage Commission.

d) **Less than Significant Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

It is unlikely that human remains could be uncovered during construction activities undertaken in conjunction with removal of existing billboards or erection of the proposed new electronic display billboard, considering that these project sites were previously disturbed during construction of the existing structures onsite. Nonetheless, in the unlikely event that unknown human remains are found during the course of removal of existing sign structures or installation of future electronic display billboards, State law requires the notification and recovery of buried remains in accordance with the procedures and requirements set forth in California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98. These code provisions require notification of the County Coroner and the Native American Heritage Commission, who in turn must notify those persons believed to be most likely descended from the deceased Native American for appropriate disposition of the remains. Impacts to buried remains will be less than significant.

## 4.6 – Geology and Soils

Would the project:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | ☐ | ☐ | ☑ | ☐ |
| ii) Strong seismic ground shaking? | ☐ | ☐ | ☑ | ☐ |
| iii) Seismic-related ground failure, including liquefaction? | ☐ | ☐ | ☑ | ☐ |
| iv) Landslides? | ☐ | ☐ | ☐ | ☑ |
| b) Result in substantial soil erosion or the loss of topsoil? | ☐ | ☐ | ☑ | ☐ |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | ☐ | ☐ | ☑ | ☐ |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial risks to life or property? | ☐ | ☐ | ☑ | ☐ |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? | ☐ | ☐ | ☐ | ☑ |

a.i) **Less than Significant Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

Although Garden Grove is located in seismically active Southern California, no Alquist-Priolo Earthquake Fault Zones have been identified in the City.[18] However, two faults splays associated with the inactive Pelican Hills Fault Zone traverse the central and western portions of the City in a northwest to southeast trending direction. Additionally, several potentially active faults cross nearby the City. The Newport-Inglewood, Whittier, and Palos Verdes Faults are the most likely to cause high ground acceleration. The San Andreas Fault has the highest probability of generating a maximum credible earthquake in California. The Norwalk Fault, though closer to the City, is predicted to generate smaller magnitude earthquakes as it is not a designated Alquist-Priolo Earthquake Fault. Erection of the proposed billboard and removal of existing billboards will be subject to all applicable City, State, and local building regulations, including the California Building Code (CBC) seismic standards as approved by the Garden Grove Building and Safety Division and City approved demolition permit. Impacts will be less than significant.

a.ii) **Less than Significant Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

The proposed billboard site is subject to strong seismic ground shaking, as are all projects located within Southern California. Construction of the billboard will be subject to the seismic design criteria of the 2013 CBC. Removal of the four existing billboards will require City regulations and approval of a demolition permit. Compliance with the CBC and the City's regulatory standards will ensure impacts due to seismic ground shaking will be less than significant.

a.iii) **Less Than Significant Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

Liquefaction is a phenomenon that occurs when soil undergoes transformation from a solid state to a liquefied condition due to the effects of increased pore-water pressure. This typically occurs where susceptible soils (particularly the medium sand to silt range) are located over a high groundwater table. Affected soils lose all strength during liquefaction and foundation failure can occur.

According to the Seismic Hazard Evaluation of the Anaheim 7.5 minute quadrangle, approximately two-thirds of the City is located in Zone of Required Investigation for liquefaction.[19] This indicates that the area has been subject to historic occurrence of liquefaction, or local geological, geotechnical, and groundwater conditions indicate a potential for permanent ground displacement such that mitigation as defined in Public Resources Code Section 2693(c) would be required. Appropriate measures that reduce the ground shaking and liquefaction effects of earthquakes are identified in the California Building Code, including specific provisions for seismic design and addressed in the City of Garden Grove General Plan goals and policies.

Development within the City requires investigation for liquefaction potential. The Seismic Hazards Mapping Act specifies that the lead agency of the project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils. If a geologic report concludes liquefaction impacts cannot be reduced to less than significant, with mitigation as necessary, development will not be permitted.[20] Therefore, impacts will be less than significant.

a.iv) **No Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations

[18] California State Department of Conservation. Cities and Counties Affected by Alquist-Priolo Earthquake Fault Zones as of January 2010.
[19] California State Department of Conservation. California Geological Survey, Seismic Hazard Zones. Anaheim Quadrangle, March 25,1999.
[20] RBF Consulting. City of Garden Grove General Plan Update Program EIR, Section 5.7 Geology and Seismic Hazards. May 2008

and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

Garden Grove is characterized as gentle slops ranging from 0 to 2 percent. Due to the relatively flat character of the City, neither removal of the existing billboards, nor erection and operation of the proposed new billboard structure will expose people or structures to potential substantial adverse effects, including risk of loss, injury or death involving landslides. In addition, according to the Seismic Hazard Evaluation of the Anaheim 7.5 minute quadrangles, these sites are not located in an Earthquake-Induced Landslide Zone.[21] This indicates a low probability for landslides. Therefore, no impact will occur.

b) **Less Than Significant Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

Topsoil is used to cover surface areas for the establishment and maintenance of vegetation due to its high concentrations of organic matter and microorganisms. The proposed electronic display billboard and removal of existing billboards are subject to environmental and engineering review, including assessment and mitigation of soil erosion. The project site is underlain by fill material due to previous development and therefore the project will not affect native top soil. No grading is proposed as part of this project. Sign foundations will have to be dug and filled. As such, the proposed billboard project has only a slight potential to expose surficial soils to wind and water erosion during construction activities. Wind erosion will be minimized through soil stabilization measures required by South Coast Air Quality Management District (SCAQMD) Rule 403 (Fugitive Dust), such as daily watering. Water erosion will be prevented through the City's standard erosion control practices required pursuant to the California Building Code and the National Pollution Discharge Elimination System (NPDES), such as silt fencing or sandbags. Following project construction, the site will be covered completely by paving, structures, the proposed sign, and landscaping. Impacts related to soil erosion will be less than significant with implementation of existing regulations.

c-d) **Less Than Significant Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

Impacts related to liquefaction and landslides are discussed above in Section 4.6.a. Lateral spreading is the downslope movement of surface sediment due to liquefaction in a subsurface layer. The downslope movement is due to gravity and earthquake shaking combined. Such movement can occur on slope gradients of as little as one degree. Lateral spreading typically damages pipelines, utilities, bridges, and structures.

The billboard installation and removal is required to comply with the California Building Code; the billboard requires building and demolition permits and must be constructed to current building code standards. These standards include consideration of geological and seismic conditions. According to the U.S. Department of Agriculture Soil Conservation Service, the three soils associations (i.e. overarching classification of similar soil types) that underlie Garden Grove include Hueneme-Bolsa Association, Metz-San Emigdio Association, and Sorrento-Mocho Association.[22] Soil conditions at the billboard sites must be identified and considered as part of the design process. Presence of unstable or expansive soils and identification of measures to eliminate these constraints, such as removal and replacement with suitable engineered materials, will be determined through site-specific geotechnical evaluations to be conducted as part of the City's routine development review procedures. Compliance with existing CBC regulations limits hazard impacts arising from liquefaction, landslides, lateral spreading, and unstable soils to less than significant. The majority of the City is in a liquefaction area. Since this has been identified in the General Plan EIR we should address it here for both the billboard installation and the Code Amendment for future relocations.

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[21] California State Department of Conservation. California Geological Survey, Seismic Hazard Zones. Anaheim Quadrangle, March 25,1999.

[22] RBF Consulting. City of Garden Grove General Plan Update Program EIR, Section 5.7 Geology and Seismic Hazards. May 2008

e) **No Impact.** No septic tanks or wastewater systems will be installed in connection with the removal of existing billboard structures or the erection of new billboard structures. No impact will occur.

# 4.7 – Greenhouse Gas Emissions

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | ☐ | ☐ | ☑ | ☐ |
| b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | ☐ | ☐ | ☑ | ☐ |

a) **Less than Significant Impact.** Climate change is the distinct change in measures of climate for a long period of time.[23] Climate change is the result of numerous, cumulative sources of greenhouse gas emissions all over the world. Natural changes in climate can be caused by indirect processes such as changes in the Earth's orbit around the Sun or direct changes within the climate system itself (i.e. changes in ocean circulation). Human activities can affect the atmosphere through emissions of greenhouse gases (GHG) and changes to the planet's surface. Human activities that produce GHGs are the burning of fossil fuels (coal, oil and natural gas for heating and electricity, gasoline and diesel for transportation); methane from landfill wastes and raising livestock, deforestation activities; and some agricultural practices.

Greenhouse gases differ from other emissions in that they contribute to the "greenhouse effect." The greenhouse effect is a natural occurrence that helps regulate the temperature of the planet. The majority of radiation from the Sun hits the Earth's surface and warms it. The surface in turn radiates heat back towards the atmosphere, known as infrared radiation. Gases and clouds in the atmosphere trap and prevent some of this heat from escaping back into space and re-radiate it in all directions. This process is essential to supporting life on Earth because it warms the planet by approximately 60° Fahrenheit. Emissions from human activities since the beginning of the industrial revolution (approximately 250 years ago) are adding to the natural greenhouse effect by increasing the gases in the atmosphere that trap heat, thereby contributing to an average increase in the Earth's temperature. Greenhouse gases occur naturally and from human activities. Greenhouse gases produced by human activities include carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride ($SF_6$). Since 1750, it is estimated that the concentrations of carbon dioxide, methane, and nitrous oxide in the atmosphere have increased over 36 percent, 148 percent, and 18 percent, respectively, primarily due to human activity. Emissions of greenhouse gases affect the atmosphere directly by changing its chemical composition while changes to the land surface indirectly affect the atmosphere by changing the way the Earth absorbs gases from the atmosphere.

The CEQA Guidelines require a lead agency to make a good-faith effort based, to the extent possible, on scientific and factual data to describe, calculate, or estimate the amount of GHG emissions resulting from a project.

GHG emissions for the project were quantified utilizing the California Emissions Estimator Model (CalEEMod) version 2011.1.1 for construction impacts (see Appendix B, Air Quality Modeling Data), and the U.S. Environmental Protection Agency's Greenhouse Gas Equivalencies Calculator[24] for operational impacts to determine if the project could have a cumulatively considerable impact related to greenhouse gas emissions. These results are summarized in Table 4.

Operational emissions associated with the proposed project will be limited to GHG emissions from energy usage associated with the LEDs on each billboard face. GHG emissions from electricity use are indirect GHG emissions from the energy (purchased energy) that is produced offsite. Each billboard face is estimated to use 7,500 kilowatt hours (KWH) per year;[25]

[23] United States Environmental Protection Agency. Frequently Asked Questions about Global Warming and Climate Change. Back to Basics. April 2009.

[24] CalEEMod was not used for the operational analysis as this model relies on building square footage to calculate operational GHG emissions.

[25] According to information provided by Clear Channel.

resulting GHG emissions are estimated at approximately 5.2 metric tons of $CO_2$ or $CO_2$ equivalent.[26] Construction activities are short term and cease to emit greenhouse gases upon completion, unlike operational emissions that are continuous year after year until operation of the use ceases. Because of this difference, SCAQMD recommends amortizing construction emissions over a 30-year operational lifetime. This normalizes construction emissions so that they can be grouped with operational emissions in order to generate a precise project-based GHG inventory.

**Table 4**
**Greenhouse Gas Emissions Inventory**

| Source | Total MTCO2E/YR |
|---|---|
| ***Construction*** | |
| Total | 16.22 |
| *30-Year Amortization* | *0.54* |
| ***Operational*** | |
| Energy | 5.2 |
| **Total Construction + Operational** | ***5.74*** |
| Proposed SCAQMD Screening Threshold | **10,000** |
| Exceeds Screening Threshold? | **No** |

A numerical threshold for determining the significance of greenhouse gas emissions in the South Coast Air Basin (Basin) has officially been adopted by the SCAQMD. Threshold 2.3 (CARB Reporting Threshold) establishes a numerical threshold based on capture of approximately half of emissions from future residential or commercial development. A threshold of 10,000 metric tons carbon dioxide equivalent ($MTCO_2E$) per year for residential and commercial projects is being considered by the Market Advisory Committee for inclusion in a Greenhouse Gas Cap and Trade System in California. A 10,000 $MTCO_2E$ threshold will correspond to the GHG emissions of approximately 550 residential units, 400,000 square feet of office space, 120,000 square feet of retail, and 70,000 square feet of supermarket space.

Greenhouse gas emissions associated with the proposed project will not exceed the 10,000 $MTCO_2E$ threshold; therefore impacts will be less than significant.

Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. It is anticipated that the impacts from greenhouse gas emissions for any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those for the specific relocation/conversion project proposed by the project applicant; however, all such relocations/conversions will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

b) **Less than Significant Impact.** The City adopted the 2013 edition of the CBC, to which the potential electronic display billboards must conform. The City General Plan Conservation Element also identifies a comprehensive set of electricity-related energy efficiency goals and policies to help Garden Grove become more energy efficient. The proposed project does not include any feature (i.e. substantially alter energy demands) that interferes with implementation of these adopted codes and plans; and the project does not exceed thresholds as discussed in 4.7a above. Future electronic display billboards will utilize energy-efficient LED technology. Impacts will be less than significant.

Further, due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

[26] Environmental Protection Agency. Greenhouse Gas Equivalencies Calculator. May 2011. <http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results> [Accessed August 5, 2014.]

## 4.8 – Hazards and Hazardous Materials

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | ☐ | ☐ | ☑ | ☐ |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | ☐ | ☐ | ☐ | ☑ |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | ☐ | ☐ | ☑ | ☐ |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | ☐ | ☐ | ☐ | ☑ |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | ☐ | ☐ | ☐ | ☑ |
| f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | ☐ | ☐ | ☐ | ☑ |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | ☐ | ☐ | ☐ | ☑ |
| h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | ☐ | ☐ | ☐ | ☑ |

a) **Less than Significant Impact.** Construction and operation of the proposed electronic billboard will not involve the transport, use, or disposal of significant amounts of hazardous materials requiring special control measures. The small amount of paints and other substances used for maintenance of equipment will not be substantially hazardous and will be

used in accordance with their labeling, thus the project will have no impact on the public or the environment through the routine transport, use, or disposal of hazardous materials.

During the project construction and installation of the billboard, a hole will be drilled and the excavated soil will be transported offsite. Additionally, the project may include minor trenching to connect to electrical supply. Prior to construction activities, the sites will be assessed for the presence of hazardous materials, which, if present, will be handled according to existing City regulations regarding hazardous materials handling and disposal. Based on the foregoing, impacts relating to hazardous materials are less than significant.

Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. It is anticipated that the impacts from any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those for the specific relocation/conversion project proposed by the project applicant; however, all such relocations/conversions will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

b) **No Impact.** The proposed new electronic billboard will not utilize hazardous materials and will not produce hazardous wastes. The project includes removal of four existing billboard faces and associated structures. The billboards proposed to be removed do not contain asbestos or other hazardous materials; existing structures will be removed via crane and transported to a recycling facility. The project applicant will also be required to comply with the City's ordinances for construction materials, which requires diversion of at least 50 percent of the project's demolition waste, as well as completion of a Construction Waste Management Plan, to be reviewed and approved by the City.

Electronic components of the billboard may contain materials considered "e-waste" when disposed of due to potential hazardous metals, flame retardants, and other chemicals. The operator will be required to follow applicable regulations regarding proper disposal and/or recycling, as appropriate, as components are replaced or removed over time; therefore there is no potential for a hazardous release that could significantly impact the public. No impact will occur.

Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. It is anticipated that the impacts from any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those for the specific relocation/conversion project proposed by the project applicant; however, all such relocations/conversions will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

c) **Less than Significant Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact.

There are no schools located within close proximity (less than 0.25-miles) to the proposed site for the new electronic billboard. Two of the eight sites designated for billboard removal are in close proximity (less than 0.25 miles) to schools. However, operation of the proposed LED billboard and removal of the existing billboards will not generate any hazardous emissions, and storage, handling, production or disposal of acutely hazardous materials is not required or proposed for any aspect of this project. As discussed in Section 4.8.b, existing regulations address potential off-site construction-related hazards associated with removal and replacement of e-waste. Impacts will be less than significant.

d) **No Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. Future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

The existing billboard removal sites and the proposed new electronic billboard site are not located on sites listed on the State *Cortese List*, a compilation of various sites throughout the state that have been compromised due to soil or groundwater contamination from past uses. [27] Based upon review of the *Cortese List*, the project site is not:

[27] California Environmental Protection Agency. Cortese List. <www.calepa.ca.gov/SiteCleanup/CorteseList/> [Accessed August 5, 2014]

- listed as a hazardous waste and substance site by the Department of Toxic Substances Control (DTSC),[28]
- listed as a leaking underground storage tank (LUST) site by the State Water Resources Control Board (SWRCB),[29]
- listed as a hazardous solid waste disposal site by the SWRCB,[30] or
- currently subject to a Cease and Desist Order (CDO) or a Cleanup and Abatement Order (CAO) as issued by the SWRCB,[31] or developed within a hazardous waste facility subject to corrective action by the DTSC. [32]

e-f) **No Impact.** There are no public airports or private airstrips within two miles Garden Grove. The closest airport is the Los Alamitos Army Airfield which is located approximately 7.5 miles away. No impact will occur from either the adoption of the Municipal Code Amendment, removal of the existing billboards, or the installation of the proposed new electronic billboard.

g) **No Impact.** The specific proposed billboard relocation/conversion project proposed by the project applicant will not substantially change existing conditions with regard to transportation routes or evacuation plans; the project merely proposes to remove four existing billboard faces and their associated structures and to construct a new digital LED billboard. As there are no residential uses associated with the project, the project will not increase the population of the area. No proposed new commercial buildings are associated with the project; thus the project will not increase employment in the area. The Environmental Health Division of the County of Orange is designated as the Certified Unified Program Agency, the local administrative agency that coordinates the regulation of hazardous materials and hazardous wastes in Orange County, including Garden Grove, through the following programs: Hazardous Material Disclosure, Business Emergency Plan, California Accidental Release Prevention, Hazardous Waste Inspection Program, Underground Storage Tank Inspection Program, and the Aboveground Petroleum Storage Tank program. No public or private street will be closed during or following project construction and the project will have no effect upon existing opportunities for emergency access/evacuation on the sites or to any surrounding land uses. The project will not impair implementation of or physically interfere with an adopted emergency response plan or evacuation plan. No impact will occur.

Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. It is anticipated that the impacts from any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those for the specific relocation/conversion project proposed by the project applicant; however, all such relocations/conversions will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

h) **No Impact.** There are no wildland conditions in the urbanized area potentially affected by either the proposed Municipal Code Amendment or the specific billboard relocation/conversion project proposed by the project applicant. No impact will occur from either the adoption of the proposed Municipal Code Amendment, the removal of the existing billboards, or the installation of the proposed new electronic billboard.

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[28] California Department of Toxic Substances Control. EnviroStor. <www.envirostor.dtsc.ca.gov/public/search.asp> [Accessed August 5, 2014]

[29] California State Water Resources Control Board. GeoTracker. <geotracker.waterboards.ca.gov> [Accessed August 5, 2014]

[30] California State Water Resources Control Board. Sites Identified with Waste Constituents Above Hazardous Waste Levels Outside the Waste Management Unit. <www.calepa.ca.gov/SiteCleanup/CorteseList/CurrentList.pdf> [Accessed August 5, 2014]

[31] California State Water Resources Control Board. List of Active CDO and CAO. <www.calepa.ca.gov/SiteCleanup/CorteseList/CDOCAOList.xls> [Accessed August 5, 2014]

[32] California Department of Toxic Substances Control. Hazardous Facilities Subject to Corrective Action. <www.calepa.ca.gov/SiteCleanup/CorteseList/SectionA.htm#Facilities> [Accessed August 5, 2014]

## 4.9 – Hydrology and Water Quality

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Violate any water quality standards or waste discharge requirements? | ☐ | ☐ | ☑ | ☐ |
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | ☐ | ☐ | ☑ | ☐ |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? | ☐ | ☐ | ☐ | ☑ |
| d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? | ☐ | ☐ | ☐ | ☑ |
| e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? | ☐ | ☐ | ☐ | ☑ |
| f) Otherwise substantially degrade water quality? | ☐ | ☐ | ☐ | ☑ |
| g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | ☐ | ☐ | ☐ | ☑ |
| h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? | ☐ | ☐ | ☑ | ☐ |
| i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? | ☐ | ☐ | ☐ | ☑ |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| j) Inundation by seiche, tsunami, or mudflow? | ☐ | ☐ | ☐ | ☑ |

a) **Less than Significant Impact.** The project involves the removal of existing billboards and the construction and operation of a new digital billboard. Operation of the project does not involve the use of water or generation of wastewater. Short-term surface water quality impacts could potentially occur during the construction phase due to construction related activities, such as drilling the holes for foundations and pouring concrete. Runoff of loose soils and/or construction wastes and fuels during a rainstorm could flow into local storm drains. Such contaminated runoff could potentially threaten downstream water resources that receive runoff from the local drainage network. Compliance with the City's standard stormwater runoff provisions for construction activities will ensure that the project does not violate any water quality standards or any waste discharge requirements during construction. Due to the lack of significant grading, earth-moving, and construction extent as part of the project, impacts will be less than significant.

Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. It is anticipated that the impacts from any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those for the specific relocation/conversion project proposed by the project applicant; however, all such relocations/conversions will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

b) **Less than Significant Impact.** The proposed new electronic billboard will not require water to operate. The majority of the site on which it will be located is paved and provides for little infiltration of water into underground aquifers. The site does not support any groundwater production systems and will not interfere with the operation of any production system. The billboard, upon completion, will not substantially change impervious surface area and will not have a substantial impact on groundwater recharge.

The proposed billboard removal and construction operations are not expected to involve substantial excavation or trenching that will impact groundwater. The project involves drilling holes approximately six feet in diameter with a depth of approximately 30 to 40 feet, depending on the soil study. In the event that groundwater is encountered and dewatering activities are required, it will be short-term as the installation is expected to take only a few days to complete and the foundation holes will be filled with concrete for the foundation, resulting in minimal effects to groundwater. Impacts will be less than significant.

Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. It is anticipated that the impacts from any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those for the specific relocation/conversion project proposed by the project applicant; however, all such relocations/conversions will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

c-e) **No Impact.** No streams cross the sites of the existing billboards to be removed or the proposed new billboard site, and the project will not result in the alteration of any stream course. Removal of the existing billboards will not result in alteration of existing site drainage patterns. The proposed new billboard site is fully developed with industrial buildings, and on-site improvements direct runoff into gutters, discharging drainage flows into the existing stormwater system. There are no proposed improvements as part of the project that will impact or alter existing drainage flows or water courses. At the completion of construction, the project will consist of impervious surfaces and landscaped areas, and will therefore not be prone to substantial erosion. A standing digital billboard sign, is not an industrial use that produces pollutants and therefore will not result in substantial pollutant loading such that treatment control BMPs will be required to protect downstream water quality. There will be no impacts.

During construction of the new sign and removal of existing signs, pollutants may be created that could impact runoff water quality. However it is expected that minimal pollutants will be created due to the limited extent and scope of the project's construction. Compliance with the City's standard stormwater runoff provisions for construction activities will ensure that the project does not violate any water quality standards or any waste discharge requirements during construction. There will be no impacts.

Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. It is anticipated that the impacts from any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those for the specific relocation/conversion project proposed by the project applicant; however, all such relocations/conversions will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

f) **No Impact.** Neither the adoption of the proposed Municipal Code Amendment, removal of the existing billboards, nor the installation of the new electronic billboard have the potential to otherwise degrade water quality beyond those issues discussed in Section 4.9 herein.

g) **No Impact.** The project does not propose any housing; no impact will occur from either the Municipal Code Amendment, the removal of the existing billboards, or the installation of the new electronic billboard.

h) **Less than Significant Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact.

According to the Federal Emergency Management Agency (FEMA), eastern portions of the Garden Grove are located within the 100-year flood zone.[33] Any development located within the flood hazard area will be subject to Appendix G of the 2010 California Building Code (Flood-Resistant Construction) which not only establishes standards to improve construction techniques within a floodplain, it also protects natural floodplains and prevents and regulates the construction of flood barriers that will divert floodwaters or that can increase flood hazards.[34]. Therefore, impacts for the installation of the proposed new electronic billboard are less than significant. Removal of existing billboards will result in the removal of structures and will not cause any new structures to be erected which would impede or redirect flood flows.

i) **No Impact.** The City could be subject to inundation if either the Prado Dam or Carbon Canyon Dam were to fail. Should the Prado Dam fail, the western half of the City would be in the inundation path. Waters would reach the City in approximately 7.5 hours after dam failure, with waters anticipated to be approximately four feet deep. Should the Carbon Canyon Dam fail, the inundation path will encompass the western boundary of the City. Waters will reach the City in approximately 9.25 hours after dam failure, with waters anticipated to be approximately two feet deep.[35] In the unlikely event of a catastrophic failure or breach of these dams/reservoirs, floodwaters could extend to the project area. The proposed project does not increase this risk nor does it expose people or structures to any new risks associated with dam failures since the project does not involve structures for human habitation. No impact will occur from either the Municipal Code Amendment, removal of the existing billboards, or the installation of the proposed electronic billboard at 11615 Cardinal Circle.

j) **No Impact.** No large water bodies are located in Garden Grove that could cause a seiche. There are no significant hills, mountains, or washes in the immediate vicinity that could result in mudflows in proximity to the project site. No impact will occur from either the Municipal Code Amendment, removal of the existing billboards, or the installation of the proposed electronic billboard at 11615 Cardinal Circle.

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[33] City of Garden Grove. City of Garden Grove General Plan, Safety Element. May 2008.
[34] California Building Standards Commission. 2007 California Building Code, Part 2, Volume 2 of 2. June 2007.
[35] City of Garden Grove. City of Garden Grove General Plan, Safety Element. May 2008.

## 4.10 – Land Use and Planning

Would the project:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Physically divide an established community? | ☐ | ☐ | ☐ | ☑ |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | ☐ | ☐ | ☐ | ☑ |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | ☐ | ☐ | ☐ | ☑ |

a) **No Impact.** Adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and does not propose any changes to specific land use designations; therefore, there is no possibility it will physically divide an established community.

The proposed billboard site at 11615 Cardinal Circle is located on an infill site surrounded by industrial uses. The installation of the billboard does not include any feature that will physically divide the surrounding community, such as construction of a new roadway or flood control channel. The project will have no impact on land use or circulation patterns within the community and, therefore, no impact will occur.

b) **No Impact.** The construction of new billboards in the City of Garden Grove is prohibited. However, pursuant to Garden Grove Municipal Code Section 9.20.110, the owner of an existing legal non-conforming billboard located within the City may be apply to relocate the billboard to another location within the City, subject to site plan approval by the Planning Commission or City Council. All existing legal non-conforming billboards located in the City are non-electronic, and the Municipal Code currently does not expressly permit relocated billboards to be converted to electronic billboards. Section 9.20.110 also currently limits the permitted height of relocated billboards to 50 feet. The proposed Municipal Code Amendment would permit the owner of an existing billboard within the city to apply to the City to convert and/or relocate and convert such billboard to an electronic billboard, provided such relocated and/or converted billboard is located within the Garden Grove (22) Freeway Corridor (defined as the area within the City comprised of land within 300 hundred feet of either edge of the California State Route 22 Freeway). Electronic billboards would continue to be prohibited outside of the Garden Grove (22) Freeway Corridor. Conversion of an existing billboard to an electronic billboard would be deemed to be a relocation of an existing billboard. The conversion and/or relocation and conversion of an electronic billboard within the Garden Grove (22) Freeway Corridor would be subject to discretionary approval of a site plan pursuant to the provisions of Subsections 9.20.110.B and C of the Garden Grove Municipal Code, entry into a relocation agreement between the owner and the City pursuant to California Business and Professions Code Section 5412, and compliance with specified requirements. Pursuant to the proposed Amendment, the current fifty foot height limit would not apply to relocated and/or converted electronic billboards within the Garden Grove (22) Freeway Corridor. Rather, permitted height would be determined through the site plan review process and would be limited to the maximum height necessary to ensure adequate visibility of the display from the Garden Grove (22) Freeway, as demonstrated through a balloon or flag test, or other similar test. Unless special circumstances necessitate a taller sign, as demonstrated through a balloon or flag test, or other similar test, no electronic billboard will be permitted to exceed 60 feet in height, as measured from finished grade to the top of the billboard structure The proposed Amendment is drafted to be internally consistent with other existing Municipal Code provisions and the Garden Grove General Plan. The future relocation and/or conversion of electronic

billboards within the Garden Grove (22) Freeway Corridor (including the billboard proposed at 11615 Cardinal Circle) will only occur if the proposed Amendment is adopted. In addition, all future electronic billboard development within the Garden Grove (22) Freeway Corridor will be subject to the criteria and conditions set forth in Garden Grove Municipal Code Section 9.20.110, as amended, including designated distances from residential zones, minimum distances between placement of billboards along SR-22, regulations of messages displayed on the billboards, maximum intensity of light output, and maximum height and size of the proposed billboard and billboard sign face.

The proposed billboard site at 11615 Cardinal Circle is designated *Industrial* in the City's General Plan and is zoned Limited Industrial (M-1). The project applicant is not requesting any General Plan amendment that could conflict with policies designed to protect the environment and the proposed sign is consistent with the *Industrial* land use designation which is designed to *create, maintain, and enhance industrial areas characterized by uses that include industrial research, assembly, and testing of electronics, instruments, office, and related machinery, wholesaling, warehousing, administrative offices, and regional or home offices of industry.*[36]

The proposed billboard to be erected at 11615 Cardinal Circle will be located in an industrial area, away from residential dwellings. There will be no noise impacts associated with operation of the proposed billboard. The LED sign will be subject to certain conditions of approval, including long-term review of potential light-related impacts, to minimize visual impacts on the surrounding uses and ensure continued safety surrounding the sites. Other potential impacts, including aesthetics, are discussed in other sections of this Initial Study. Removal of existing legal non-conforming billboards is consistent with the existing Garden Grove Municipal Code provisions governing legal non-conforming uses.

None of the project components will conflict with any policy, plan, or regulations designed to mitigate environmental impacts. No impacts will occur.

c) **No Impact.** Adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and does not propose any changes to specific land use designations; therefore, there is no possibility it will conflict with any conservation plans.

As discussed in Checklist Response 4.4f above, areas affected by the proposed billboard relocation / conversion project are fully developed, and surrounding areas are not part of any habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. As such, no impact will occur.

[36] City of Garden Grove. City of Garden Grove General Plan, Land Use Element. May 2008.

## 4.11 – Mineral Resources

Would the project:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | ☐ | ☐ | ☐ | ☑ |
| b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | ☐ | ☐ | ☐ | ☑ |

a-b) **No Impact.** The project area is located in a completely urbanized area. No mineral extraction or processing facilities are on or adjacent to any sites within the project area. No known mineral resources exist within the City of Garden Grove. Therefore, the removal and installation of billboards will not result in the loss of availability of an important mineral resource recovery site. No impact will occur.

## 4.12 – Noise

Would the project result in:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | ☐ | ☐ | ☑ | ☐ |
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | ☐ | ☐ | ☑ | ☐ |
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☐ | ☑ | ☐ |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☐ | ☑ | ☐ |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | ☑ |
| f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | ☑ |

Noise can be defined as unwanted sound. Sound (and therefore noise) consists of energy waves that people receive and interpret. Sound pressure levels are described in logarithmic units of ratios of sound pressures to a reference pressure, squared. These units are called *bels*. In order to provide a finer description of sound, a *bel* is subdivided into ten *decibels*, abbreviated dB. To account for the range of sound that human hearing perceives, a modified scale is utilized known as the A-weighted decibel (dBA). Since decibels are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means. For example, if one automobile produces a sound pressure level of 70 dBA when it passes an observer, two 2 cars passing simultaneously would not produce 140 dBA. In fact, they would combine to produce 73 dBA. This same principle can be applied to other traffic quantities as well. In other words, doubling the traffic volume on a street or the speed of the traffic will increase the traffic noise level by 3 dBA. Conversely, halving the traffic volume or speed will reduce the traffic noise level by 3 dBA. A 3 dBA change in sound is the beginning at which humans generally notice a *barely perceptible* change in sound and a 5 dBA change is generally *readily perceptible*.[37]

The proposed project is located in a fully urbanized area, in close proximity to the SR-22 freeway and is surrounded by light industrial uses. Existing noise conditions are representative of this environment. Traffic noise from SR-22 is the greatest contributors to ambient noise levels near the project site. There are no discernible stationary noise sources within the project site. There are no sensitive receptors immediately adjacent to the project limits.

[37] California Department of Transportation. Basics of Highway Noise: Technical Noise Supplement. November 2009.

a, c, d) **Less than Significant Impact.** The City's Zoning Code (Section 8.47.050) codifies noise level standards for the City. Adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. It is anticipated that the impacts from any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those for the specific relocation/conversion project proposed by the project applicant; however, all such relocations/conversions will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

The proposed new electronic billboard will not have any operational noise or vibrations associated with its use. There will be minimal, short-term construction noise, as removal of the existing billboards is anticipated to last for approximately two days and construction of the new billboard is anticipated to last for approximately 10 days. Project-related construction will result in short-term increases in noise levels and groundborne vibration on and immediately surrounding the project site.

**Short-term Construction Impacts**
Because of the effects of noise attenuation, the distance from the noise source to a receptor is a primary consideration in determining the actual noise level experienced at the receptor. Because different construction stages involve different pieces of equipment and may involve only localized portions of a site, each stage of construction can result in different noise levels being generated, depending on the relative distance to sensitive receptors. There are no identified sensitive receptors within 500 feet of the proposed electronic billboard site and site of existing billboards to be removed. The nearest sensitive receptor is Woodbury Elementary School located 0.34 miles west of the project site.

Short-term maximum noise levels generated by heavy construction equipment can range from approximately 68 dBA to noise levels in excess of 100 dBA when measured at 50 feet. These noise levels will diminish with distance from the construction site at a rate of approximately 6 dBA per each doubling of distance. The heavy construction equipment utilized for the project will be a drilling auger, crane truck, soil hauling truck, skip loader, and flatbed truck for transporting the structures.

Table 5 (Typical Reference Noise Emission Levels from Construction Equipment) summarizes the average noise levels produced from a sample of common construction equipment that are used for construction activities at 50 feet and 150 feet from the source. Distance and surface attenuation of noise levels at 150 feet were calculated using the Caltrans Technical Noise Supplement for point sources (soft site surface).

**Table 5**
**Typical Reference Noise Emissions Levels from Construction Equipment**

| Equipment Type | Reference Level (dBA) at 50 feet | Reference Level (dBA) at 150 feet |
|---|---|---|
| Excavator | 85 | 73.1 |
| Loader | 80 | 68.1 |
| Dump Truck | 84 | 72.1 |
| Back Hoe | 80 | 68.1 |
| Crane | 85 | 73.1 |
| Welding and Painting Truck | 85 | 73.1 |
| Drill Rig | 85 | 73.1 |
| Concrete Truck | 85 | 73.1 |
| Skip Loader | 80 | 68.1 |

Notes:
1) Assumes all equipment is fitted with a properly maintained and operational noise control device, per manufacturer specifications.
2) Noise levels listed are manufacture specified noise levels for each piece of heavy construction equipment.
Source: FHWA 2006, MIG | Hogle-Ireland Inc., 2014.

Construction activities may be heard above the existing noise levels and will be expected to create a short-term annoyance to light industrial uses located within 50-150 feet from construction activities during construction. However, these uses are not considered sensitive receptors and impacts will be short-term in nature.

The City's Municipal Code limits hours of construction to 7:00 A.M. to 10:00 P.M.[38] Based on the location of nearest sensitive receptors, the type of equipment used in the construction process, and the relatively short time period of construction, noise impacts created by the project will have a less than significant impact.

**Long-term Operational Impacts**
Adoption of the Zoning Ordinance Amendment will not result in any direct physical change in the environment and thus will not result in any impact.

Implementation of the proposed billboard component of project will not include any noise-generating uses. The existing billboard on site does not generate any noise, and no noise will be generated by the billboard. No additional onsite workers will be required to service or maintain the proposed billboard. Long-term operation impacts will not expose persons to noise levels that exceed the standards of the Municipal Code, nor will they exceed existing ambient noise level conditions; therefore impacts will be less than significant.

b) **Less than Significant Impact.**
Vibration is the movement of mass over time. It is described in terms of frequency and amplitude and unlike sound; there is no standard way of measuring and reporting amplitude. Vibration can be described in units of velocity (inches per second) or discussed in decibel (dB) units in order to compress the range of numbers required to describe vibration. Vibration impacts to buildings are generally discussed in terms of peak particle velocity (PPV) that describes particle movement over time (in terms of physical displacement of mass). For purposes of this analysis, PPV will be used to describe all vibration for ease of reading and comparison. Vibration can impact people, structures, and sensitive equipment.[39] The primary concern related to vibration and people is the potential to annoy those working and residing in the area. Vibration with high enough amplitudes can damage structures (such as crack plaster or destroy windows). Groundborne vibration can also disrupt the use of sensitive medical and scientific instruments such as electron microscopes. Common sources of vibration within communities include construction activities and railroads. Operation of the proposed billboard does not include uses that cause vibration. Construction activities associated with heavy construction activity may cause some short-term localized vibration to surrounding uses.

Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in any impact. It is anticipated that the impacts from any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those

[38] City of Garden Grove. The City of Garden Grove Municipal Code, 2014.
[39] California Department of Transportation. Transportation- and Construction-Induced Vibration Guidance Manual. June 2004

for the specific relocation/conversion project proposed by the project applicant; however, all such relocations/conversions will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City.

**Short-term Construction Impacts**

Removal of the existing billboards and construction of the proposed new electronic billboard may result in varying degrees of temporary groundborne vibration and noise, depending on the specific construction equipment used and activities involved. Groundborne vibration and noise levels associated with various types of construction equipment and activities are summarized in Table 4.12-2.

**Table 6**
**Reference Vibration Source Amplitudes for Construction Equipment**

| Equipment | Reference PPV at 25 ft (in/sec) |
|---|---|
| Pile driver | 0.484 – 1.876 |
| Large bulldozer | 0.089 |
| Caisson drilling | 0.089 |
| Loaded trucks | 0.076 |
| Jackhammer | 0.035 |
| Small bulldozer | 0.003 |

Notes: PPV is the peak particle velocity. Pile driver amplitude varies greatly based on equipment type and size.
Source: *Caltrans Transportation and Construction Induced Vibration Guidance Manual*. June 2004

According to the Caltrans vibration manual, heavy construction equipment as outlined in Table 6 can cause annoyance at uses within the project vicinity or damage structures. Caltrans has developed a screening tool to determine if vibration from construction equipment is substantial enough to impact surrounding uses. The Caltrans vibration manual establishes thresholds for vibration impacts on buildings and humans. These thresholds are summarized in Tables 7 and 8.

**Table 7**
**Vibration Damage Potential Threshold Criteria**

| Structural Integrity | Maximum PPV (in/sec) | |
|---|---|---|
| | Transient | Continuous |
| Extremely fragile historic buildings, ruins, ancient monuments | 0.12 | 0.08 |
| Fragile buildings | 0.20 | 0.10 |
| Historic and some older buildings | 0.50 | 0.25 |
| Other residential structures | 0.50 | 0.30 |
| New residential structures | 1.00 | 0.50 |
| Modern industrial and commercial structures | 2.00 | 0.50 |

*Source: Caltrans 2004*

**Table 8**
**Vibration Annoyance Potential Threshold Criteria**

| Human Response | PPV Threshold (in/sec) | |
|---|---|---|
| | Transient | Continuous |
| Barely perceptible | 0.04 | 0.01 |
| Distinctly perceptible | 0.25 | 0.04 |
| Strongly perceptible | 0.90 | 0.10 |
| Severely perceptible | 2.00 | 0.40 |

*Source: Caltrans, 2004*

Construction activities that use drilling rigs and loaded trucks are repetitive sources of vibration; therefore, the *continuous* threshold is used. All buildings located on the site of the proposed new electronic billboard were built between 1987 and 1989, so the m*odern industrial and commercial structures* threshold is used. Based on the threshold criteria summarized in Tables 4.12-2 and 4.12-3, vibration from use of heavy construction equipment would be below the threshold to cause damage to nearby structures. Continuous noise associated with a large bulldozer or the drilling rig may be "strongly perceptible" at adjacent properties. Based on the Caltrans screening procedures, impacts to humans are not anticipated to be severe and would be short term in nature; strongly perceptible vibration will be associated only with the use of the drilling rig and large bulldozer. Other activities will be distinctly or barely perceptible. Furthermore, these construction

activities will be limited to the times of day allowed by the Noise Ordinance (between 7:00 A.M. to 10:00 P.M.) and will only last for a few days. Short-term construction impacts will be less than significant.

**Long-term Operational Impacts**
With regard to long-term operational impacts, activities associated with implementation and operation of the proposed billboard sign will not result in any vibration-related impacts to adjacent properties. No impact will occur.

e-f) **No Impact.** No airport land use plans apply to the area, and Garden Grove is not located within two miles of an airport or private airstrip. No impact to airport land use plans or airports will occur from either the adoption of the proposed Municipal Code Amendment, removal of the existing billboards, or the installation of the new electronic billboard.

## 4.13 – Population and Housing

Would the project:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | ☐ | ☐ | ☐ | ☑ |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☑ |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☑ |

a) **No Impact.** The relocation and/or conversion of electronic billboards does not entail establishing any housing, extending roads or other infrastructure, or creating any job-creating uses; therefore, it will not induce substantial population growth in the area. No impact will occur.

b) **No Impact.** The project does not propose to remove any housing; thus, no impact will occur from either the adoption of the proposed Municipal Code Amendment, the removal of existing billboards, or the installation of the new billboard.

c) **No Impact.** The project does not propose removal of any housing, thus no people will be displaced and no impact will occur from either the adoption of the proposed Municipal Code Amendment, the removal of existing billboards, or the installation of the new billboard.

## 4.14 – Public Services

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Fire protection? | ☐ | ☐ | ☐ | ☑ |
| b) Police protection? | ☐ | ☐ | ☐ | ☑ |
| c) Schools? | ☐ | ☐ | ☐ | ☑ |
| d) Parks? | ☐ | ☐ | ☐ | ☑ |
| e) Other public facilities? | ☐ | ☐ | ☐ | ☑ |

a) **No Impact.** No new fire stations or other capital improvements will need to be built and no new fire personnel will need to be hired in order to maintain existing service ratios and response times, as the project will not increase population or the need to service them. No impact will occur related to fire protection services from either the adoption of the Municipal Code Amendment, the removal of the existing billboards, or the installation of the new electronic billboard.

b) **No Impact.** The project will not increase residential population or employment numbers and will not require law enforcement and public safety services from the County Sheriff's Department. No new stations or other capital improvement will be required and no new personnel will need to be hired in order to maintain existing service ratios and response times as the project will not increase population or the need to service them. No impact will occur related to police protection services from either the adoption of the Municipal Code Amendment, the removal of the existing billboards, or the installation of the new electronic billboard.

c) **No Impact.** The project will not result in the generation of new permanent employment or housing for residents who might attend a local school. No impact will occur from either the adoption of the Municipal Code Amendment, the removal of the existing billboards, or the installation of the new electronic billboard.

d) **No Impact.** The project will not result in the generation of new permanent employment or housing for residents who might increase the demand for new or use of existing park or recreation facilities. No impact will occur from either the adoption of the Municipal Code Amendment, the removal of the existing billboards, or the installation of the new electronic billboard.

e) **No Impact.** The project will not generate any new residents that might increase demand for other public facilities. No impact will occur from either the adoption of the Municipal Code Amendment, the removal of the existing billboards, or the installation of the new electronic billboard.

## 4.15 – Recreation

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | ☐ | ☐ | ☐ | ☑ |
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | ☐ | ☐ | ☐ | ☑ |

a) **No Impact.** The project will not result in the creation of new households and thus will not increase use of local and regional parks and recreation facilities. No impact will occur from either the adoption of the Municipal Code Amendment, the removal of the existing billboards, or the installation of the new electronic billboard.

b) **No Impact.** The project does not include, and will not result in, construction of any recreation facilities and will not require construction or improvement of any off-site facilities; thus, no impact will occur from either the adoption of the Municipal Code Amendment, the removal of the existing billboards, or the installation of the new electronic billboard.

## 4.16 – Transportation and Traffic

Would the project:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | ☐ | ☐ | ☑ | ☐ |
| b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | ☐ | ☐ | ☑ | ☐ |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? | ☐ | ☐ | ☑ | ☐ |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | ☐ | ☑ | ☐ | ☐ |
| e) Result in inadequate emergency access? | ☐ | ☐ | ☐ | ☑ |
| f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? | ☐ | ☐ | ☑ | ☐ |

a, b, c, f) **Less than Significant Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in transportation and circulation impacts. It is anticipated that the impacts from any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those for the specific relocation/conversion project proposed by the project applicant; however, all individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City. Individual analyses will assess potential impacts in this regard and provide mitigation measures as necessary.

Operation of a digital billboard does not involve any vehicle trips except those required for occasional maintenance. Traffic generated from construction activities associated with the proposed project will be minimal in both level and duration as construction for the new electronic billboard is anticipated to last 10 days and removal of existing billboards is anticipated to last two days. Impacts will be less than significant.

d) **Less than Significant Impact with Mitigation Incorporated.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result in transportation and circulation impacts. It is anticipated that the impacts from any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those for the specific relocation/conversion project proposed by the project applicant; however, all individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City. Individual analyses will assess potential impacts in this regard and provide mitigation measures as necessary.

The project proposes the construction and operation of a digital billboard along the SR-22 freeway within the City. The digital billboard will be visible primarily from SR-22, to which the two sign faces will be oriented.

The capability of digital billboards to present changing images has raised concerns regarding the effect of such signage on traffic safety. The primary concern has been effects on driver attention, but concerns have also been raised regarding the potential for such signage to produce light of such intensity or direction that it could interfere with driver vision. This is a topic of ongoing research. The Federal Highway Administration,[40] the American Association of State Highway and Transportation Officials, the National Cooperative Highway Research Program (NCHRP),[41] the Transportation Research Board, the Illumination Engineering Society of America,[42] the digital billboard industry,[43] and private groups have conducted or participated in numerous research studies. Literature reviews have found that there are no definitive, widely accepted conclusions about the presence or strength of adverse safety impacts from digital billboards, or about specific location, design, and operating standards that would protect public safety.[44] Continued research is being conducted by various government agencies and private organizations.

The existing research points to a number of spatial and operational characteristics that could affect safety. These are mostly related to brightness and message duration. With regard to brightness, the brightness of a billboard will attract a driver's gaze earlier and longer than other visual stimuli that appear less bright.[45] Also, the NCHRP report notes that at night, dawn or dusk, or in inclement weather, a bright sign can draw attention away from the road and traffic, and render less brightly lit official traffic signs, markings, and brake lights, less conspicuous and more difficult to discern. With regard to message duration, drivers will be more distracted by a display that changes as they approach it; as such longer message duration lowers the number of message changes seen by a driver and is less distracting.[46] The FHWA has recommended message duration of eight seconds;[47] California requires a minimum of four seconds.[48] Pursuant to the proposed Municipal Code Amendment, a minimum 8 second message duration would be required for electronic billboards.

Another issue to consider is transition time between displays on the billboard, as it is a combination of brightness and apparent motion that attracts a viewer's gaze to the sign. A perceptible dark or blank interval between successive displays

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[40] U.S. Department of Transportation Federal Highway Administration. The Effects of Commercial Electronic Variable Message Signs (CEVMS) on Driver Attention and Distraction: An Update. Publication No. FHWA-HRT-09-018. February 2009.

[41] National Cooperative Highway Research Program/Jerry Wachtel, CPE. Safety Impacts of the Emerging Digital Display Technology for Outdoor Advertising Signs, NCRHP Project 20-7 (256). April 2009. This study was completed for the American Association of State Highway and Transportation Officials.

[42] Illumination Engineering Society of North America. IESNA Lighting Handbook. 9th Edition.

[43] Lighting Sciences/Ian Lewin Ph.D. Digital Billboard Recommendations and Comparisons to Conventional Billboards. 2007.

[44] National Cooperative Highway Research Program/Jerry Wachtel, CPE. Safety Impacts of the Emerging Digital Display Technology for Outdoor Advertising Signs, NCRHP Project 20-7 (256). April 2009.

[45] Ibid.

[46] Ibid.

[47] U.S. Department of Transportation, Federal Highway Administration. Information: Guidance on Off-Premise Changeable Message Signs. September 25, 2007.

[48] California Outdoor Advertising Act. Section 5405.

will increase the sense of apparent motion. The FHWA suggests that transition between messages be limited to one to two seconds.[49] Pursuant to the proposed Municipal Code Amendment, the permitted transition time between displays will be a maximum of one second. Visual effects, such as fade, dissolve, or animation in the transition between successive messages is widely regarded as a distracting traffic safety hazard. Pursuant to the proposed Municipal Code Amendment, electronic billboard displays shall contain still or static messages or images only, and no part of the sign structure or image being displayed may move or present the appearance or optical illusion of movement, or include flashing, blinking, or traveling lighting, the varying of light intensity, or any other means not providing constant illumination. State and federal law also establish minimum spacing distance between digital billboards, of 1,000 feet, which is consistent with the standard included in the proposed Municipal Code Amendment. The proposed billboard will comply with this spacing requirement. Additionally, billboards should not be placed near driver decision and action points, such as interchanges and curves, or near official traffic control signs that guide drivers to these actions, as this is a potential traffic safety concern.[50]

The proposed project will be required to comply with all existing federal and State laws and regulations related to electronic billboards, including the Highway Beautification Act, FHWA agreements with the State pursuant to the Highway Beautification Act, California's Outdoor Advertising Act, and the California Vehicle Code, as well as with the additional regulations and criteria included within the proposed Municipal Code Amendment. The federal and State laws and regulations are enforced by Caltrans and the California Highway Patrol. In order to ensure establishment and continued operation of the billboards within acceptable safety ranges, the following mitigation measures are included.

**Mitigation Measure T-1:** The operation of the digital LED billboards shall comply with the following at all times:

- No special visual effects that include moving or flashing lights shall accompany the transition between two successive messages, and no special visual effects shall accompany any message display;
- The minimum display duration time for messages shall be not less than 8 seconds, and the minimum display time between messages shall be not more than 1 second;
- The minimum font size shall be established for the maximum speed on SR-22 freeway. The font size standard shall be in accordance with the sign industry's best practices formula.
- Prior to implementing any of the following, the operator shall submit a request and obtain permission from the City: installing, implementing or using any technology that will allow interaction with drivers, vehicles or any device located in vehicles, including, but not limited to, a radio frequency identification device, geographic positions system, or other device.
- In the event of any failure or combination of failures that affect the digital billboards' luminance, the operator shall impose a default to an output level no higher than 4 percent of the maximum luminance of the billboard. If this cannot be achieved, then the display shall be required to default to an "off" position until the problem can be resolved.

**Mitigation Measure T-2**: The operator of any digital billboard operated within the City of Garden Grove shall submit, within 30 days following June 30 of each year, a written report regarding operation of each digital billboard during the preceding period of July 1 to June 30. The operator may submit a combined report for all such digital billboards operated by such operator within the City limits. The report shall, when appropriate, identify incidents or facts that relate to specific digital billboards. The report shall be submitted to the Office of the City Manager and the City Attorney, and shall include the following information:

- Status of the operator's license as required by California Business and Professions Code para 5300 et seq.;
- Status of the required permit for individual digital billboards, as required by California Business and Professions Code para. 5350 et seq.;
- Compliance with the California Outdoor Advertising Act, California Business and Professions Code para 5200 and all regulations adopted pursuant to such Act;
- Compliance with California Vehicle Code para 21466.5 and 21467;

[49] U.S. Department of Transportation, Federal Highway Administration. Information: Guidance on Off-Premise Changeable Message Signs. September 25, 2007.

[50] National Cooperative Highway Research Program/Jerry Wachtel, CPE. Safety Impacts of the Emerging Digital Display Technology for Outdoor Advertising Signs, NCRHP Project 20-7 (256). April 2009.

- Compliance with provisions of written agreements between the U.S. Department of Transportation and the California Department of Transportation pursuant to the federal Highway Beautification Act (23U.S.C. para.131);
- Compliance with mitigation measures and/or conditions of approval adopted as part of the project approval;
- Each written or oral complaint received by the operator, or conveyed to the operator by any government agency or any other person, regarding operation of digital billboards within the City of Garden Grove;
- Each malfunction or failure of a digital billboard operated by the operator within the City of Garden Grove, which shall include only those malfunctions or failures that are visible to the naked eye, including reason for the malfunction, duration and confirmation of repair; and
- Operating status of each digital billboard operated by the operator within the City of Garden Grove, including estimated date of repair and return to normal operation of any digital billboard identified in the report as not operating in normal mode.

These measures will ensure that operation of each electronic billboard will meet short- and long-term safety requirements in the future. With incorporation of mitigation, impacts will be less than significant.

The project will not result in inadequate parking and incompatible uses in the project area. The construction of the new billboard will cause the relocation of one parking space which will result in less than significant impacts. Removal of the four existing billboards will not impact parking numbers in the locations as they are not located in any parking areas. The construction and removal of billboards will require the use of on-site equipment but impacts will be minimal as removal will take three to four hours per structure and construction of new billboard will take approximately 10 days. Impacts associated with parking and incompatible uses are less than significant.

e) **No Impact.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result any impacts. It is anticipated that the impacts from any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those for the specific relocation/conversion project proposed by the project applicant; however, all individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City. Individual analyses will assess potential impacts in this regard and provide mitigation measures as necessary.

The proposed new digital billboard will be located on a private parcel, outside of travelled portions of the driveway and parking areas, and will present no obstacles to emergency access. All construction activities associated with removal of the existing billboards and erection of the new electronic billboard will occur within the project sites and will not involve any road closures on SR-22 or any other public street.

The new electronic billboard sign will have the capacity to display official messages regarding emergencies, and could perform as part of the emergency response system, thus resulting in beneficial impacts. Therefore, the project will have no impact with regard to emergency access.

## 4.17 – Utilities and Service Systems

Would the project:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | ☐ | ☐ | ☐ | ☑ |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | ☐ | ☐ | ☐ | ☑ |
| c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | ☐ | ☐ | ☐ | ☑ |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | ☐ | ☐ | ☐ | ☑ |
| e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | ☐ | ☐ | ☐ | ☑ |
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | ☐ | ☐ | ☐ | ☑ |
| g) Comply with federal, state, and local statutes and regulations related to solid waste? | ☐ | ☐ | ☐ | ☑ |

a-g) **No Impact.** The City of Garden Grove is generally served by all necessary utilities and service systems. Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result any impacts to utilities and service systems. It is anticipated that the impacts from any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those for the specific relocation/conversion project proposed by the project applicant; however, all individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City. Individual analyses will assess potential impacts in this regard and provide mitigation measures as necessary.

The installation of the proposed new electronic billboard involves the construction of one digital LED billboard with two sign faces. The proposed billboard will require electrical service. The digital billboard that is installed and operated as part of the project will use electrical energy, and will be constructed pursuant to current electrical codes, including Title 24. These standards will ensure that electrical energy will be used efficiently. Clear Channel Outdoors estimates that each sign face utilize 7,500 kilowatt-hours (kwh) annually. Section 4.7 discusses the related greenhouse gas emissions associated with this energy use. Impacts were determined to be less than significant.

The removal of the four existing billboards will involve the use of construction equipment such as a boom crane and utility pickup truck to remove and haul away the signs. As all necessary equipment needed for the removal are brought onsite the transported offsite, the removal of billboards will not require electrical services. Solid waste generated from the removal of existing billboards will be minimal. The removed sign parts will be taken to the applicant's operation yard and then to recycle yards. As the applicant removes signs on a regular basis and must obtain demolition permits for the removal, sufficient landfill capacity must be determined before the removal of existing billboards. Therefore, no impact will occur.

Neither the installation and the operation of the new electronic billboard nor the removal of existing billboards will generate any solid waste, wastewater, or require a supply of potable water. Construction and operation of the digital billboard will not require other utility services, and will not affect drainage. Installation of the proposed billboard will require coordination with various other utility companies via the Underground Service Alter (USA) to prevent conflicts with subterranean utilities. There will be no impact on utility services.

## 4.18 – Mandatory Findings of Significance

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | ☐ | ☑ | ☐ | ☐ |
| b) Does the project have impacts that are individually limited, but cumulatively considerable? | ☐ | ☑ | ☐ | ☐ |
| c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | ☐ | ☑ | ☐ | ☐ |

a) **Less Than Significant with Mitigation Incorporation.** Due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and thus will not result any of the described impacts. It is anticipated that the impacts from any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those for the specific relocation/conversion project proposed by the project applicant; however, all individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City. Individual analyses will assess potential impacts in this regard and provide mitigation measures as necessary.

The removal of the existing billboards and the installation of the new electronic billboard will not substantially impact any scenic vistas, scenic resources, or the visual character of the area, as discussed in Section 4.1, and will not result in excessive light or glare, with mitigation incorporated. The project site is located within an urbanized area with no natural habitat. The project will not significantly impact any sensitive plants, plant communities, fish, wildlife or habitat for any sensitive species after incorporation of mitigation, as discussed in Section 4.4. Adverse impacts to archaeological and paleontological resources will not occur. The proposed billboard site is not known to have any association with an important example of California's history or prehistory. The environmental analysis provided in Section 4.3 concludes that impacts related to emissions of criteria pollutants and other air quality impacts will be less than significant. Sections 4.7 and 4.9 conclude that impacts related to climate change and hydrology and water quality will be less than significant. Based on the preceding analysis of potential impacts in the responses to items 4.1 thru 4.17, no evidence is presented that this project will degrade the quality of the environment. The City hereby finds that impacts related to degradation of the environment, biological resources, and cultural resources will be less than significant with the proposed mitigation incorporated.

b) **Less Than Significant with Mitigation Incorporation.** Cumulative impacts can result from the interactions of environmental changes resulting from one proposed project with changes resulting from other past, present, and future projects that affect the same resources, utilities and infrastructure systems, public services, transportation network elements, air basin, watershed, or other physical conditions. Such impacts could be short-term and temporary, usually consisting of

overlapping construction impacts, as well as long term, due to the permanent land use changes involved in the project. Such impacts are expected to be less than significant for this project due to the fact that there are no other similar projects taking place within the project vicinity, and the proposed billboard will be a generally coherent feature added to the existing urbanized environment.

As discussed throughout this Initial Study, due to its administrative nature, adoption of the proposed Municipal Code Amendment will not result in any direct physical change in the environment and, thus, in and of itself, will not result any impact on any considered environmental topics. It is anticipated that the impacts from any future individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be similar to those for the specific relocation/conversion project proposed by the project applicant; however, all individual relocations and/or conversions of electronic billboards pursuant to the Amendment will be subject to approval of a site plan and will be reviewed on a case-by-case basis in accordance with CEQA at the time a complete application is received by the City. Individual analyses will assess potential impacts in this regard and provide mitigation measures as necessary.

The removal of the existing billboards and construction and operation of the proposed new digital billboard will generally result in less than significant environmental impacts (with mitigation incorporated), as discussed herein. Short-term impacts related to light and glare and traffic hazards will be mitigated to less than significant levels. The proposed billboard may have the potential for long-term cumulative impacts if this project encourages more electronic billboards to be constructed along the SR-22 in the future. However, federal and State guidelines will be followed concerning the frequency at which signs can be placed along the freeway. In addition, the distance limits and other stringent standards included within the proposed amendments to Garden Grove Municipal Code Section 9.20.110 will limit the total number of electronic billboards that can feasibly be relocated and/or converted within the Garden Grove (22) Freeway Corridor. Further, the requirement that any such relocations and/or conversions result in the removal of existing billboards in the City on at least a two to one basis will result in an overall reduction in billboards in the City. Impacts related to noise and air quality were determined to be less than significant, given the limited scale of the project, and therefore will not contribute substantially to any other concurrent construction programs that may be occurring in the vicinity. Short-term impacts related to pollutant emissions will be less than significant and will not exceed maximum thresholds. If future LED billboards are proposed under the proposed Municipal Code Amendment, appropriate environmental analysis will be undertaken pursuant to CEQA for such applications.

No other major projects are currently being planned to occur within the project sites during the time frame of proposed construction activities associated with removal of the existing billboards and erection of the new electronic billboard. Removal of the four existing billboard faces and their associated structures and construction of the two new billboard faces on one supporting structure, is estimated to take 12 days. Furthermore, the proposed billboard project requires minimal on-site construction which will result in less than significant impacts, as the structures are fabricated primarily off-site. Construction that will occur on site will be limited to drilling holes for the foundation, hauling away dirt and debris, and erecting the proposed new structures. Removal of the existing billboards will be limited to cutting the billboard structure at grade and hauling away the detached signs. Construction impacts were determined to be less than significant. The City hereby finds that the contribution of the billboard relocation and conversion, removal of existing billboards, and implementation of the Municipal Code Amendment to cumulative impacts will be less than significant with mitigation incorporation, as noted in previous sections of this Initial Study.

c) **Less Than Significant with Mitigation Incorporation.** Based on the analysis of the project's impacts in the responses to items 4.1 thru 4.17, there is no indication that this project could result in substantial adverse effects on human beings. While there will be limited temporary adverse effects during construction related to noise and criteria pollutant emissions, these were determined to be reduced to less than significant. Long-term effects will include minor changes of the visual character of the site and surrounding roadways due to the addition of digital billboards to the area, and associated changes to lighting conditions. However, these changes are anticipated to be consistent with the existing aesthetic character and land uses of the area. Moreover, mitigation is incorporated to reduce the level of significance related to light and glare and traffic safety to a less-than-significant level. The analysis herein concludes that direct and indirect environmental effects will at worst require mitigation to reduce to less than significant levels. Generally, environmental effects will result in less than significant impacts. Based on the analysis in this Initial Study, the City finds that direct and indirect impacts to human beings will be less than significant with proposed mitigation incorporated.

# 5 References

## 5.1 – List of Preparers

**City of Garden Grove (Lead Agency)**
Community Development Department
15900 E. Main Street
La Puente, CA 91744

Lee Marino, Senior Planner

**MIG | Hogle-Ireland (Consultant to the City)**
169 N. Marengo Avenue
Pasadena, CA 91101

Laura Stetson, AICP, Principal
Rick Zimmer, Director of Planning Services
Anita Au, Project Assistant

**References**

# 6 Summary of Mitigation Measures

**Mitigation Measure AE-1:** The applicant shall demonstrate compliance with a maximum 0.3 foot-candle increase over ambient light at 250 feet from the sign face at all times upon initial start-up through field testing. If subsequent complaints consisting of direct personal impacts are received by the City of Garden Grove, the City shall require the applicant to fund follow-up field testing by an independent contractor or City staff trained in the use of a handheld photometer to demonstrate continued compliance and/or to determine the light intensity level that is necessary to reduce the direct personal impacts to a non-nuisance level.

**Mitigation Measure AE-2:** Signs shall be installed with sensors which automatically lower light output in accordance with atmospheric conditions (i.e. cloudy or overcast weather). Throughout sign operation, the dimness setting of the LED sign shall be adjusted in real time so it does not exceed the level of illumination identified under Mitigation Measure AE-1.

**Mitigation Measure T-1:** The operation of the digital LED billboards shall comply with the following at all times:

- No special visual effects that include moving or flashing lights shall accompany the transition between two successive messages, and no special visual effects shall accompany any message display;
- The minimum display duration time for messages shall be not less than 8 seconds, and the minimum display time between messages shall be not more than 1 second;
- The minimum font size shall be established for the maximum speed on SR-22 freeway. The font size standard shall be in accordance with the sign industry's best practices formula.
- Prior to implementing any of the following, the operator shall submit a request and obtain permission from the City: installing, implementing or using any technology that will allow interaction with drivers, vehicles or any device located in vehicles, including, but not limited to, a radio frequency identification device, geographic positions system, or other device.
- In the event of any failure or combination of failures that affect the digital billboards' luminance, the operator shall impose a default to an output level no higher than 4 percent of the maximum luminance of the billboard. If this cannot be achieved, then the display shall be required to default to an "off" position until the problem can be resolved.

**Mitigation Measure T-2**: The operator of any digital billboard operated within the City of Garden Grove shall submit, within 30 days following June 30 of each year, a written report regarding operation of each digital billboard during the preceding period of July 1 to June 30. The operator may submit a combined report for all such digital billboards operated by such operator within the City limits. The report shall, when appropriate, identify incidents or facts that relate to specific digital billboards. The report shall be submitted to the Office of the City Manager and the City Attorney, and shall include the following information:

- Status of the operator's license as required by California Business and Professions Code para 5300 et seq.;
- Status of the required permit for individual digital billboards, as required by California Business and Professions Code para. 5350 et seq.;
- Compliance with the California Outdoor Advertising Act, California Business and Professions Code para 5200 and all regulations adopted pursuant to such Act;
- Compliance with California Vehicle Code para 21466.5 and 21467;
- Compliance with provisions of written agreements between the U.S. Department of Transportation and the California Department of Transportation pursuant to the federal Highway Beautification Act (23U.S.C. para.131);
- Compliance with mitigation measures and/or conditions of approval adopted as part of the project approval;
- Each written or oral complaint received by the operator, or conveyed to the operator by any government agency or any other person, regarding operation of digital billboards within the City of Garden Grove;
- Each malfunction or failure of a digital billboard operated by the operator within the City of Garden Grove, which shall include only those malfunctions or failures that are visible to the naked eye, including reason for the malfunction, duration and confirmation of repair; and

- Operating status of each digital billboard operated by the operator within the City of Garden Grove, including estimated date of repair and return to normal operation of any digital billboard identified in the report as not operating in normal mode.

**General Plan EIR Mitigation Measure CR-1:**

During excavation and grading activities of any future development project, if archaeological resources are discovered the project contractor shall stop all work and shall retain a qualified archaeologist to evaluate the significance of the finding and appropriate course of action. Salvage operation requirements pursuant to Section 15064.5 of the *CEQA Guidelines* shall be followed and the treatment of discovered Native American remains shall comply with State codes and regulations of the Native American Heritage Commission.

# 7 Appendix Materials

# Appendix A
# Proposed Garden Grove Municipal Code Amendment Section 9.20.110

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**SECTION 9.20.110: Billboards**

A. Prohibition. **Except for relocations of existing billboards and conversion of existing billboards to electronic billboards pursuant to this Section,** no new billboards shall be constructed within city limits.

B. Relocations of Existing Billboards. An owner of an existing billboard located within the city may apply for a billboard relocation subject to the following procedure and criteria:

1. Process. An applicant for a billboard relocation shall file an application for a site plan approval with the city. The planning commission shall be empowered to approve, deny, or conditionally approve the site plan application. The commission shall apply the criteria as set forth in this subpart in making its determination.

   a. The planning commission shall hold a hearing on the matter and provide notice to property owners of the hearing located within three hundred feet of the relocation site.

2. Criteria. The planning commission shall apply the following criteria in making its determination on the site plan:

   a. The structure shall be constructed on two or less steel supports;

   b. The relocation site shall be at least three hundred feet from any other existing billboard structure**, and shall also comply with the distance requirements set forth in Subsection D.3.e, if applicable**;

   c. **Except as otherwise provided in Subsection D,** the height of the sign face shall not exceed fifty feet and the display area should not be less than eight feet from the ground;

   d. The structure shall incorporate aesthetically pleasing architectural elements to the extent feasible so as to promote compatibility with surrounding properties;

   e. The applicant shall present proof of compliance with any applicable state or federal law requirements relating to billboard signing and freeway location;

   f. The structure shall not result in an adverse aesthetic or illumination nuisance upon any surrounding residential neighborhood.

3. Findings. The planning commission shall make a finding in approving such a request that the construction of the structure will not have an adverse effect on the public health, welfare, and safety of the community.

C. Publicly Caused Billboard Relocations. Any proposal to relocate an existing billboard structure which relocation is caused by a city and/or redevelopment agency project shall be subject to the following site plan review process:

1. The city council shall have sole jurisdiction in considering whether such an application should be approved;

2. The city council shall hold a site plan review hearing and utilize the same criteria to be used by the planning commission, except that the city council reserves the right to make exceptions to any of the criteria set forth in Subpart B.2(a.)-(d.).

3. The city council shall make the finding that the construction of the structure will not adversely affect the public health, welfare and safety of the community.

**D. Electronic Billboards Within the Garden Grove (22) Freeway Corridor.**

**1. For purposes of this Subsection 9.20.020.D, the following terms shall have the following meanings:**

a. "Billboard" has the same meaning as defined in Subsection 9.20.020.C.

b. "Electronic billboard" means a billboard that utilizes digital message technology capable of instantaneously changing the static message or copy on the sign electronically.

c. "Garden Grove (22) Freeway Corridor" means the area within the city comprised of the land within three hundred (300) feet of either edge of the California State Route 22 Freeway right-of-way.

2. Nothwithstanding any other provision of this Code, subject to the discretionary approval of a site plan application pursuant to Subsections 9.20.110.B or C, above, entry into a relocation agreement with the city in accordance with Business and Professions Code Section 5412, and compliance with the additional requirements set forth below, the owner of an existing billboard within the city may convert and/or relocate and convert such billboard to an electronic billboard, provided such relocated and/or converted billboard is located within the Garden Grove (22) Freeway Corridor. Conversion of an existing billboard to an electronic billboard shall be deemed to be a relocation of an existing billboard that is subject to approval of a site plan application pursuant to Subsection 9.20.110.B. Such relocated and/or converted electronic billboards shall be deemed legal non-conforming uses and structures.

3. In addition to such conditions as may be imposed pursuant to approval of a site plan application for a billboard relocation pursuant to Subsections B and/or C, above, electronic billboards shall be subject to the following criteria and conditions:

a. An electronic billboard may only be located within the Garden Grove (22) Freeway Corridor.

b. Electronic billboards shall comply with all applicable location, distance, size, operational, permit or licensing, and/or other requirements or limits imposed by federal or state law, including, without limitation, the California Outdoor Advertising Act, California Business and Professions Code Section 5200, et. seq., and its implementing regulations, including applicable amendments thereto. To the extent a conflict arises between any provisions of this Section and applicable federal or state law, state or federal law shall control.

c. Each sign face of an electronic billboard shall be oriented primarily for viewing from the Garden Grove (22) Freeway and shall be oriented away from any residentially zoned property.

d. No electronic billboard shall be located on or within 350 feet of any residentially zoned property, as measured from the structural support column of the electronic billboard to the property line.

e. No electronic billboard shall be located within 500 feet of any other billboard located on the same side of the freeway or within 1,000 feet of any other electronic billboard or on-premise electronic sign located on the same side of the freeway.

f. The permitted height of an electronic billboard shall be determined through the site plan review process and shall be limited to the maximum height necessary to ensure adequate visibility of the display from the Garden Grove (22) Freeway. Requested height of an electronic billboard shall be justified through a balloon or flag test, or other similar test, conducted at the applicant's cost. Unless special circumstances necessitate a taller sign, as demonstrated through a balloon or flag test, or other similar test, no electronic billboard shall exceed sixty (60) feet in height, as measured from finished grade to the top of the billboard structure.

g. The area of each electronic billboard sign face, including framing and trim, shall not exceed 680 square feet.

h. Electronic billboard displays shall contain still or static messages or images only, and no part of the sign structure or image being displayed may move or present the appearance or optical illusion of movement, or include flashing, blinking, or traveling lighting, the varying of light intensity, or any other means not providing constant illumination. Each static message or image shall be displayed for a minimum of eight (8) consecutive seconds before changing, and the transition or blank screen time between one display message and the next shall not exceed one (1) second.

i. The maximum intensity of light output produced by an electronic billboard display shall be established in relation to the immediate ambient lighting, and each electronic billboard shall incorporate an automatic light sensing device that will adjust the brightness or intensity of light output as ambient light conditions change. The maximum measurable light output of an electronic billboard shall not exceed 0.3 foot-candles above the ambient light level at any time, as measured using a foot-candle meter at a pre-set distance perpendicular to the display face of the electronic billboard. The pre-set distance for measurement of intensity of light output with a foot-candle meter shall vary depending on the size of the sign face, as follows:

| Nominal Sign Face Size | Distance To Be Measured From |
|---|---|
| 12' x 25' | 150' |
| 10'-6" x 36' | 200' |
| 14' x 48' or Greater | 250' |

j. Electronic billboard owners and/or operators shall make space available for the display of emergency messaging in accordance with local, regional , and/or state protocols.

k. As a condition to approval of the relocation and/or conversion of a billboard to an electronic billboard, the owner of the electronic billboard shall execute a relocation agreement with the City pursuant to California Business and Professions Code Section 5412 on terms approved by the city council in its sole and absolute discretion. At a minimum, such a relocation agreement shall (i) require the permanent removal of a minimum of two (2) existing billboard faces within the city for each new electronic billboard face erected or installed, (ii) provide for mitigation by the owner of aesthetic and/or other impacts caused by the electronic billboard(s), (iii) require the owner to comply with any and all required mitigation measures, conditions of approval, and applicable provisions of this Section and this Code; (iv) provide for the payment by the owner of applicable fees and costs; (v) require each owner to indemnify, defend and hold harmless the City from any and all claims, lawsuits, awards and judgments, including any reasonable attorney's fees and court costs, that may arise from the approval of the relocation and/or conversion of a billboard to an electronic billboard and/or the removal of other existing billboards, pursuant to this Section or any other provision of the Code, subject to the terms of the agreement; and (vi) require the owner(s)/operator(s) of the electronic billboard to donate up to five percent (5%) of the total advertising time on the electronic billboard to community events, as requested by the City Manager. Nothing herein shall be construed to require the city enter into such an agreement or to allow the relocation of an existing billboard or the conversion of an existing billboard to an electronic billboard.

l. The owner of an electronic billboard authorized pursuant to this Section may, at its sole option, remove the digital display unit(s) from the billboard structure at any time, for any reason, and temporarily or permanently replace such digital display unit(s) with state-of-

**the-art non-electronic static sign faces of the same or smaller dimensions, which may include external illumination.**

# Appendix B Air Quality Modeling Data

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# Garden Grove Billboards

**South Coast Air Basin, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| General Light Industry | 0.02 | 1000sqft | 0.00 | 21.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 31 |
| **Climate Zone** | 8 | | | **Operational Year** | 2016 |
| **Utility Company** | Southern California Edison | | | | |
| **CO2 Intensity (lb/MWhr)** | 630.89 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Rough construction schedule per contractor

Off-road Equipment - Construction equipment per constractor

Off-road Equipment - Equipment per contractor

Off-road Equipment - Equipment per contractor

Off-road Equipment - Equipment per contractor

Off-road Equipment - Equipment per constractor

Off-road Equipment - Equipment per contractor

Trips and VMT - Maximum 5 workers per day per contractor

Grading -

Vehicle Trips - Construction only

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | NumDays | 0.00 | 5.00 |
| tblConstructionPhase | NumDays | 0.00 | 2.00 |
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | PhaseStartDate | 11/8/2014 | 11/10/2014 |
| tblGrading | MaterialExported | 0.00 | 1,413.00 |
| tblLandUse | LandUseSquareFeet | 20.00 | 21.00 |
| tblOffRoadEquipment | HorsePower | 81.00 | 205.00 |
| tblOffRoadEquipment | LoadFactor | 0.73 | 0.50 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 4.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 4.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 4.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 4.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 1.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 6.00 | 8.00 |
| tblProjectCharacteristics | OperationalYear | 2014 | 2016 |
| tblTripsAndVMT | HaulingTripNumber | 0.00 | 4.00 |
| tblTripsAndVMT | WorkerTripNumber | 10.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 8.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 10.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 0.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 0.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 0.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 0.00 | 5.00 |
| tblVehicleTrips | ST_TR | 1.32 | 0.00 |
| tblVehicleTrips | SU_TR | 0.68 | 0.00 |
| tblVehicleTrips | WD_TR | 6.97 | 0.00 |

## 2.0 Emissions Summary

### 2.1 Overall Construction

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2014 | 0.0137 | 0.1555 | 0.0913 | 1.7000e-004 | 1.9600e-003 | 7.8500e-003 | 9.8100e-003 | 5.2000e-004 | 7.2500e-003 | 7.7800e-003 | 0.0000 | 16.1698 | 16.1698 | 2.8100e-003 | 0.0000 | 16.2289 |
| **Total** | **0.0137** | **0.1555** | **0.0913** | **1.7000e-004** | **1.9600e-003** | **7.8500e-003** | **9.8100e-003** | **5.2000e-004** | **7.2500e-003** | **7.7800e-003** | **0.0000** | **16.1698** | **16.1698** | **2.8100e-003** | **0.0000** | **16.2289** |

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2014 | 0.0137 | 0.1555 | 0.0913 | 1.7000e-004 | 1.9600e-003 | 7.8500e-003 | 9.8100e-003 | 5.2000e-004 | 7.2500e-003 | 7.7800e-003 | 0.0000 | 16.1698 | 16.1698 | 2.8100e-003 | 0.0000 | 16.2289 |
| **Total** | **0.0137** | **0.1555** | **0.0913** | **1.7000e-004** | **1.9600e-003** | **7.8500e-003** | **9.8100e-003** | **5.2000e-004** | **7.2500e-003** | **7.7800e-003** | **0.0000** | **16.1698** | **16.1698** | **2.8100e-003** | **0.0000** | **16.2289** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 11/3/2014 | 11/4/2014 | 5 | 2 | |
| 2 | Drilling | Grading | 11/5/2014 | 11/5/2014 | 5 | 1 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | Set Caisson Foundation | Site Preparation | 11/6/2014 | 11/6/2014 | 5 | 1 | |
| 4 | Set Sign Column | Building Construction | 11/7/2014 | 11/7/2014 | 5 | 1 | |
| 5 | Install Super Structure | Building Construction | 11/10/2014 | 11/10/2014 | 5 | 1 | |
| 6 | Install LED Displays | Building Construction | 11/11/2014 | 11/11/2014 | 5 | 1 | |
| 7 | Install Arch. Claddings, Elec. Conduits, Camera Arms | Building Construction | 11/12/2014 | 11/18/2014 | 5 | 5 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition | Rubber Tired Dozers | 1 | 1.00 | 255 | 0.40 |
| Demolition | Tractors/Loaders/Backhoes | 2 | 6.00 | 97 | 0.37 |
| Drilling | Bore/Drill Rigs | 1 | 8.00 | 205 | 0.50 |
| Drilling | Concrete/Industrial Saws | 0 | 0.00 | 205 | 0.50 |
| Drilling | Rubber Tired Dozers | 0 | 0.00 | 255 | 0.40 |
| Drilling | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Set Caisson Foundation | Bore/Drill Rigs | 1 | 8.00 | 205 | 0.50 |
| Set Caisson Foundation | Graders | 0 | 8.00 | 174 | 0.41 |
| Set Caisson Foundation | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Set Caisson Foundation | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Set Sign Column | Cranes | 1 | 8.00 | 226 | 0.29 |
| Set Sign Column | Forklifts | 0 | 6.00 | 89 | 0.20 |
| Set Sign Column | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Set Sign Column | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Install Super Structure | Cranes | 1 | 8.00 | 226 | 0.29 |
| Install Super Structure | Forklifts | 0 | 6.00 | 89 | 0.20 |
| Install Super Structure | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Install Super Structure | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Install LED Displays | Cranes | 1 | 8.00 | 226 | 0.29 |
| Install LED Displays | Forklifts | 0 | 6.00 | 89 | 0.20 |
| Install LED Displays | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Install LED Displays | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Install Arch. Claddings, Elec. Conduits, Camera Arms | Cranes | 1 | 8.00 | 226 | 0.29 |
| Install Arch. Claddings, Elec. Conduits, Camera Arms | Forklifts | 0 | 6.00 | 89 | 0.20 |
| Install Arch. Claddings, Elec. Conduits, Camera Arms | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Install Arch. Claddings, Elec. Conduits, Camera Arms | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 4 | 5.00 | 0.00 | 4.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Drilling | 3 | 5.00 | 0.00 | 177.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Set Caisson Foundation | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Set Sign Column | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Install Super Structure | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Install LED Displays | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Install Arch. Claddings, Elec. Conduits, Camera | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

## 3.2 Demolition - 2014

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 1.4900e-003 | 0.0125 | 8.8500e-003 | 1.0000e-005 | | 9.3000e-004 | 9.3000e-004 | | 8.9000e-004 | 8.9000e-004 | 0.0000 | 1.0952 | 1.0952 | 2.3000e-004 | 0.0000 | 1.1000 |
| **Total** | **1.4900e-003** | **0.0125** | **8.8500e-003** | **1.0000e-005** | | **9.3000e-004** | **9.3000e-004** | | **8.9000e-004** | **8.9000e-004** | **0.0000** | **1.0952** | **1.0952** | **2.3000e-004** | **0.0000** | **1.1000** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 5.0000e-005 | 7.5000e-004 | 5.1000e-004 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 5.0000e-005 | 1.0000e-005 | 1.0000e-005 | 2.0000e-005 | 0.0000 | 0.1380 | 0.1380 | 0.0000 | 0.0000 | 0.1380 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.0000e-005 | 4.0000e-005 | 3.8000e-004 | 0.0000 | 5.0000e-005 | 0.0000 | 6.0000e-005 | 1.0000e-005 | 0.0000 | 2.0000e-005 | 0.0000 | 0.0550 | 0.0550 | 0.0000 | 0.0000 | 0.0551 |
| **Total** | **7.0000e-005** | **7.9000e-004** | **8.9000e-004** | **0.0000** | **8.0000e-005** | **1.0000e-005** | **1.1000e-004** | **2.0000e-005** | **1.0000e-005** | **4.0000e-005** | **0.0000** | **0.1930** | **0.1930** | **0.0000** | **0.0000** | **0.1931** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 1.4900e-003 | 0.0125 | 8.8500e-003 | 1.0000e-005 | | 9.3000e-004 | 9.3000e-004 | | 8.9000e-004 | 8.9000e-004 | 0.0000 | 1.0952 | 1.0952 | 2.3000e-004 | 0.0000 | 1.1000 |
| **Total** | **1.4900e-003** | **0.0125** | **8.8500e-003** | **1.0000e-005** | | **9.3000e-004** | **9.3000e-004** | | **8.9000e-004** | **8.9000e-004** | **0.0000** | **1.0952** | **1.0952** | **2.3000e-004** | **0.0000** | **1.1000** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 5.0000e-005 | 7.5000e-004 | 5.1000e-004 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 5.0000e-005 | 1.0000e-005 | 1.0000e-005 | 2.0000e-005 | 0.0000 | 0.1380 | 0.1380 | 0.0000 | 0.0000 | 0.1380 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.0000e-005 | 4.0000e-005 | 3.8000e-004 | 0.0000 | 5.0000e-005 | 0.0000 | 6.0000e-005 | 1.0000e-005 | 0.0000 | 2.0000e-005 | 0.0000 | 0.0550 | 0.0550 | 0.0000 | 0.0000 | 0.0551 |
| **Total** | **7.0000e-005** | **7.9000e-004** | **8.9000e-004** | **0.0000** | **8.0000e-005** | **1.0000e-005** | **1.1000e-004** | **2.0000e-005** | **1.0000e-005** | **4.0000e-005** | **0.0000** | **0.1930** | **0.1930** | **0.0000** | **0.0000** | **0.1931** |

## 3.3 Drilling - 2014

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 8.0000e-005 | 0.0000 | 8.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 5.6000e-004 | 6.7200e-003 | 3.4800e-003 | 1.0000e-005 | | 3.7000e-004 | 3.7000e-004 | | 3.4000e-004 | 3.4000e-004 | 0.0000 | 0.7205 | 0.7205 | 2.1000e-004 | 0.0000 | 0.7249 |
| **Total** | **5.6000e-004** | **6.7200e-003** | **3.4800e-003** | **1.0000e-005** | **8.0000e-005** | **3.7000e-004** | **4.5000e-004** | **1.0000e-005** | **3.4000e-004** | **3.5000e-004** | **0.0000** | **0.7205** | **0.7205** | **2.1000e-004** | **0.0000** | **0.7249** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 2.0500e-003 | 0.0333 | 0.0225 | 7.0000e-005 | 1.5200e-003 | 6.1000e-004 | 2.1300e-003 | 4.2000e-004 | 5.6000e-004 | 9.8000e-004 | 0.0000 | 6.1058 | 6.1058 | 5.0000e-005 | 0.0000 | 6.1069 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-005 | 2.0000e-005 | 1.9000e-004 | 0.0000 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0275 | 0.0275 | 0.0000 | 0.0000 | 0.0275 |
| **Total** | **2.0600e-003** | **0.0333** | **0.0227** | **7.0000e-005** | **1.5500e-003** | **6.1000e-004** | **2.1600e-003** | **4.3000e-004** | **5.6000e-004** | **9.9000e-004** | **0.0000** | **6.1333** | **6.1333** | **5.0000e-005** | **0.0000** | **6.1345** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 8.0000e-005 | 0.0000 | 8.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 5.6000e-004 | 6.7200e-003 | 3.4800e-003 | 1.0000e-005 | | 3.7000e-004 | 3.7000e-004 | | 3.4000e-004 | 3.4000e-004 | 0.0000 | 0.7205 | 0.7205 | 2.1000e-004 | 0.0000 | 0.7249 |
| **Total** | **5.6000e-004** | **6.7200e-003** | **3.4800e-003** | **1.0000e-005** | **8.0000e-005** | **3.7000e-004** | **4.5000e-004** | **1.0000e-005** | **3.4000e-004** | **3.5000e-004** | **0.0000** | **0.7205** | **0.7205** | **2.1000e-004** | **0.0000** | **0.7249** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 2.0500e-003 | 0.0333 | 0.0225 | 7.0000e-005 | 1.5200e-003 | 6.1000e-004 | 2.1300e-003 | 4.2000e-004 | 5.6000e-004 | 9.8000e-004 | 0.0000 | 6.1058 | 6.1058 | 5.0000e-005 | 0.0000 | 6.1069 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-005 | 2.0000e-005 | 1.9000e-004 | 0.0000 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0275 | 0.0275 | 0.0000 | 0.0000 | 0.0275 |
| **Total** | **2.0600e-003** | **0.0333** | **0.0227** | **7.0000e-005** | **1.5500e-003** | **6.1000e-004** | **2.1600e-003** | **4.3000e-004** | **5.6000e-004** | **9.9000e-004** | **0.0000** | **6.1333** | **6.1333** | **5.0000e-005** | **0.0000** | **6.1345** |

## 3.4 Set Caisson Foundation - 2014

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 8.8000e-004 | 0.0101 | 5.5100e-003 | 1.0000e-005 | | 5.6000e-004 | 5.6000e-004 | | 5.1000e-004 | 5.1000e-004 | 0.0000 | 0.9966 | 0.9966 | 2.9000e-004 | 0.0000 | 1.0028 |
| **Total** | **8.8000e-004** | **0.0101** | **5.5100e-003** | **1.0000e-005** | **0.0000** | **5.6000e-004** | **5.6000e-004** | **0.0000** | **5.1000e-004** | **5.1000e-004** | **0.0000** | **0.9966** | **0.9966** | **2.9000e-004** | **0.0000** | **1.0028** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-005 | 2.0000e-005 | 1.9000e-004 | 0.0000 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0275 | 0.0275 | 0.0000 | 0.0000 | 0.0275 |
| **Total** | **1.0000e-005** | **2.0000e-005** | **1.9000e-004** | **0.0000** | **3.0000e-005** | **0.0000** | **3.0000e-005** | **1.0000e-005** | **0.0000** | **1.0000e-005** | **0.0000** | **0.0275** | **0.0275** | **0.0000** | **0.0000** | **0.0275** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 8.8000e-004 | 0.0101 | 5.5100e-003 | 1.0000e-005 | | 5.6000e-004 | 5.6000e-004 | | 5.1000e-004 | 5.1000e-004 | 0.0000 | 0.9966 | 0.9966 | 2.9000e-004 | 0.0000 | 1.0028 |
| **Total** | **8.8000e-004** | **0.0101** | **5.5100e-003** | **1.0000e-005** | **0.0000** | **5.6000e-004** | **5.6000e-004** | **0.0000** | **5.1000e-004** | **5.1000e-004** | **0.0000** | **0.9966** | **0.9966** | **2.9000e-004** | **0.0000** | **1.0028** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-005 | 2.0000e-005 | 1.9000e-004 | 0.0000 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0275 | 0.0275 | 0.0000 | 0.0000 | 0.0275 |
| **Total** | **1.0000e-005** | **2.0000e-005** | **1.9000e-004** | **0.0000** | **3.0000e-005** | **0.0000** | **3.0000e-005** | **1.0000e-005** | **0.0000** | **1.0000e-005** | **0.0000** | **0.0275** | **0.0275** | **0.0000** | **0.0000** | **0.0275** |

## 3.5 Set Sign Column - 2014

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 1.0600e-003 | 0.0115 | 6.0200e-003 | 1.0000e-005 | | 6.7000e-004 | 6.7000e-004 | | 6.2000e-004 | 6.2000e-004 | 0.0000 | 0.8480 | 0.8480 | 2.5000e-004 | 0.0000 | 0.8532 |
| **Total** | **1.0600e-003** | **0.0115** | **6.0200e-003** | **1.0000e-005** | | **6.7000e-004** | **6.7000e-004** | | **6.2000e-004** | **6.2000e-004** | **0.0000** | **0.8480** | **0.8480** | **2.5000e-004** | **0.0000** | **0.8532** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-005 | 2.0000e-005 | 1.9000e-004 | 0.0000 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0275 | 0.0275 | 0.0000 | 0.0000 | 0.0275 |
| **Total** | **1.0000e-005** | **2.0000e-005** | **1.9000e-004** | **0.0000** | **3.0000e-005** | **0.0000** | **3.0000e-005** | **1.0000e-005** | **0.0000** | **1.0000e-005** | **0.0000** | **0.0275** | **0.0275** | **0.0000** | **0.0000** | **0.0275** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 1.0600e-003 | 0.0115 | 6.0200e-003 | 1.0000e-005 | | 6.7000e-004 | 6.7000e-004 | | 6.2000e-004 | 6.2000e-004 | 0.0000 | 0.8480 | 0.8480 | 2.5000e-004 | 0.0000 | 0.8532 |
| **Total** | **1.0600e-003** | **0.0115** | **6.0200e-003** | **1.0000e-005** | | **6.7000e-004** | **6.7000e-004** | | **6.2000e-004** | **6.2000e-004** | **0.0000** | **0.8480** | **0.8480** | **2.5000e-004** | **0.0000** | **0.8532** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-005 | 2.0000e-005 | 1.9000e-004 | 0.0000 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0275 | 0.0275 | 0.0000 | 0.0000 | 0.0275 |
| **Total** | **1.0000e-005** | **2.0000e-005** | **1.9000e-004** | **0.0000** | **3.0000e-005** | **0.0000** | **3.0000e-005** | **1.0000e-005** | **0.0000** | **1.0000e-005** | **0.0000** | **0.0275** | **0.0275** | **0.0000** | **0.0000** | **0.0275** |

## 3.6 Install Super Structure - 2014

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 1.0600e-003 | 0.0115 | 6.0200e-003 | 1.0000e-005 | | 6.7000e-004 | 6.7000e-004 | | 6.2000e-004 | 6.2000e-004 | 0.0000 | 0.8480 | 0.8480 | 2.5000e-004 | 0.0000 | 0.8532 |
| **Total** | **1.0600e-003** | **0.0115** | **6.0200e-003** | **1.0000e-005** | | **6.7000e-004** | **6.7000e-004** | | **6.2000e-004** | **6.2000e-004** | **0.0000** | **0.8480** | **0.8480** | **2.5000e-004** | **0.0000** | **0.8532** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-005 | 2.0000e-005 | 1.9000e-004 | 0.0000 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0275 | 0.0275 | 0.0000 | 0.0000 | 0.0275 |
| **Total** | **1.0000e-005** | **2.0000e-005** | **1.9000e-004** | **0.0000** | **3.0000e-005** | **0.0000** | **3.0000e-005** | **1.0000e-005** | **0.0000** | **1.0000e-005** | **0.0000** | **0.0275** | **0.0275** | **0.0000** | **0.0000** | **0.0275** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 1.0600e-003 | 0.0115 | 6.0200e-003 | 1.0000e-005 | | 6.7000e-004 | 6.7000e-004 | | 6.2000e-004 | 6.2000e-004 | 0.0000 | 0.8480 | 0.8480 | 2.5000e-004 | 0.0000 | 0.8532 |
| **Total** | **1.0600e-003** | **0.0115** | **6.0200e-003** | **1.0000e-005** | | **6.7000e-004** | **6.7000e-004** | | **6.2000e-004** | **6.2000e-004** | **0.0000** | **0.8480** | **0.8480** | **2.5000e-004** | **0.0000** | **0.8532** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-005 | 2.0000e-005 | 1.9000e-004 | 0.0000 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0275 | 0.0275 | 0.0000 | 0.0000 | 0.0275 |
| **Total** | **1.0000e-005** | **2.0000e-005** | **1.9000e-004** | **0.0000** | **3.0000e-005** | **0.0000** | **3.0000e-005** | **1.0000e-005** | **0.0000** | **1.0000e-005** | **0.0000** | **0.0275** | **0.0275** | **0.0000** | **0.0000** | **0.0275** |

## 3.7 Install LED Displays - 2014

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 1.0600e-003 | 0.0115 | 6.0200e-003 | 1.0000e-005 | | 6.7000e-004 | 6.7000e-004 | | 6.2000e-004 | 6.2000e-004 | 0.0000 | 0.8480 | 0.8480 | 2.5000e-004 | 0.0000 | 0.8532 |
| **Total** | **1.0600e-003** | **0.0115** | **6.0200e-003** | **1.0000e-005** | | **6.7000e-004** | **6.7000e-004** | | **6.2000e-004** | **6.2000e-004** | **0.0000** | **0.8480** | **0.8480** | **2.5000e-004** | **0.0000** | **0.8532** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-005 | 2.0000e-005 | 1.9000e-004 | 0.0000 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0275 | 0.0275 | 0.0000 | 0.0000 | 0.0275 |
| **Total** | **1.0000e-005** | **2.0000e-005** | **1.9000e-004** | **0.0000** | **3.0000e-005** | **0.0000** | **3.0000e-005** | **1.0000e-005** | **0.0000** | **1.0000e-005** | **0.0000** | **0.0275** | **0.0275** | **0.0000** | **0.0000** | **0.0275** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 1.0600e-003 | 0.0115 | 6.0200e-003 | 1.0000e-005 | | 6.7000e-004 | 6.7000e-004 | | 6.2000e-004 | 6.2000e-004 | 0.0000 | 0.8480 | 0.8480 | 2.5000e-004 | 0.0000 | 0.8532 |
| **Total** | **1.0600e-003** | **0.0115** | **6.0200e-003** | **1.0000e-005** | | **6.7000e-004** | **6.7000e-004** | | **6.2000e-004** | **6.2000e-004** | **0.0000** | **0.8480** | **0.8480** | **2.5000e-004** | **0.0000** | **0.8532** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.0000e-005 | 2.0000e-005 | 1.9000e-004 | 0.0000 | 3.0000e-005 | 0.0000 | 3.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 0.0000 | 0.0275 | 0.0275 | 0.0000 | 0.0000 | 0.0275 |
| **Total** | **1.0000e-005** | **2.0000e-005** | **1.9000e-004** | **0.0000** | **3.0000e-005** | **0.0000** | **3.0000e-005** | **1.0000e-005** | **0.0000** | **1.0000e-005** | **0.0000** | **0.0275** | **0.0275** | **0.0000** | **0.0000** | **0.0275** |

## 3.8 Install Arch. Claddings, Elec. Conduits, Camera Arms - 2014

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 5.3100e-003 | 0.0575 | 0.0301 | 4.0000e-005 | | 3.3500e-003 | 3.3500e-003 | | 3.0800e-003 | 3.0800e-003 | 0.0000 | 4.2398 | 4.2398 | 1.2500e-003 | 0.0000 | 4.2661 |
| **Total** | **5.3100e-003** | **0.0575** | **0.0301** | **4.0000e-005** | | **3.3500e-003** | **3.3500e-003** | | **3.0800e-003** | **3.0800e-003** | **0.0000** | **4.2398** | **4.2398** | **1.2500e-003** | **0.0000** | **4.2661** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.0000e-005 | 9.0000e-005 | 9.4000e-004 | 0.0000 | 1.4000e-004 | 0.0000 | 1.4000e-004 | 4.0000e-005 | 0.0000 | 4.0000e-005 | 0.0000 | 0.1375 | 0.1375 | 1.0000e-005 | 0.0000 | 0.1377 |
| **Total** | **6.0000e-005** | **9.0000e-005** | **9.4000e-004** | **0.0000** | **1.4000e-004** | **0.0000** | **1.4000e-004** | **4.0000e-005** | **0.0000** | **4.0000e-005** | **0.0000** | **0.1375** | **0.1375** | **1.0000e-005** | **0.0000** | **0.1377** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | 5.3100e-003 | 0.0575 | 0.0301 | 4.0000e-005 | | 3.3500e-003 | 3.3500e-003 | | 3.0800e-003 | 3.0800e-003 | 0.0000 | 4.2398 | 4.2398 | 1.2500e-003 | 0.0000 | 4.2661 |
| **Total** | **5.3100e-003** | **0.0575** | **0.0301** | **4.0000e-005** | | **3.3500e-003** | **3.3500e-003** | | **3.0800e-003** | **3.0800e-003** | **0.0000** | **4.2398** | **4.2398** | **1.2500e-003** | **0.0000** | **4.2661** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.0000e-005 | 9.0000e-005 | 9.4000e-004 | 0.0000 | 1.4000e-004 | 0.0000 | 1.4000e-004 | 4.0000e-005 | 0.0000 | 4.0000e-005 | 0.0000 | 0.1375 | 0.1375 | 1.0000e-005 | 0.0000 | 0.1377 |
| **Total** | **6.0000e-005** | **9.0000e-005** | **9.4000e-004** | **0.0000** | **1.4000e-004** | **0.0000** | **1.4000e-004** | **4.0000e-005** | **0.0000** | **4.0000e-005** | **0.0000** | **0.1375** | **0.1375** | **1.0000e-005** | **0.0000** | **0.1377** |

# Garden Grove Billboards

**South Coast Air Basin, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| General Light Industry | 0.02 | 1000sqft | 0.00 | 21.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 31 |
| **Climate Zone** | 8 | | | **Operational Year** | 2015 |
| **Utility Company** | Southern California Edison | | | | |
| **CO2 Intensity (lb/MWhr)** | 630.89 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Rough construction schedule per contractor

Off-road Equipment - Construction equipment per constractor

Off-road Equipment - Equipment per contractor

Off-road Equipment - Equipment per contractor

Off-road Equipment - Equipment per contractor

Off-road Equipment - Equipment per constractor

Off-road Equipment - Equipment per contractor

Trips and VMT - Maximum 5 workers per day per contractor

Grading -

Vehicle Trips - Construction only

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | NumDays | 0.00 | 5.00 |
| tblConstructionPhase | NumDays | 0.00 | 2.00 |
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | PhaseStartDate | 11/8/2014 | 11/10/2014 |
| tblGrading | MaterialExported | 0.00 | 1,413.00 |
| tblLandUse | LandUseSquareFeet | 20.00 | 21.00 |
| tblOffRoadEquipment | HorsePower | 81.00 | 205.00 |
| tblOffRoadEquipment | LoadFactor | 0.73 | 0.50 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 4.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 4.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 4.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 4.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 1.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 6.00 | 8.00 |
| tblProjectCharacteristics | OperationalYear | 2014 | 2016 |
| tblTripsAndVMT | HaulingTripNumber | 0.00 | 4.00 |
| tblTripsAndVMT | WorkerTripNumber | 10.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 8.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 10.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 0.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 0.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 0.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 0.00 | 5.00 |
| tblVehicleTrips | ST_TR | 1.32 | 0.00 |
| tblVehicleTrips | SU_TR | 0.68 | 0.00 |
| tblVehicleTrips | WD_TR | 6.97 | 0.00 |

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2014 | 5.0847 | 76.6264 | 48.1661 | 0.1467 | 3.2983 | 1.9635 | 5.2618 | 0.8831 | 1.8061 | 2.6892 | 0.0000 | 15,126.3775 | 15,126.3775 | 0.6529 | 0.0000 | 15,140.0888 |
| **Total** | **5.0847** | **76.6264** | **48.1661** | **0.1467** | **3.2983** | **1.9635** | **5.2618** | **0.8831** | **1.8061** | **2.6892** | **0.0000** | **15,126.3775** | **15,126.3775** | **0.6529** | **0.0000** | **15,140.0888** |

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2014 | 5.0847 | 76.6264 | 48.1661 | 0.1467 | 3.2983 | 1.9635 | 5.2618 | 0.8831 | 1.8061 | 2.6892 | 0.0000 | 15,126.3775 | 15,126.3775 | 0.6529 | 0.0000 | 15,140.0888 |
| **Total** | **5.0847** | **76.6264** | **48.1661** | **0.1467** | **3.2983** | **1.9635** | **5.2618** | **0.8831** | **1.8061** | **2.6892** | **0.0000** | **15,126.3775** | **15,126.3775** | **0.6529** | **0.0000** | **15,140.0888** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

## Construction Phase

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 11/3/2014 | 11/4/2014 | 5 | 2 | |
| 2 | Drilling | Grading | 11/5/2014 | 11/5/2014 | 5 | 1 | |
| 3 | Set Caisson Foundation | Site Preparation | 11/6/2014 | 11/6/2014 | 5 | 1 | |
| 4 | Set Sign Column | Building Construction | 11/7/2014 | 11/7/2014 | 5 | 1 | |
| 5 | Install Super Structure | Building Construction | 11/10/2014 | 11/10/2014 | 5 | 1 | |
| 6 | Install LED Displays | Building Construction | 11/11/2014 | 11/11/2014 | 5 | 1 | |
| 7 | Install Arch. Claddings, Elec. Conduits, Camera Arms | Building Construction | 11/12/2014 | 11/18/2014 | 5 | 5 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)**

## OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition | Rubber Tired Dozers | 1 | 1.00 | 255 | 0.40 |
| Demolition | Tractors/Loaders/Backhoes | 2 | 6.00 | 97 | 0.37 |
| Drilling | Bore/Drill Rigs | 1 | 8.00 | 205 | 0.50 |
| Drilling | Concrete/Industrial Saws | 0 | 0.00 | 205 | 0.50 |
| Drilling | Rubber Tired Dozers | 0 | 0.00 | 255 | 0.40 |
| Drilling | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Set Caisson Foundation | Bore/Drill Rigs | 1 | 8.00 | 205 | 0.50 |
| Set Caisson Foundation | Graders | 0 | 8.00 | 174 | 0.41 |
| Set Caisson Foundation | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Set Caisson Foundation | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Set Sign Column | Cranes | 1 | 8.00 | 226 | 0.29 |
| Set Sign Column | Forklifts | 0 | 6.00 | 89 | 0.20 |
| Set Sign Column | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Set Sign Column | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Install Super Structure | Cranes | 1 | 8.00 | 226 | 0.29 |
| Install Super Structure | Forklifts | 0 | 6.00 | 89 | 0.20 |
| Install Super Structure | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Install Super Structure | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Install LED Displays | Cranes | 1 | 8.00 | 226 | 0.29 |
| Install LED Displays | Forklifts | 0 | 6.00 | 89 | 0.20 |
| Install LED Displays | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Install LED Displays | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Install Arch. Claddings, Elec. Conduits, Camera Arms | Cranes | 1 | 8.00 | 226 | 0.29 |
| Install Arch. Claddings, Elec. Conduits, Camera Arms | Forklifts | 0 | 6.00 | 89 | 0.20 |
| Install Arch. Claddings, Elec. Conduits, Camera Arms | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Install Arch. Claddings, Elec. Conduits, Camera Arms | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |

## Trips and VMT

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 4 | 5.00 | 0.00 | 4.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Drilling | 3 | 5.00 | 0.00 | 177.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Set Caisson Foundation | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Set Sign Column | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Install Super Structure | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Install LED Displays | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Install Arch. Claddings, Elec. Conduits, Camera | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

## 3.2 Demolition - 2014

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.4929 | 12.4922 | 8.8528 | 0.0121 | | 0.9304 | 0.9304 | | 0.8904 | 0.8904 | | 1,207.2469 | 1,207.2469 | 0.2515 | | 1,212.5281 |
| **Total** | **1.4929** | **12.4922** | **8.8528** | **0.0121** | | **0.9304** | **0.9304** | | **0.8904** | **0.8904** | | **1,207.2469** | **1,207.2469** | **0.2515** | | **1,212.5281** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0444 | 0.7136 | 0.4610 | 1.4800e-003 | 0.0348 | 0.0138 | 0.0486 | 9.5400e-003 | 0.0127 | 0.0222 | | 152.2532 | 152.2532 | 1.3100e-003 | | 152.2807 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0257 | 0.0322 | 0.3971 | 7.1000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 63.6446 | 63.6446 | 3.6200e-003 | | 63.7206 |
| **Total** | **0.0701** | **0.7458** | **0.8581** | **2.1900e-003** | **0.0907** | **0.0143** | **0.1050** | **0.0244** | **0.0131** | **0.0375** | | **215.8978** | **215.8978** | **4.9300e-003** | | **216.0013** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.4929 | 12.4922 | 8.8528 | 0.0121 | | 0.9304 | 0.9304 | | 0.8904 | 0.8904 | 0.0000 | 1,207.2469 | 1,207.2469 | 0.2515 | | 1,212.5281 |
| **Total** | **1.4929** | **12.4922** | **8.8528** | **0.0121** | | **0.9304** | **0.9304** | | **0.8904** | **0.8904** | **0.0000** | **1,207.2469** | **1,207.2469** | **0.2515** | | **1,212.5281** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0444 | 0.7136 | 0.4610 | 1.4800e-003 | 0.0348 | 0.0138 | 0.0486 | 9.5400e-003 | 0.0127 | 0.0222 | | 152.2532 | 152.2532 | 1.3100e-003 | | 152.2807 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0257 | 0.0322 | 0.3971 | 7.1000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 63.6446 | 63.6446 | 3.6200e-003 | | 63.7206 |
| **Total** | **0.0701** | **0.7458** | **0.8581** | **2.1900e-003** | **0.0907** | **0.0143** | **0.1050** | **0.0244** | **0.0131** | **0.0375** | | **215.8978** | **215.8978** | **4.9300e-003** | | **216.0013** |

## 3.3 Drilling - 2014

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.1598 | 0.0000 | 0.1598 | 0.0242 | 0.0000 | 0.0242 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.1298 | 13.4368 | 6.9683 | 0.0150 | | 0.7446 | 0.7446 | | 0.6851 | 0.6851 | | 1,588.3267 | 1,588.3267 | 0.4694 | | 1,598.1835 |
| **Total** | **1.1298** | **13.4368** | **6.9683** | **0.0150** | **0.1598** | **0.7446** | **0.9044** | **0.0242** | **0.6851** | **0.7093** | | **1,588.3267** | **1,588.3267** | **0.4694** | | **1,598.1835** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 3.9292 | 63.1575 | 40.8007 | 0.1311 | 3.0826 | 1.2183 | 4.3009 | 0.8440 | 1.1206 | 1.9646 | | 13,474.4061 | 13,474.4061 | 0.1158 | | 13,476.8386 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0257 | 0.0322 | 0.3971 | 7.1000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 63.6446 | 63.6446 | 3.6200e-003 | | 63.7206 |
| **Total** | **3.9549** | **63.1896** | **41.1977** | **0.1318** | **3.1385** | **1.2188** | **4.3573** | **0.8589** | **1.1210** | **1.9799** | | **13,538.0508** | **13,538.0508** | **0.1195** | | **13,540.5593** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.1598 | 0.0000 | 0.1598 | 0.0242 | 0.0000 | 0.0242 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.1298 | 13.4368 | 6.9683 | 0.0150 | | 0.7446 | 0.7446 | | 0.6851 | 0.6851 | 0.0000 | 1,588.3267 | 1,588.3267 | 0.4694 | | 1,598.1835 |
| **Total** | **1.1298** | **13.4368** | **6.9683** | **0.0150** | **0.1598** | **0.7446** | **0.9044** | **0.0242** | **0.6851** | **0.7093** | **0.0000** | **1,588.3267** | **1,588.3267** | **0.4694** | | **1,598.1835** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 3.9292 | 63.1575 | 40.8007 | 0.1311 | 3.0826 | 1.2183 | 4.3009 | 0.8440 | 1.1206 | 1.9646 | | 13,474.4061 | 13,474.4061 | 0.1158 | | 13,476.8386 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0257 | 0.0322 | 0.3971 | 7.1000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 63.6446 | 63.6446 | 3.6200e-003 | | 63.7206 |
| **Total** | **3.9549** | **63.1896** | **41.1977** | **0.1318** | **3.1385** | **1.2188** | **4.3573** | **0.8589** | **1.1210** | **1.9799** | | **13,538.0508** | **13,538.0508** | **0.1195** | | **13,540.5593** |

## 3.4 Set Caisson Foundation - 2014

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.7523 | 20.2673 | 11.0101 | 0.0207 | | 1.1131 | 1.1131 | | 1.0241 | 1.0241 | | 2,197.2158 | 2,197.2158 | 0.6493 | | 2,210.8511 |
| **Total** | **1.7523** | **20.2673** | **11.0101** | **0.0207** | **0.0000** | **1.1131** | **1.1131** | **0.0000** | **1.0241** | **1.0241** | | **2,197.2158** | **2,197.2158** | **0.6493** | | **2,210.8511** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0257 | 0.0322 | 0.3971 | 7.1000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 63.6446 | 63.6446 | 3.6200e-003 | | 63.7206 |
| **Total** | **0.0257** | **0.0322** | **0.3971** | **7.1000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **63.6446** | **63.6446** | **3.6200e-003** | | **63.7206** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.7523 | 20.2673 | 11.0101 | 0.0207 | | 1.1131 | 1.1131 | | 1.0241 | 1.0241 | 0.0000 | 2,197.2158 | 2,197.2158 | 0.6493 | | 2,210.8511 |
| **Total** | **1.7523** | **20.2673** | **11.0101** | **0.0207** | **0.0000** | **1.1131** | **1.1131** | **0.0000** | **1.0241** | **1.0241** | **0.0000** | **2,197.2158** | **2,197.2158** | **0.6493** | | **2,210.8511** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0257 | 0.0322 | 0.3971 | 7.1000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 63.6446 | 63.6446 | 3.6200e-003 | | 63.7206 |
| **Total** | **0.0257** | **0.0322** | **0.3971** | **7.1000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **63.6446** | **63.6446** | **3.6200e-003** | | **63.7206** |

## 3.5 Set Sign Column - 2014

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0257 | 0.0322 | 0.3971 | 7.1000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 63.6446 | 63.6446 | 3.6200e-003 | | 63.7206 |
| **Total** | **0.0257** | **0.0322** | **0.3971** | **7.1000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **63.6446** | **63.6446** | **3.6200e-003** | | **63.7206** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | 0.0000 | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | **0.0000** | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0257 | 0.0322 | 0.3971 | 7.1000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 63.6446 | 63.6446 | 3.6200e-003 | | 63.7206 |
| **Total** | **0.0257** | **0.0322** | **0.3971** | **7.1000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **63.6446** | **63.6446** | **3.6200e-003** | | **63.7206** |

## 3.6 Install Super Structure - 2014

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0257 | 0.0322 | 0.3971 | 7.1000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 63.6446 | 63.6446 | 3.6200e-003 | | 63.7206 |
| **Total** | **0.0257** | **0.0322** | **0.3971** | **7.1000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **63.6446** | **63.6446** | **3.6200e-003** | | **63.7206** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | 0.0000 | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | **0.0000** | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Category | lb/day | | | | | | | | | | | lb/day | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0257 | 0.0322 | 0.3971 | 7.1000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 63.6446 | 63.6446 | 3.6200e-003 | | 63.7206 |
| **Total** | **0.0257** | **0.0322** | **0.3971** | **7.1000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **63.6446** | **63.6446** | **3.6200e-003** | | **63.7206** |

### 3.7 Install LED Displays - 2014

#### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

#### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0257 | 0.0322 | 0.3971 | 7.1000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 63.6446 | 63.6446 | 3.6200e-003 | | 63.7206 |
| **Total** | **0.0257** | **0.0322** | **0.3971** | **7.1000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **63.6446** | **63.6446** | **3.6200e-003** | | **63.7206** |

#### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | 0.0000 | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | **0.0000** | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

#### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0257 | 0.0322 | 0.3971 | 7.1000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 63.6446 | 63.6446 | 3.6200e-003 | | 63.7206 |
| **Total** | **0.0257** | **0.0322** | **0.3971** | **7.1000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **63.6446** | **63.6446** | **3.6200e-003** | | **63.7206** |

### 3.8 Install Arch. Claddings, Elec. Conduits, Camera Arms - 2014

#### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Category | lb/day | | | | | | | | | | lb/day | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0257 | 0.0322 | 0.3971 | 7.1000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 63.6446 | 63.6446 | 3.6200e-003 | | 63.7206 |
| **Total** | **0.0257** | **0.0322** | **0.3971** | **7.1000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **63.6446** | **63.6446** | **3.6200e-003** | | **63.7206** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | 0.0000 | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | **0.0000** | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0257 | 0.0322 | 0.3971 | 7.1000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 63.6446 | 63.6446 | 3.6200e-003 | | 63.7206 |
| **Total** | **0.0257** | **0.0322** | **0.3971** | **7.1000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **63.6446** | **63.6446** | **3.6200e-003** | | **63.7206** |

# Garden Grove Billboards

**South Coast Air Basin, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| General Light Industry | 0.02 | 1000sqft | 0.00 | 21.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 31 |
| **Climate Zone** | 8 | | | **Operational Year** | 2016 |
| **Utility Company** | Southern California Edison | | | | |
| **CO2 Intensity (lb/MWhr)** | 630.89 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Rough construction schedule per contractor

Off-road Equipment - Construction equipment per constractor

Off-road Equipment - Equipment per contractor

Off-road Equipment - Equipment per contractor

Off-road Equipment - Equipment per contractor

Off-road Equipment - Equipment per constractor

Off-road Equipment - Equipment per contractor

Trips and VMT - Maximum 5 workers per day per contractor

Grading -

Vehicle Trips - Construction only

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | NumDays | 0.00 | 5.00 |
| tblConstructionPhase | NumDays | 0.00 | 2.00 |
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | NumDays | 0.00 | 1.00 |
| tblConstructionPhase | PhaseStartDate | 11/8/2014 | 11/10/2014 |
| tblGrading | MaterialExported | 0.00 | 1,413.00 |
| tblLandUse | LandUseSquareFeet | 20.00 | 21.00 |
| tblOffRoadEquipment | HorsePower | 81.00 | 205.00 |
| tblOffRoadEquipment | LoadFactor | 0.73 | 0.50 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 2.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 4.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 4.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 4.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 4.00 | 8.00 |
| tblOffRoadEquipment | UsageHours | 1.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 6.00 | 8.00 |
| tblProjectCharacteristics | OperationalYear | 2014 | 2016 |
| tblTripsAndVMT | HaulingTripNumber | 0.00 | 4.00 |
| tblTripsAndVMT | WorkerTripNumber | 10.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 8.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 10.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 0.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 0.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 0.00 | 5.00 |
| tblTripsAndVMT | WorkerTripNumber | 0.00 | 5.00 |
| tblVehicleTrips | ST_TR | 1.32 | 0.00 |
| tblVehicleTrips | SU_TR | 0.68 | 0.00 |
| tblVehicleTrips | WD_TR | 6.97 | 0.00 |

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2014 | 5.3304 | 78.9301 | 53.0476 | 0.1465 | 3.2983 | 1.9675 | 5.2658 | 0.8831 | 1.8098 | 2.6929 | 0.0000 | 15,090.6066 | 15,090.6066 | 0.6529 | 0.0000 | 15,104.3179 |
| **Total** | **5.3304** | **78.9301** | **53.0476** | **0.1465** | **3.2983** | **1.9675** | **5.2658** | **0.8831** | **1.8098** | **2.6929** | **0.0000** | **15,090.6066** | **15,090.6066** | **0.6529** | **0.0000** | **15,104.3179** |

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2014 | 5.3304 | 78.9301 | 53.0476 | 0.1465 | 3.2983 | 1.9675 | 5.2658 | 0.8831 | 1.8098 | 2.6929 | 0.0000 | 15,090.6066 | 15,090.6066 | 0.6529 | 0.0000 | 15,104.3179 |
| **Total** | **5.3304** | **78.9301** | **53.0476** | **0.1465** | **3.2983** | **1.9675** | **5.2658** | **0.8831** | **1.8098** | **2.6929** | **0.0000** | **15,090.6066** | **15,090.6066** | **0.6529** | **0.0000** | **15,104.3179** |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Demolition | Demolition | 11/3/2014 | 11/4/2014 | 5 | 2 | |
| 2 | Drilling | Grading | 11/5/2014 | 11/5/2014 | 5 | 1 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3 | Set Caisson Foundation | Site Preparation | 11/6/2014 | 11/6/2014 | 5 | 1 |
| 4 | Set Sign Column | Building Construction | 11/7/2014 | 11/7/2014 | 5 | 1 |
| 5 | Install Super Structure | Building Construction | 11/10/2014 | 11/10/2014 | 5 | 1 |
| 6 | Install LED Displays | Building Construction | 11/11/2014 | 11/11/2014 | 5 | 1 |
| 7 | Install Arch. Claddings, Elec. Conduits, Camera Arms | Building Construction | 11/12/2014 | 11/18/2014 | 5 | 5 |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition | Rubber Tired Dozers | 1 | 1.00 | 255 | 0.40 |
| Demolition | Tractors/Loaders/Backhoes | 2 | 6.00 | 97 | 0.37 |
| Drilling | Bore/Drill Rigs | 1 | 8.00 | 205 | 0.50 |
| Drilling | Concrete/Industrial Saws | 0 | 0.00 | 205 | 0.50 |
| Drilling | Rubber Tired Dozers | 0 | 0.00 | 255 | 0.40 |
| Drilling | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Set Caisson Foundation | Bore/Drill Rigs | 1 | 8.00 | 205 | 0.50 |
| Set Caisson Foundation | Graders | 0 | 8.00 | 174 | 0.41 |
| Set Caisson Foundation | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Set Caisson Foundation | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Set Sign Column | Cranes | 1 | 8.00 | 226 | 0.29 |
| Set Sign Column | Forklifts | 0 | 6.00 | 89 | 0.20 |
| Set Sign Column | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Set Sign Column | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Install Super Structure | Cranes | 1 | 8.00 | 226 | 0.29 |
| Install Super Structure | Forklifts | 0 | 6.00 | 89 | 0.20 |
| Install Super Structure | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Install Super Structure | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Install LED Displays | Cranes | 1 | 8.00 | 226 | 0.29 |
| Install LED Displays | Forklifts | 0 | 6.00 | 89 | 0.20 |
| Install LED Displays | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Install LED Displays | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |
| Install Arch. Claddings, Elec. Conduits, Camera Arms | Cranes | 1 | 8.00 | 226 | 0.29 |
| Install Arch. Claddings, Elec. Conduits, Camera Arms | Forklifts | 0 | 6.00 | 89 | 0.20 |
| Install Arch. Claddings, Elec. Conduits, Camera Arms | Other Material Handling Equipment | 1 | 8.00 | 167 | 0.40 |
| Install Arch. Claddings, Elec. Conduits, Camera Arms | Tractors/Loaders/Backhoes | 2 | 8.00 | 97 | 0.37 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Demolition | 4 | 5.00 | 0.00 | 4.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Drilling | 3 | 5.00 | 0.00 | 177.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Set Caisson Foundation | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Set Sign Column | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Install Super Structure | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Install LED Displays | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Install Arch. Claddings, Elec. Conduits, Camera | 4 | 5.00 | 0.00 | 0.00 | 14.70 | 6.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

## 3.2 Demolition - 2014

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.4929 | 12.4922 | 8.8528 | 0.0121 | | 0.9304 | 0.9304 | | 0.8904 | 0.8904 | | 1,207.2469 | 1,207.2469 | 0.2515 | | 1,212.5281 |
| **Total** | **1.4929** | **12.4922** | **8.8528** | **0.0121** | | **0.9304** | **0.9304** | | **0.8904** | **0.8904** | | **1,207.2469** | **1,207.2469** | **0.2515** | | **1,212.5281** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0472 | 0.7396 | 0.5165 | 1.4800e-003 | 0.0348 | 0.0138 | 0.0486 | 9.5400e-003 | 0.0127 | 0.0222 | | 151.8935 | 151.8935 | 1.3200e-003 | | 151.9213 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0263 | 0.0353 | 0.3685 | 6.6000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 59.7070 | 59.7070 | 3.6200e-003 | | 59.7830 |
| **Total** | **0.0735** | **0.7750** | **0.8850** | **2.1400e-003** | **0.0907** | **0.0143** | **0.1051** | **0.0244** | **0.0132** | **0.0375** | | **211.6005** | **211.6005** | **4.9400e-003** | | **211.7043** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.4929 | 12.4922 | 8.8528 | 0.0121 | | 0.9304 | 0.9304 | | 0.8904 | 0.8904 | 0.0000 | 1,207.2469 | 1,207.2469 | 0.2515 | | 1,212.5281 |
| **Total** | **1.4929** | **12.4922** | **8.8528** | **0.0121** | | **0.9304** | **0.9304** | | **0.8904** | **0.8904** | **0.0000** | **1,207.2469** | **1,207.2469** | **0.2515** | | **1,212.5281** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0472 | 0.7396 | 0.5165 | 1.4800e-003 | 0.0348 | 0.0138 | 0.0486 | 9.5400e-003 | 0.0127 | 0.0222 | | 151.8935 | 151.8935 | 1.3200e-003 | | 151.9213 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0263 | 0.0353 | 0.3685 | 6.6000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 59.7070 | 59.7070 | 3.6200e-003 | | 59.7830 |
| **Total** | **0.0735** | **0.7750** | **0.8850** | **2.1400e-003** | **0.0907** | **0.0143** | **0.1051** | **0.0244** | **0.0132** | **0.0375** | | **211.6005** | **211.6005** | **4.9400e-003** | | **211.7043** |

## 3.3 Drilling - 2014

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.1598 | 0.0000 | 0.1598 | 0.0242 | 0.0000 | 0.0242 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.1298 | 13.4368 | 6.9683 | 0.0150 | | 0.7446 | 0.7446 | | 0.6851 | 0.6851 | | 1,588.3267 | 1,588.3267 | 0.4694 | | 1,598.1835 |
| **Total** | **1.1298** | **13.4368** | **6.9683** | **0.0150** | **0.1598** | **0.7446** | **0.9044** | **0.0242** | **0.6851** | **0.7093** | | **1,588.3267** | **1,588.3267** | **0.4694** | | **1,598.1835** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 4.1742 | 65.4580 | 45.7108 | 0.1308 | 3.0826 | 1.2224 | 4.3050 | 0.8440 | 1.1243 | 1.9683 | | 13,442.5728 | 13,442.5728 | 0.1171 | | 13,445.0326 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0263 | 0.0353 | 0.3685 | 6.6000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 59.7070 | 59.7070 | 3.6200e-003 | | 59.7830 |
| **Total** | **4.2006** | **65.4933** | **46.0793** | **0.1315** | **3.1385** | **1.2229** | **4.3614** | **0.8589** | **1.1248** | **1.9836** | | **13,502.2799** | **13,502.2799** | **0.1208** | | **13,504.8156** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.1598 | 0.0000 | 0.1598 | 0.0242 | 0.0000 | 0.0242 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.1298 | 13.4368 | 6.9683 | 0.0150 | | 0.7446 | 0.7446 | | 0.6851 | 0.6851 | 0.0000 | 1,588.3267 | 1,588.3267 | 0.4694 | | 1,598.1835 |
| **Total** | **1.1298** | **13.4368** | **6.9683** | **0.0150** | **0.1598** | **0.7446** | **0.9044** | **0.0242** | **0.6851** | **0.7093** | **0.0000** | **1,588.3267** | **1,588.3267** | **0.4694** | | **1,598.1835** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 4.1742 | 65.4580 | 45.7108 | 0.1308 | 3.0826 | 1.2224 | 4.3050 | 0.8440 | 1.1243 | 1.9683 | | 13,442.5728 | 13,442.5728 | 0.1171 | | 13,445.0326 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0263 | 0.0353 | 0.3685 | 6.6000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 59.7070 | 59.7070 | 3.6200e-003 | | 59.7830 |
| **Total** | **4.2006** | **65.4933** | **46.0793** | **0.1315** | **3.1385** | **1.2229** | **4.3614** | **0.8589** | **1.1248** | **1.9836** | | **13,502.2799** | **13,502.2799** | **0.1208** | | **13,504.8156** |

## 3.4 Set Caisson Foundation - 2014

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.7523 | 20.2673 | 11.0101 | 0.0207 | | 1.1131 | 1.1131 | | 1.0241 | 1.0241 | | 2,197.2158 | 2,197.2158 | 0.6493 | | 2,210.8511 |
| **Total** | **1.7523** | **20.2673** | **11.0101** | **0.0207** | **0.0000** | **1.1131** | **1.1131** | **0.0000** | **1.0241** | **1.0241** | | **2,197.2158** | **2,197.2158** | **0.6493** | | **2,210.8511** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0263 | 0.0353 | 0.3685 | 6.6000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 59.7070 | 59.7070 | 3.6200e-003 | | 59.7830 |
| **Total** | **0.0263** | **0.0353** | **0.3685** | **6.6000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **59.7070** | **59.7070** | **3.6200e-003** | | **59.7830** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Off-Road | 1.7523 | 20.2673 | 11.0101 | 0.0207 | | 1.1131 | 1.1131 | | 1.0241 | 1.0241 | 0.0000 | 2,197.2158 | 2,197.2158 | 0.6493 | | 2,210.8511 |
| **Total** | **1.7523** | **20.2673** | **11.0101** | **0.0207** | **0.0000** | **1.1131** | **1.1131** | **0.0000** | **1.0241** | **1.0241** | **0.0000** | **2,197.2158** | **2,197.2158** | **0.6493** | | **2,210.8511** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0263 | 0.0353 | 0.3685 | 6.6000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 59.7070 | 59.7070 | 3.6200e-003 | | 59.7830 |
| **Total** | **0.0263** | **0.0353** | **0.3685** | **6.6000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **59.7070** | **59.7070** | **3.6200e-003** | | **59.7830** |

## 3.5 Set Sign Column - 2014

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0263 | 0.0353 | 0.3685 | 6.6000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 59.7070 | 59.7070 | 3.6200e-003 | | 59.7830 |
| **Total** | **0.0263** | **0.0353** | **0.3685** | **6.6000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **59.7070** | **59.7070** | **3.6200e-003** | | **59.7830** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | 0.0000 | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | **0.0000** | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0263 | 0.0353 | 0.3685 | 6.6000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 59.7070 | 59.7070 | 3.6200e-003 | | 59.7830 |
| **Total** | **0.0263** | **0.0353** | **0.3685** | **6.6000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **59.7070** | **59.7070** | **3.6200e-003** | | **59.7830** |

## 3.6 Install Super Structure - 2014

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0263 | 0.0353 | 0.3685 | 6.6000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 59.7070 | 59.7070 | 3.6200e-003 | | 59.7830 |
| **Total** | **0.0263** | **0.0353** | **0.3685** | **6.6000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **59.7070** | **59.7070** | **3.6200e-003** | | **59.7830** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | 0.0000 | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | **0.0000** | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

### Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0263 | 0.0353 | 0.3685 | 6.6000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 59.7070 | 59.7070 | 3.6200e-003 | | 59.7830 |
| **Total** | **0.0263** | **0.0353** | **0.3685** | **6.6000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **59.7070** | **59.7070** | **3.6200e-003** | | **59.7830** |

## 3.7 Install LED Displays - 2014

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0263 | 0.0353 | 0.3685 | 6.6000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 59.7070 | 59.7070 | 3.6200e-003 | | 59.7830 |
| **Total** | **0.0263** | **0.0353** | **0.3685** | **6.6000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **59.7070** | **59.7070** | **3.6200e-003** | | **59.7830** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | 0.0000 | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | **0.0000** | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0263 | 0.0353 | 0.3685 | 6.6000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 59.7070 | 59.7070 | 3.6200e-003 | | 59.7830 |
| **Total** | **0.0263** | **0.0353** | **0.3685** | **6.6000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **59.7070** | **59.7070** | **3.6200e-003** | | **59.7830** |

## 3.8 Install Arch. Claddings, Elec. Conduits, Camera Arms - 2014

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0263 | 0.0353 | 0.3685 | 6.6000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 59.7070 | 59.7070 | 3.6200e-003 | | 59.7830 |
| **Total** | **0.0263** | **0.0353** | **0.3685** | **6.6000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **59.7070** | **59.7070** | **3.6200e-003** | | **59.7830** |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.1232 | 22.9815 | 12.0384 | 0.0176 | | 1.3399 | 1.3399 | | 1.2327 | 1.2327 | 0.0000 | 1,869.4237 | 1,869.4237 | 0.5524 | | 1,881.0248 |
| **Total** | **2.1232** | **22.9815** | **12.0384** | **0.0176** | | **1.3399** | **1.3399** | | **1.2327** | **1.2327** | **0.0000** | **1,869.4237** | **1,869.4237** | **0.5524** | | **1,881.0248** |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0263 | 0.0353 | 0.3685 | 6.6000e-004 | 0.0559 | 5.3000e-004 | 0.0564 | 0.0148 | 4.8000e-004 | 0.0153 | | 59.7070 | 59.7070 | 3.6200e-003 | | 59.7830 |
| **Total** | **0.0263** | **0.0353** | **0.3685** | **6.6000e-004** | **0.0559** | **5.3000e-004** | **0.0564** | **0.0148** | **4.8000e-004** | **0.0153** | | **59.7070** | **59.7070** | **3.6200e-003** | | **59.7830** |