

City of
SACRAMENTO

ADDENDUM TO A CERTIFIED ENVIRONMENTAL IMPACT REPORT

The City of Sacramento, California, a municipal corporation, does hereby prepare, make declare, and publish the Addendum to a certified Environmental Impact Report (EIR) for the following described project:

Project Name and Number: **Natomas Quad B Office Project (P18-014)**

The City of Sacramento, Community Development Department, has reviewed the proposed changes to the prior approved project and on the basis of the whole record before it, has determined that there is substantial evidence to support the determination that the attached original Environmental Impact Report (EIR) remains relevant in considering the environmental impacts of the proposed project changes and that there is no substantial evidence to support a fair argument that the changes to the project, as identified in the attached Addendum, may have a significant effect on the environment beyond that which was evaluated in the referenced certified EIR. A subsequent EIR is not required pursuant to the California Environmental Quality Act of 1970 (Public Resources Code Sections 21000, et seq. California).

This Addendum to the certified EIR has been prepared pursuant to Title 14, Sections 15162-15164 of the California Code of Regulations, and the Sacramento Local Environmental Regulations (Resolution 91-892) adopted by the City of Sacramento.

A copy of this document and all supportive documentation may be reviewed or obtained at the City of Sacramento, Community Development Department, Planning Division, 300 Richards Boulevard, Third Floor, Sacramento, California 95811 and on the City's web site for environmental documents at <http://www.cityofsacramento.org/Community-Development/Planning/Environmental/Impact-Reports.aspx>.

Environmental Services Manager, City of Sacramento,
California, a municipal corporation

By: _____

Date: _____

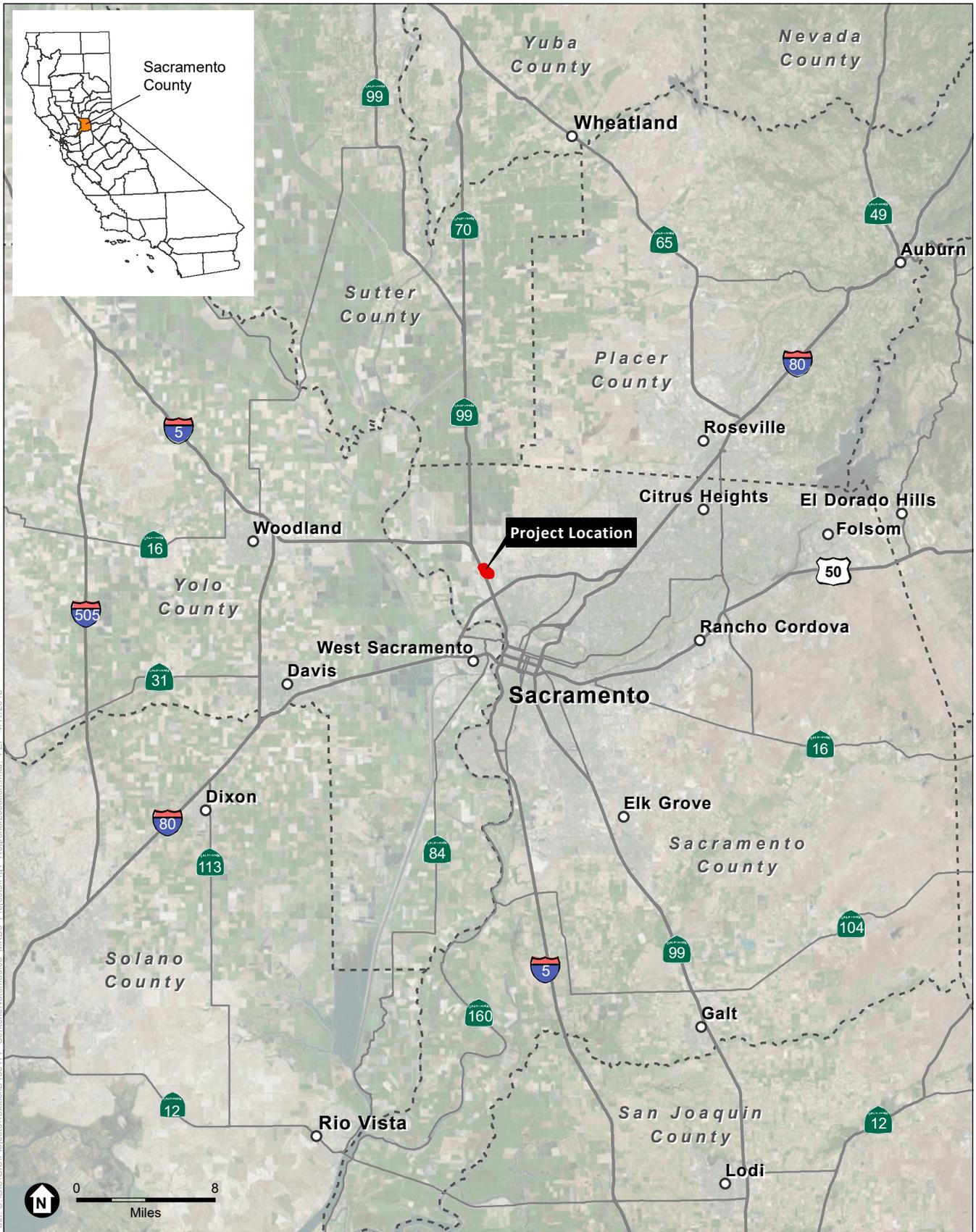
Natomas Quad B Office Project (P18-014)
Addendum to a Certified Environmental Impact Report
SCH No. 2007112008

File Number/Project Name: Natomas Quad B Office Project (P18-014)

Project Location: The project site is located in Sacramento, California, approximately 80 miles east of San Francisco and 85 miles west of Lake Tahoe. Sacramento is a major transportation hub, the point of intersection of transportation routes that connect Sacramento to the San Francisco Bay area to the west, the Sierra Nevada mountains and Nevada to the east, Los Angeles to the south, and Oregon and the Pacific Northwest to the north. The City is bisected by major freeways including Interstate 5 (I-5) that traverses the state from north to south; Interstate 80 (I-80), which provides an east-west connection between San Francisco and Reno; and U.S. Highway 50 which provides an east-west connection between Sacramento and South Lake Tahoe. Two railroads, the Union Pacific (UP) Railroad and the BNSF Railway transect Sacramento. **Figure 1** shows the location of the project site in the Sacramento region.

The project site comprises approximately 68.2 acres of undeveloped land in the North Natomas area of Sacramento, north of downtown. The project site is bounded by I-5 and a 100-foot-wide City of Sacramento (City) easement to the west; Snowy Egret Boulevard and land that is proposed for development or currently under development to the north; East Commerce Way to the east; and Arena Boulevard to the south. **Figure 2** and **Figure 3** show the location of the project site within the North Natomas area of Sacramento and the project vicinity and site.

Existing Plan Designations and Zoning: The project site consists of three parcels: APN 225-0310-038, -039 (recently redesignated as -041), and -040. Parcels 225-0310-038 and -041 are zoned EC-50 PUD (Employment Center – Planning Unit Development) and parcel 225-0310-040, which is bordered to the south by Arena Boulevard, is zoned SC-PUD (Shopping Center – Planned Unit Development) (see **Figure 4**). *Employment Center* zoning is intended to provide a flexible zone for employment-generating uses in a pedestrian-friendly setting with ample open space. *Shopping Center* zones are intended to provide a wide range of goods and services to the community, and allows office uses. All three parcels are zoned A-OS (Agricultural-Open Space) along the freeway corridor. *Agricultural-Open Space* zoning is intended to ensure the long-term preservation of agricultural and open space and prevent development of land to urban uses. A small portion of APN 225-0310-041 is zoned C-1-PUD (Limited Commercial – Planned Unit Development). *Limited Commercial* zoning is intended to provide for certain offices, retail stores, and commercial service establishments that are compatible with residential development.



SOURCE: Esri, 2015; ESA, 2018

Natomas Quad B Office Project

Figure 1
Project Location in Sacramento Region



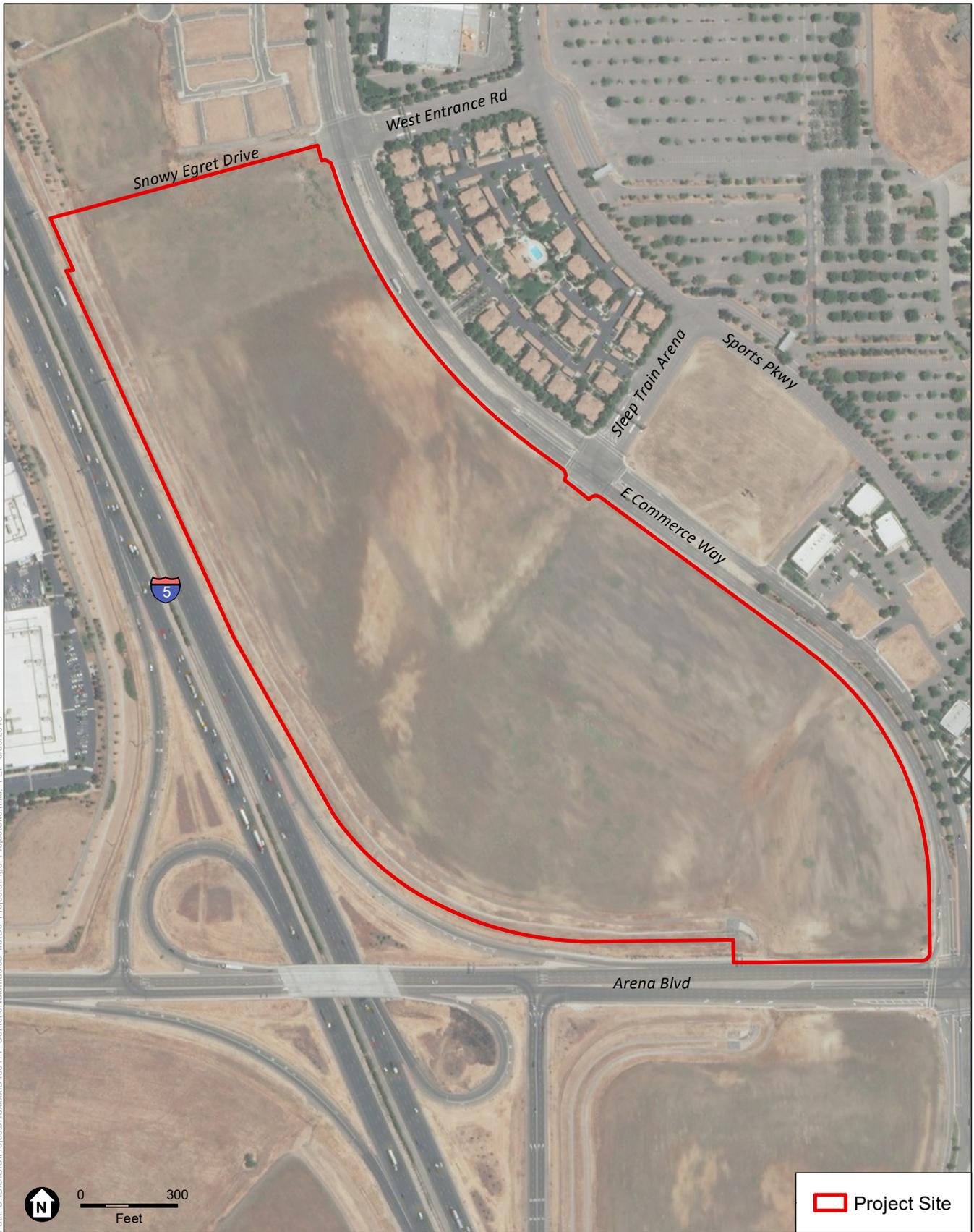


SOURCE: Esri, 2012; USDA, 2016; ESA, 2018

Natomas Quad B Office Project

Figure 2
Project Location in North Natomas





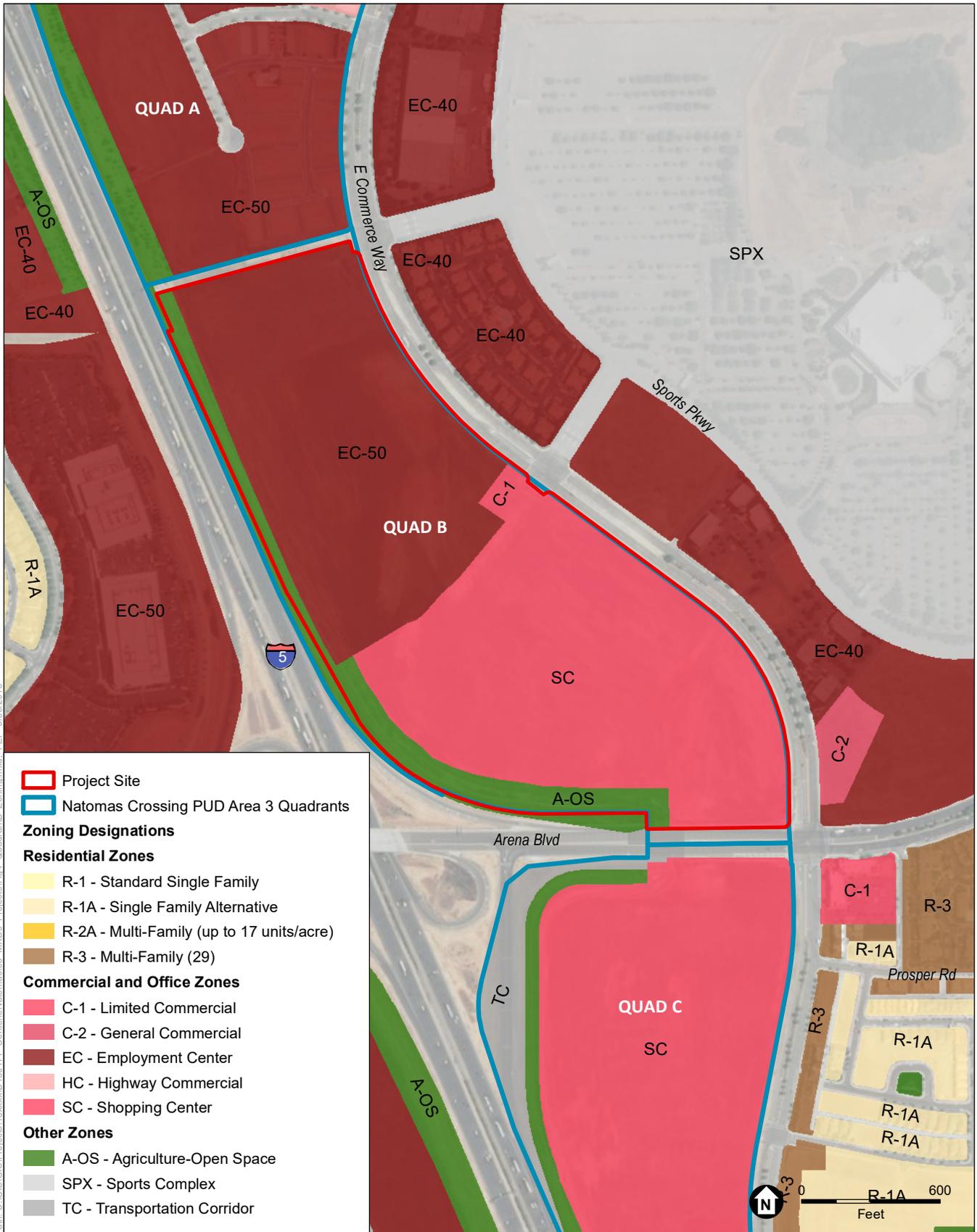
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SOURCE: Esri, 2016; ESA, 2018

Natomas Quad B Office Project

Figure 3
Project Site and Project Vicinity





SOURCE: Esri, 2012; USDA, 2016; ESA, 2018

Natomas Quad B Office Project

Figure 4
 Quadrant B Existing Zoning Designations

Parcels 225-0310-040 and 225-0310-041 are under the 2035 General Plan Regional Commercial land use designation, which allows for the development of a variety of uses including office (see **Figure 5**). The Regional Commercial general plan land use designation is intended for the City's numerous regional commercial centers along major corridors and represent a significant opportunity for increased residential and employment uses.

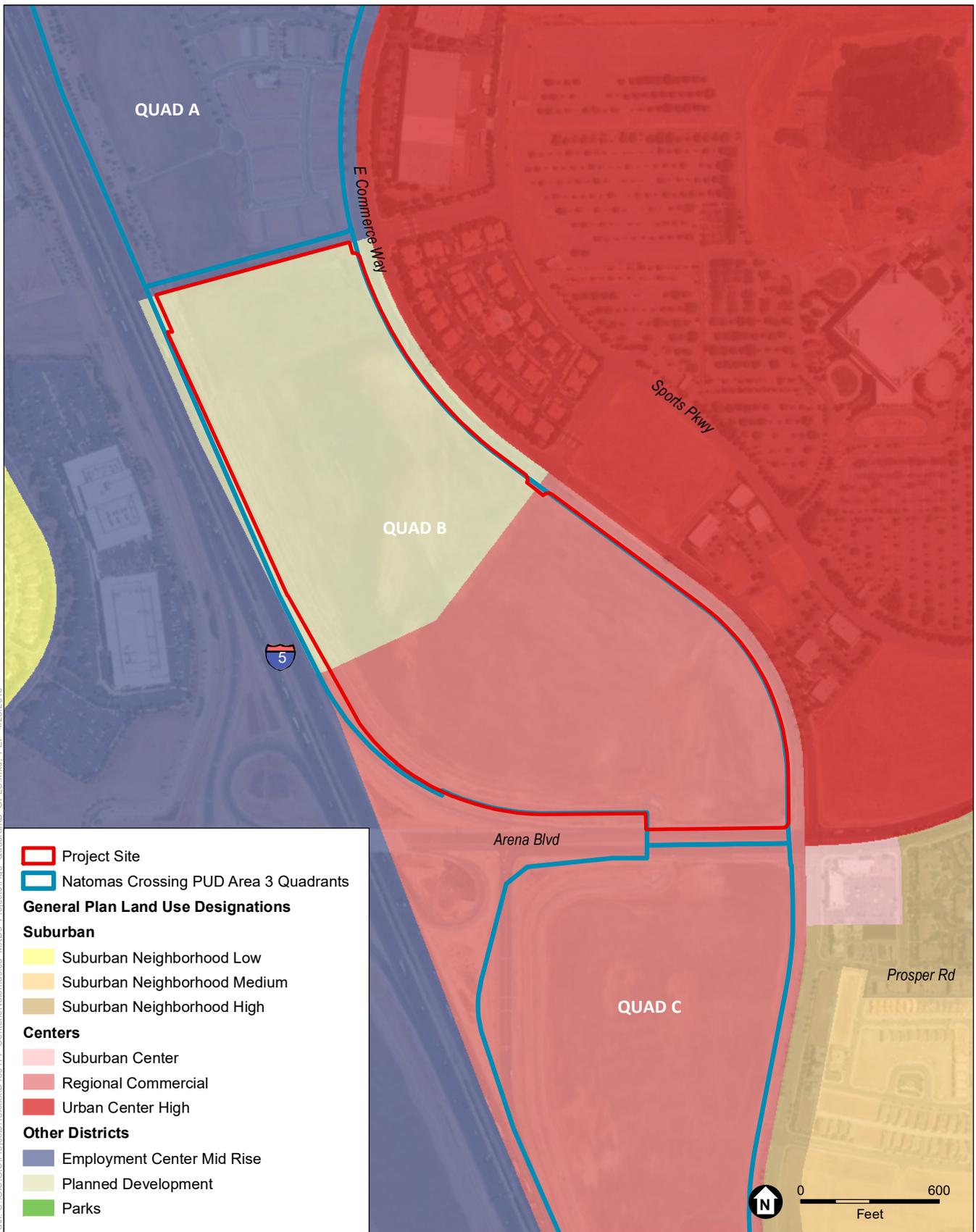
Parcel 225-0310-038 of the project site is under the Planned Development general plan land use designation. The Planned Development land use designation was assigned to four areas with pending projects that were in the development review process as of March 2014. Those areas included McKinley Village, Panhandle, Camino Norte, and Natomas Crossing. Specific land use and urban form designations are applied to these areas once planning is complete and the City has approved the development.

Project Background

The project site is located in the City of Sacramento, in the North Natomas Community Plan area. The 2035 General Plan designation for the two northerly parcels is Planned Development; the southerly parcel is designated Regional Commercial. Zoning on the three parcels includes EC-50-PUD on most of the northerly two parcels, C-1 PUD, SC-PUD on most of the southerly parcel and A-OS-PUD along Interstate 5.

The project site has been the subject of multiple reviews pursuant to the California Environmental Quality Act (CEQA) for potential development ranging from 720,000 square feet to upwards of 2.8 million square feet of development, as demonstrated in **Table 1**. Potential development for the project site has been planned or evaluated in the following documents, for which key information is included in the background discussion below:

- North Natomas Community Plan (May 3, 1994);
- Alleghany Properties, Inc. Development Area 3 Negative Declaration (June 24, 1997);
- Natomas Crossing Area 3 Initial Study/Mitigated Negative Declaration (June 25, 2002);
- Sacramento 2030 General Plan and Master EIR (March 3, 2009);
- Natomas Crossing Environmental Impact Report (August 11, 2009);
- Sacramento 2035 General Plan and Sacramento 2035 General Plan Master EIR (March 3, 2015).



SOURCE: Esri, 2012; USDA, 2016; City of Sacramento, 2018; ESA, 2018

Natomas Quad B Office Project

Figure 5
 Quadrant B Existing General Plan Land Use Designations



**TABLE 1
ALLOWABLE DEVELOPMENT BASED ON ZONING DESIGNATIONS**

Project Site				2002 Natomas Crossing IS/MND				2009 Natomas Crossing EIR				2009 Natomas Crossing EIR – No Project Alternative				
APN	Lot	Site Acres	Site SF	Zone	Min. Employees (50/Acre)	Min. Building SF1	Anticipated SF	Zone	Min. Employees (50/acre)	Min. SF1	Stated Project SF	Zone	Min. Employees (50/Acre)	Min. SF1	Anticipated Development SF	
225-0310-038	29	7.10	309,277	EC-50-PUD	355	106,500	106,500	EC-50-PUD	355	106,500	<u>Residential</u> 10 Acres	EC-50-PUD	355	106,500		
225-0310-041	30	6.20	270,073	EC-50-PUD	310	93,000	152,000	EC-50-PUD	310	93,000		<u>Hotel</u> 130,000 SF	EC-50-PUD	310		93,000
	31	5.30	230,869	EC-50-PUD	265	79,500		EC-50-PUD	265	79,500			EC-50-PUD	265		79,500
	32	11.90	518,366	EC-50-PUD	595	178,500		EC-50-PUD	595	178,500	<u>Office</u> 240,000 SF	EC-50-PUD	595	178,500		
225-0310-040	33	6.00	261,361	EC-50-PUD	300	90,000	90,000	SC-PUD	NA	NA	<u>Retail</u> 463,914 SF	EC-50-PUD	300	90,000		
	34	5.00	217,801	EC-50-PUD	250	75,000	75,000	SC-PUD	NA	NA		EC-50-PUD	250	75,000		
	35	5.20	226,513	EC-50-PUD	260	78,000	78,000	SC-PUD	NA	NA		EC-50-PUD	260	78,000		
	36	1.00	43,560	C-1-PUD	NA	NA	NA	SC-PUD	NA	NA		C-1-PUD	NA	NA		
	37	1.00	43,560	C-1-PUD	NA	NA	NA	SC-PUD	NA	NA		C-1-PUD	NA	NA		
	38	4.20	182,953	EC-50-PUD	210	63,000	63,000	SC-PUD	NA	NA		EC-50-PUD	210	63,000		
	39	4.50	196,021	EC-50-PUD	225	67,500	67,500	SC-PUD	NA	NA		EC-50-PUD	225	67,500		
	40	3.00	130,681	EC-50-PUD	150	45,000	45,000	SC-PUD	NA	NA		EC-50-PUD	150	45,000		
	41	0.90	39,204	C-1-PUD	NA	NA	NA	SC-PUD	NA	NA		C-1-PUD	NA	NA		
	42	0.90	39,204	C-1-PUD	NA	NA	NA	SC-PUD	NA	NA		C-1-PUD	NA	NA		
	43	0.90	39,204	EC-50-PUD	45	13,500	13,500	SC-PUD	NA	NA		EC-50-PUD	45.00	13,500		
	44	0.90	39,204	EC-50-PUD	45	13,500	13,500	SC-PUD	NA	NA		EC-50-PUD	45.00	13,500		
	45	1.10	47,916	EC-50-PUD	55	16,500	16,500	SC-PUD	NA	NA		EC-50-PUD	55.00	16,500		
	46	0.90	39,204	C-1-PUD	NA	NA	NA	SC-PUD	NA	NA		C-1-PUD	NA	NA		
Total Project Site (Lots 29 to 46)		66.00	2,874,971 SF				720,500 SF				833,914 SF		3065	919,500	1,394,326 SF	

NOTES:
 1. Minimum gross building square feet is based on building-square-feet-per-employee requirements described in the City of Sacramento Zoning Code Section 17.216.410
 SOURCE: City of Sacramento, 2002, 2009; ESA, 2018.

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North Natomas Community Plan

The North Natomas Community Plan (NNCP, Resolution No. 94-259 for M92-078) covers an area bounded by Elkhorn Boulevard to the north, I-80 to the southwest, the Natomas East main Drainage Canal to the east and the West Drainage Canal, and Fisherman's Lake and Highway 99 to the west. The NNCP included 14 neighborhoods, with a total estimated population of 66,495 residents at buildout. The NNCP designated the Quad B project site as a mix of Employment Center (EC-50) and Community Commercial. Area 3 of the Natomas Crossing PUD was designated Mixed Use in the General Plan and the Community Plan.

Since the adoption of the North Natomas Community Plan several subsequent planning entitlements were approved and are summarized below.

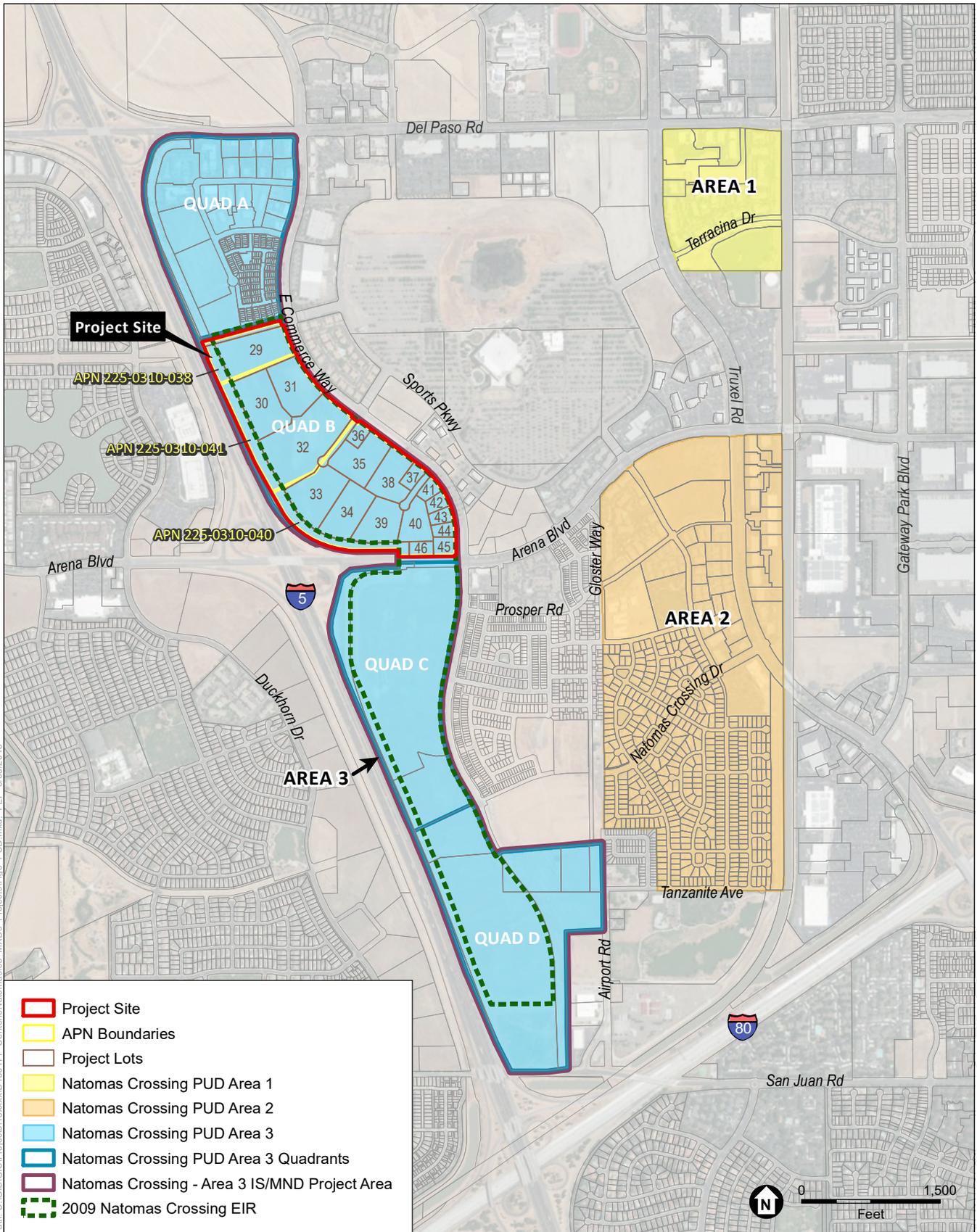
Alleghany Properties, Inc. Development Area #3 Project (P96-084)

The project site is part of the larger Natomas Crossing Planned Unit Development (PUD), for which entitlements were approved by the City of Sacramento in 1997 (see **Figure 6**). The entire 555-acre Natomas Crossing PUD is within the 1994 North Natomas Community Plan area. On May 8, 1997 the Planning Commission initially approved a Tentative Master Parcel Map for the Natomas Crossing PUD development (City Project No. P96-084). Soon after, on June 24, 1997, the City Council approved a development agreement, rezone, schematic plan and development guidelines for the area (P96-084). The Natomas Crossing PUD is subdivided into three separately-defined development areas described as Area 1 through Area 3, as shown in Figure 6. The proposed project site is within Area 3 of the PUD, which is further segregated into four quadrants described as Quadrant A through Quadrant D. The proposed project site includes all of Quadrant B, which includes APNs 225-0310-038, 225-0310-040, and 225-0310-041. These entitlements impacted the Quad B Office project site by rezoning the site to the Employment Center (EC-50-PUD) zone and a 5.8-acre site rezoned to the General Commercial (C-2-PUD) zone. Under the Natomas Crossing PUD (1997), planned land uses for Quadrant B included:

- 353,580 to 1,219,070 square feet (sf) of office;
- 19,215 to 99,856 sf of retail; and
- 47,850 to 75,400 sf of hotel.

Natomas Crossing – Area 3 IS/MND

In April 2002, the City of Sacramento completed the Natomas Crossing – Area 3 Initial Study/Mitigated Negative Declaration (IS/MND) that evaluated revised land use designations and rezoning for Area 3 of the Natomas Crossing PUD, including Quadrants A, B, C and D. Under the Natomas Crossing – Area 3 IS/MND, Lots 30, 31, and 32 within Quadrant B were the proposed site of a three-story, 153,000-square foot office building for Catholic Healthcare West. Lot 29 was evaluated at a programmatic level for assumed development under the EC-50-PUD (Employment Center) zoning designation.



SOURCE: Esri, 2012; USDA, 2016; ESA, 2018

Natomas Quad B Office Project

Figure 6
Natomas Crossing Planned Unit Development Map



The entitlements sought for the Area 3 component of the PUD included Community Plan Amendments, rezone, lot line adjustments, a tentative subdivision map, two special permits, PUD Guidelines, and Schematic Plan Amendments to accommodate Employment Commercial (EC) uses at a greater intensity, and to re-locate a proposed hotel site within the plan area. One of the special permits allowed the development of the Catholic Healthcare West building and the other special permit allowed the project to exceed the maximum amount of parking allowed for the development of the Catholic Healthcare West development; the Catholic Healthcare West development project covered by the two special permits was never constructed.

The land uses planned for the Area 3 component of the PUD included offices, hotels, restaurants, retail uses, open space, a detention basin, and residential units. The buildout total of approximately 1,526,390 to 3,968,715 sf of development was approved in June 2002, with approximately 1,016,900 to 2,977,919 sf proposed as office; 67,090 to 280,956 sf of retail; 290,400 to 457,600 sf of hotels; and the balance of square footage related to potential daycare and residential uses. The zoning for Quadrant B included 61.3 acres of Employment Center and 4.7 acres of Retail. As a result of the approval, the area where the Quad B Office project would be located was allowed up to 1,329,136 sf of employment center uses and support retail.

2030 General Plan and 2030 General Plan Master EIR

In March 2009, the City adopted the 2030 General Plan and certified the Master EIR for the 2030 General Plan (State Clearinghouse #2007072024), which updated the general plan land use designation for Quadrants B, C and D. The 2030 General Plan was a comprehensive update to the 1988 General Plan. The land use designation for Quadrant B was updated to Planned Development, which is generally applied to areas with pending projects that are in the development review process. The Planned Development designation does not have urban design guidelines or development standards. Because the update of the General Plan was a City-initiated effort, and the property was subject to a pre-existing development agreement vesting the 1988 General Plan and other land use ordinances and policies in effect at the time, the Mixed Use designation applied on the Natomas Quad B project site.

Natomas Crossing Project EIR

On August 11, 2009, the City certified the Natomas Crossing Project EIR (City project number P04-264; City Council Resolution No. 2009-531), which evaluated a proposed amendment to the PUD Schematic Plan and rezone of Parcel 225-0310-040 (Lots 33 through 46), in the southern portion of Quadrant B, from a combination of Employment Center (EC) and Limited Commercial (C-1) to Shopping Center Planned Unit Development (SC-PUD) to allow for the anticipated development of retail space within the range of 309,276 to 463,914 sf. The general plan land use designation for APN 225-0310-040 was changed from Planned Development to Regional Commercial. The northern portion of Quadrant B retained the EC-50-PUD zoning designation and remained under

the 2030 General Plan Planned Development land use designation. As described in the Natomas Crossing EIR, future development of the northern portion of Quadrant B (Lots 29 through 32) was anticipated to include:

- 10 acres of Residential with an approximate total of 180 units;
- 5 acres of Hotel use consisting of approximately 130,000 sf or 300 rooms; and
- 14 acres of Office consisting of approximately 240,000 sf.

Project-specific development of Quadrant B was not proposed in 2009. The Natomas Crossing EIR evaluated development of Quadrant B at a programmatic level, commensurate with the level of certainty regarding future development of the site.

Development on other quadrants included in the project description of the EIR included:

Quadrant C:

- 404,580 sf of regional retail uses
- 200,000 sf of office

Quadrant D:

- 600,000 sf of hospital
- 600,000 sf of medical office
- 30,000 sf of Central Utility Plant

The Natomas Crossing EIR included an analysis of project alternatives. These included (1) No Project-No Build; (2) No Project-Existing Zoning; and (3) Reduced Density. Alternative 2 is most similar to the current proposed Natomas Quad B Office project. The No Project-Existing Zoning alternative included consideration of the following development scenario:

Quadrant B

- 353,580 to 1,219,070 sf of office
- 19,215 to 99,856 sf of retail
- 47,850 to 75,400 sf of hotel

Quadrant C

- 198,800 to 500,639 sf of office
- 25,295 to 117,600 sf of retail
- 97,350 to 153,400 sf of hotel
- 7,000 to 16,800 sf of daycare

Quadrant D

- 253,600 to 584,700 sf of office

The No Project-Existing Zoning alternative focused on the following key environmental issues:

- **Transportation/Circulation:** The EIR concluded that development under the No Project-Existing Zoning alternative would not exceed the significance threshold at study intersections. The alternative would, according to the EIR, result in several potentially significant impacts that were also impacts of the Natomas Crossing project, including impacts to pedestrian and bicycle circulation, as well as impacts related to construction of the project.
- **Air Quality:** The EIR concluded that construction impacts on air quality, under the No-Project-Existing-Zoning alternative, would be similar to the Natomas Crossing project, though air quality impacts of the Natomas Crossing project were ameliorated due to the phasing plan, and construction without phasing could result in significant effects. ROG and NO_x thresholds could be exceeded; the Natomas Crossing project's impacts in this regard were significant and unavoidable. Cumulative impacts were considered significant and unavoidable, under the No-Project-Existing-Zoning alternative, which was the same finding for the Natomas Crossing project.

Since certification of the Natomas Crossing EIR, the tentative map for this project was not finalized, nor was the shopping center ever constructed. No development has occurred in Quadrants B, C or D pursuant to the Natomas Crossing project. The Quadrant B project site has remained undeveloped.

2035 General Plan and 2035 General Plan Master EIR

In 2015, the City adopted the Sacramento 2035 General Plan and certified the Sacramento 2035 General Plan Master EIR, which maintained the Planned Development land use designation for the northern portion of Quadrant B and the Regional Commercial land use designation for the southern portion of Quadrant B, which comprise the proposed project site.

Flood Zone Designation

In December 2008, the Flood Insurance Rate Maps (FIRM) for the Natomas Basin were reclassified by the Federal Emergency Management Agency (FEMA). The Natomas Basin, which includes the project site, was reclassified as within the 100-year flood hazard zone (AE Zone) after the U.S. Army Corps of Engineers (USACE) decertified the levee system protecting the Natomas Basin. The remap required that all new construction or substantial improvements to structures had to meet a 33-foot base flood elevation requirement. Prior to the USACE decertification, the Sacramento Area Flood Control Agency (SAFCA) implemented the Natomas Levee Improvement Program (NLIP) to upgrade the levee system protecting the Natomas Basin. Construction of the NLIP began

in 2007. However, the remap limited construction in the Natomas Basin to such an extent that it served as a *de facto* building moratorium. The *de facto* building moratorium remained in effect when the Natomas Crossing EIR was certified in 2009, and the project site has remained undeveloped up to the present.

Levee improvements have been ongoing under the SAFCA NLIP, continuing from 2007 to the present. In April 2015, FEMA determined that SAFCA had made sufficient progress in required improvement to the levee system to approve an A99 flood zone designation for the Natomas Basin. An A99 designation is an interim flood zone designation which allows construction in the area if certain conditions (e.g., progress on completion of flood control infrastructure) are met. Following the revised flood designation, development within the Natomas Basin has restarted. Consistent with other areas within the Natomas Basin that had been proposed for development prior to the downgrading of the flood zone designation for the Natomas Basin, reclassification to the A99 flood zone designation has led to new development proposals or renewal of previously halted development proposals.

Project Description

The current proposed Natomas Quad B Office project would develop a secured corporate campus, including five office buildings with employee-serving amenities, an employee-serving childcare center building, and on-site parking and circulation, on the 68.2-acre Quadrant B project site. Specific components of the proposed project, including project design, operations, construction, and required approvals, are described below.

Project Design

Project Structural Elements

The proposed project would construct up to approximately 1.25 million square feet of office and related uses and an approximately 17,160-square-foot child care center. The proposed development would include five 4-story office buildings (Buildings A through E) surrounding a central outdoor courtyard area, a one-story centralized shared lobby, a childcare center at the northeast corner of the site, surface parking lots for the office and childcare facilities, and a potential structured parking garage that would be located west of the office buildings. **Table 2** shows the development programming for the project site. The proposed office buildings would be oriented toward East Commerce Way and centered along the eastern perimeter of the project site that fronts East Commerce Way. The proposed project would be constructed in two phases.

**TABLE 2
PROPOSED PROJECT LAND USE PROGRAMMING**

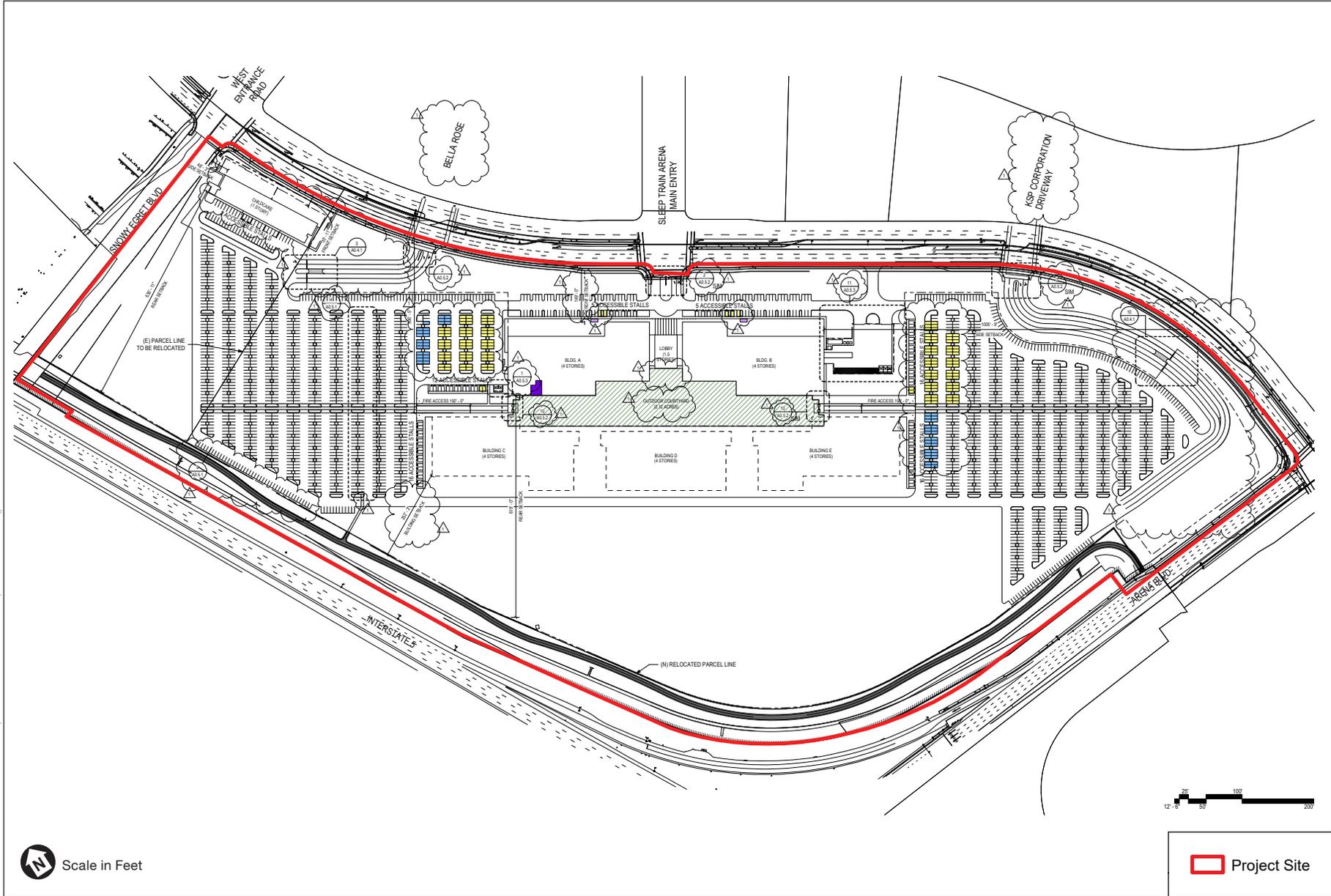
Project Element	Building Area (SF)	Vehicle Parking Spaces
Phase 1		
Building A	255,900	
Building B	255,900	
Lobby	8,000	
Childcare Center	17,160	
Surface Parking		2,740
Subtotal	536,960	2,740
Future Phase		
Building C	255,900	
Building D	218,400	
Building E	255,900	
Surface Parking		1,731
Parking Structure		1,904
Subtotal	730,200	3,635
Total	1,267,160	6,375

Phase 1

The current development phase (Phase 1) would include the construction of Buildings A and B, a joint lobby, a childcare facility, and vehicular site circulation and parking to serve buildings constructed in the first phase (see **Figure 7**). In total, approximately 536,960 sf of building and 2,740 surface parking spaces would be developed in Phase 1. Buildings A and B would each be 255,900-sf, 4-story office buildings, providing a total of 511,800 sf of office use. Building heights would be approximately 75 feet. A fitness center would be located within either Buildings A or B, the specific location and square-footage of which shall be determined in a later design phase in consultation with the future corporate tenant.

Buildings A and B would be joined at the ground floor by a connecting 8,000-sf, one-story lobby that would serve as the public entry for the site and buildings. Buildings A and B and the lobby would be oriented toward East Commerce Way.

Phase 1 would also include a 17,160 sf single-story daycare building. The daycare building would be located in the northeast corner of the site, near the southwest corner of the East Commerce Way/Snowy Egret Boulevard intersection. The daycare facility would include outdoor play courts with solid, 8-foot-high perimeter walls facing the street. The daycare facility is intended to serve the children of employees and would not be accessible to the public. The facility would serve up to 200 children of employees and employ approximately 34 staff members.



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SOURCE: Stantec, 2018

Natomas Quad B Office Project

Figure 7
Phase 1 Site Plan



The first phase would include the construction of internal vehicle circulation roads, four project driveways along East Commerce Way, and offsite transportation system improvements necessary for the existing roadway network to accommodate the current phase of the proposed project.

Surface parking lots for employees would be developed both north of Building A and south of Building B. These employee parking lots would be gated at each of the employee parking entrance points. Unrestricted visitor parking would be provided in front of the lobby from the Main Entrance, along East Commerce Way.

An enclosed service yard would be constructed on the south side of Building B, which would be enclosed with 8-foot high solid fencing and solid gates. The service yard would include a depressed loading dock, trash enclosures, electrical transformers, emergency generators, fuel tanks, and other utility equipment that would be screened from view. The project site would include a service driveway from East Commerce Way, with a direct route to the service yard.

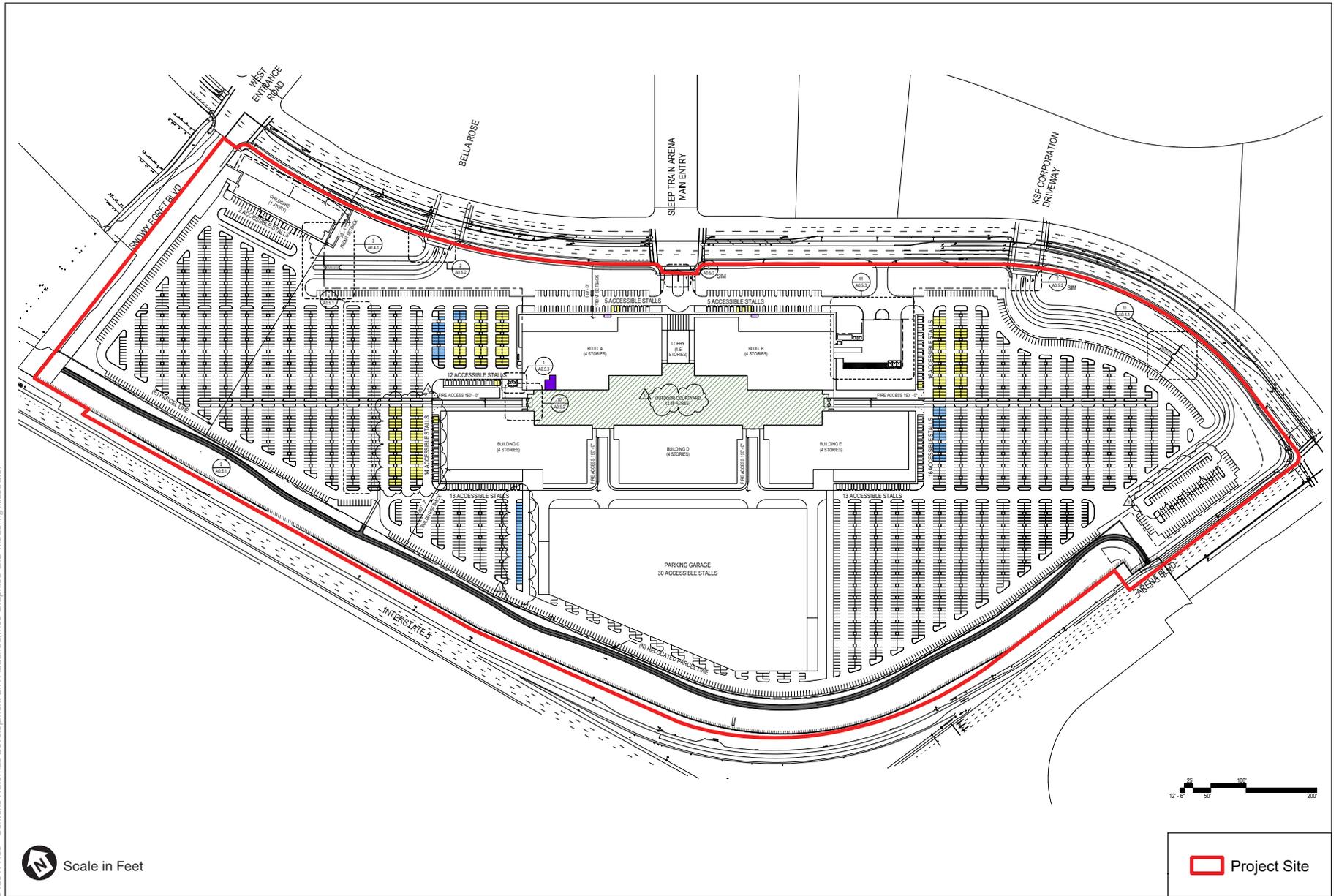
Phase 1 would also include construction of a Class 1 bike path along the western boundary of the project site, which would wrap around the southern perimeter of the project site, extending to Arena Boulevard. The path would be external to the gated perimeter of the office and parking areas with a gated access provided from the bike path into the project site, as shown in Figure 7.

Areas to be developed as part of the future phase would not be graded during site-wide grading activities during the first phase. Those portions of the project site would be landscaped until commencement of future phase construction.

Future Phase

The Future Phase would include construction of Buildings C, D, and E, completion of the outdoor courtyard, additional vehicular site circulation and surface parking areas, and a parking structure (see **Figure 8**). The proposed parking structure would include approximately 1,904 vehicle spaces. Building D would be approximately 218,400 square feet across 4 stories. The structure would be symmetrical along a site centerline that runs through the proposed lobby. To the northwest and southeast of Building D, Building C and Building E would each be 4-story, 255,900-square foot structures that would be mirrored to maintain site symmetry down the center of the proposed lobby and Building D. The proposed parking garage and Future Phase surface parking would be constructed behind (to the southwest) the cluster of office buildings. Future Phase surface parking would also be constructed in the northwest corner of the project site, as an extension of parking area constructed during the first phase.

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SOURCE: Stantec, 2018

Natomas Quad B Office Project

Figure 8
Site Plan



Roadway Network Improvements

The proposed project would create two additional signalized intersections with full traffic movements anticipated, improve two existing signalized intersections, and add one service driveway on East Commerce Way, described as follows:

- North Driveway – The North Driveway would be located opposite the Bella Rose residential condominium complex main driveway. This driveway location would be converted to a 4-way signalized intersection. The newly signalized North Driveway/ Bella Rose Driveway and East Commerce Way intersection would create the northern entrance to the project site. The intersection would operate with protected left-turn movements north-south, and split phase east-west. Turn lanes would be created or extended as follows:
 - The northbound left turn lane would be constructed to a minimum length of 175 feet;
 - The existing southbound left-turn lane would be maintained or modified to a length no less than 200 feet;
 - The southbound right-turn lane would be constructed to a length no less than 200 feet; and
 - The eastbound left-turn lane would be constructed or striped to a length no less than 175 feet.
- Center Driveway – The Center Driveway would be located opposite the “Main Entrance Road” to the former Sleep Train Arena site. The existing signalized intersection at that driveway would be improved to a 4-way signalized intersection, providing direct access to the visitor parking area of the project site. The intersection would operate with protected left-turn movements north-south and east-west, and existing northbound left- and right-turn lanes and southbound left turn lane would be maintained.
- Service Driveway – The service driveway would be located south of the Center Driveway and would provide a direct access to the service court on the south side of Building B and would be anticipated to be used mainly by service vehicles. This driveway would operate as a stop-controlled right-in, right-out driveway.
- South Driveway – The South Driveway would be located opposite the KSP Arena Corporate Center office complex main driveway. The driveway location would be converted to a four-way signalized intersection. The newly signalized South Driveway/ Main Entrance Road and East Commerce Way intersection would provide access to the southern portion of the project site. The intersection would operate with protected left-turn movements north-south and east-west. Turn lanes would be created or extended as follows:
 - The northbound double left-turn lane would be constructed to a length no less than 425 feet;

- The existing southbound left-turn lane would be maintained or modified to a length no less than 200 feet; and
- The southbound right turn lane would be constructed to a length no less than 150 feet.
- The existing signalized Arena Boulevard and East Commerce Way intersection would be improved to allow for improved traffic operations. The signal timing would be altered to add southbound, westbound, and eastbound exclusive right turn signal phases to this intersection. The southbound right turn movement would be signal-controlled, and the southbound right lane would be extended to a length no less than 500 feet. The eastbound double left-turn lane would be extended as much as physically allowable, up to a length of 700 feet.

Project Site and Landscape Elements

Site Preparation

Preparation of the project site for construction would require earthwork to level the project site, including 33,000 cubic yards (CY) of cut and 57,000 CY of fill. Thus, site preparation would require 24,000 CY of imported fill, to meet fill requirements, which would be delivered by trucks to the project site.

Exterior Lighting

Onsite security lighting would be provided in the parking lot and on the exterior of proposed buildings. Proposed outdoor lighting fixtures would include downward-shielding for overhead lighting fixtures and low-intensity exterior lighting to minimize fugitive light. Lighting mounted to the proposed buildings would be for safety and security purposes and would also be angled downward to provide targeted illumination and prevent fugitive light from illuminating adjacent areas.

Landscaping

Onsite landscaping would consist of turf areas along the street frontages, interspersed with trees and shrubs. Within the project site, parking aisles and building frontages would be lined with planter boxes with trees and shrubs in compliance with shading requirements throughout the parking areas. The northern, southern, and western boundaries of the project site would have landscape buffering along the sidewalks and external walls and fencing. Landscaping would be designed to meet California Assembly Bill (AB) 1881, Executive Order B-29-15, and the City's Model Water Efficient Landscape Ordinance.

Signs

The proposed project would include construction of illuminated monument signs at each of the three signalized project driveways. The proposed project would include two, 10-foot-by-20-foot, sign easements as the perimeter of the project site, along the north side of Arena Boulevard.

Utilities

The project site is located within an area where utility infrastructure has been installed in anticipation of future development. Thus, minimal offsite improvements would be necessary to provide utility services to the project site, as described below.

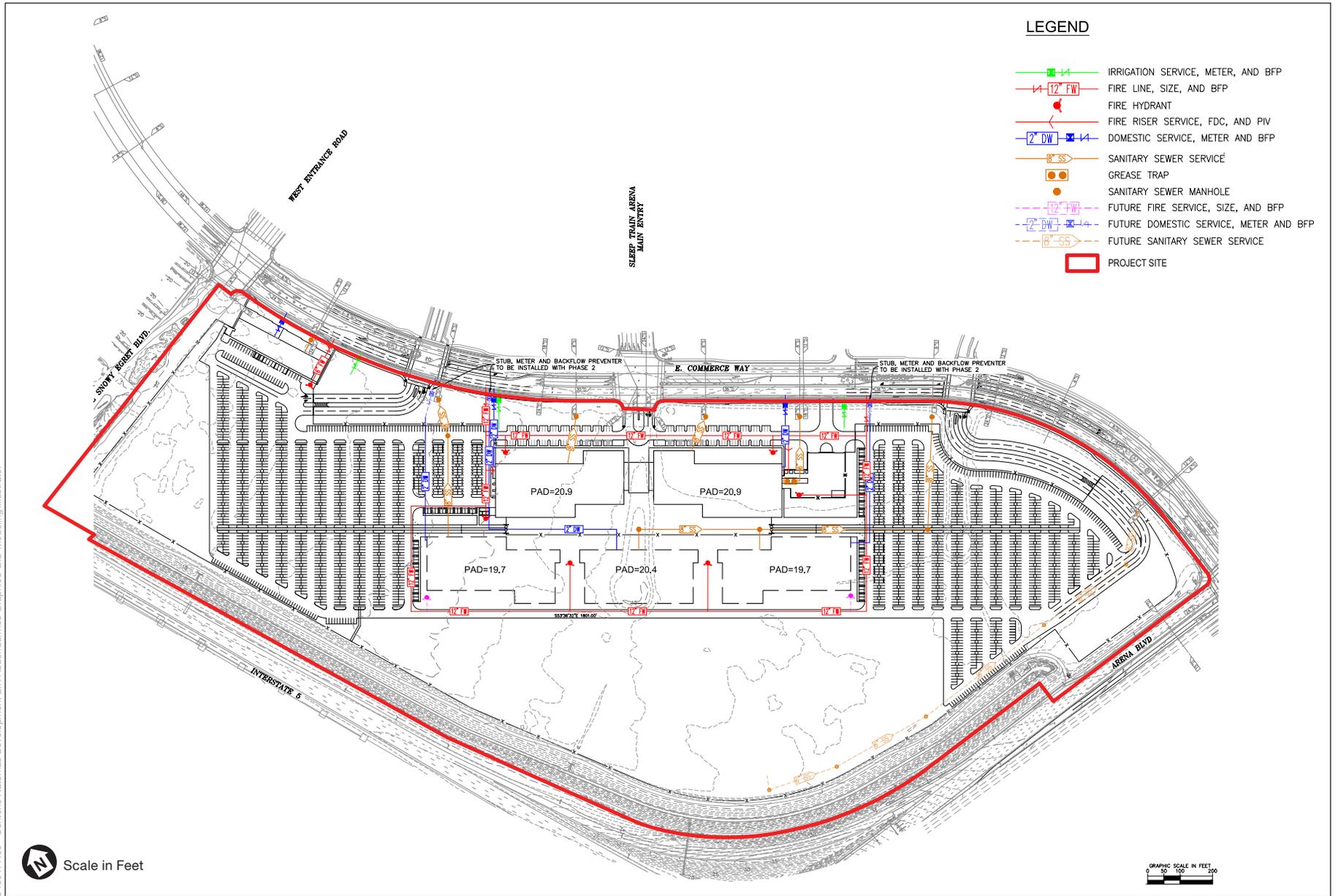
Water Supply

The project site would be served by the City of Sacramento for domestic and fire suppression water needs. The project site is located in an area of the City that is served by an extensive system of service mains located within East Commerce Way that vary in size from 12 inches to 30 inches in diameter. Each proposed building on the project site would have dedicated domestic water supply service laterals. Fire suppression water supply laterals would be connected to the City's fire suppression water infrastructure at two points within East Commerce Way, as shown in **Figure 9**. On-site fire suppression water infrastructure would consist of a network of 12-inch pipes connecting the City's water main to all proposed buildings, including the parking structure, at multiple points.

Wastewater and Drainage

Wastewater service for the project site would be collected by the Sacramento Area Sewer District's (SASD) Separated Sewer System, conveyed to the Sacramento Regional County Sanitation District (Regional San) system, and ultimately treated in the Regional San Wastewater Treatment Plan (WWTP), which is located in Elk Grove. The SASD Separated Sewer System within East Commerce Way would be accessed via dedicated service laterals for each proposed building on the project site.

The project site is within Basin 6 of the North Natomas Drainage Basin system, which collects and treats stormwater, from nine basins, in the developed areas of North Natomas, within City limits. Basin 6 generally encompasses Area 3 of the Natomas Crossing PUD and additional area south of Arena Boulevard and west of the East Drainage Canal. Stormwater on the existing Quadrant B project site drains to the drainage canal that abuts the western perimeter of the project site, which flows south to Detention Basin 6B, where stormwater is treated and then pumped into the existing RD-1000 drainage channel. The proposed project would be designed to connect to the existing drainage canal that abuts the western perimeter of the project site, which conveys drainage flows through the existing Basin 6 drainage and treatment pathways. The project site would be divided into eight separate drainage areas for which stormwater would drain to dedicated outfalls along East Commerce Way and along the drainage canal that abuts the western perimeter of the project site (see **Figure 10**).

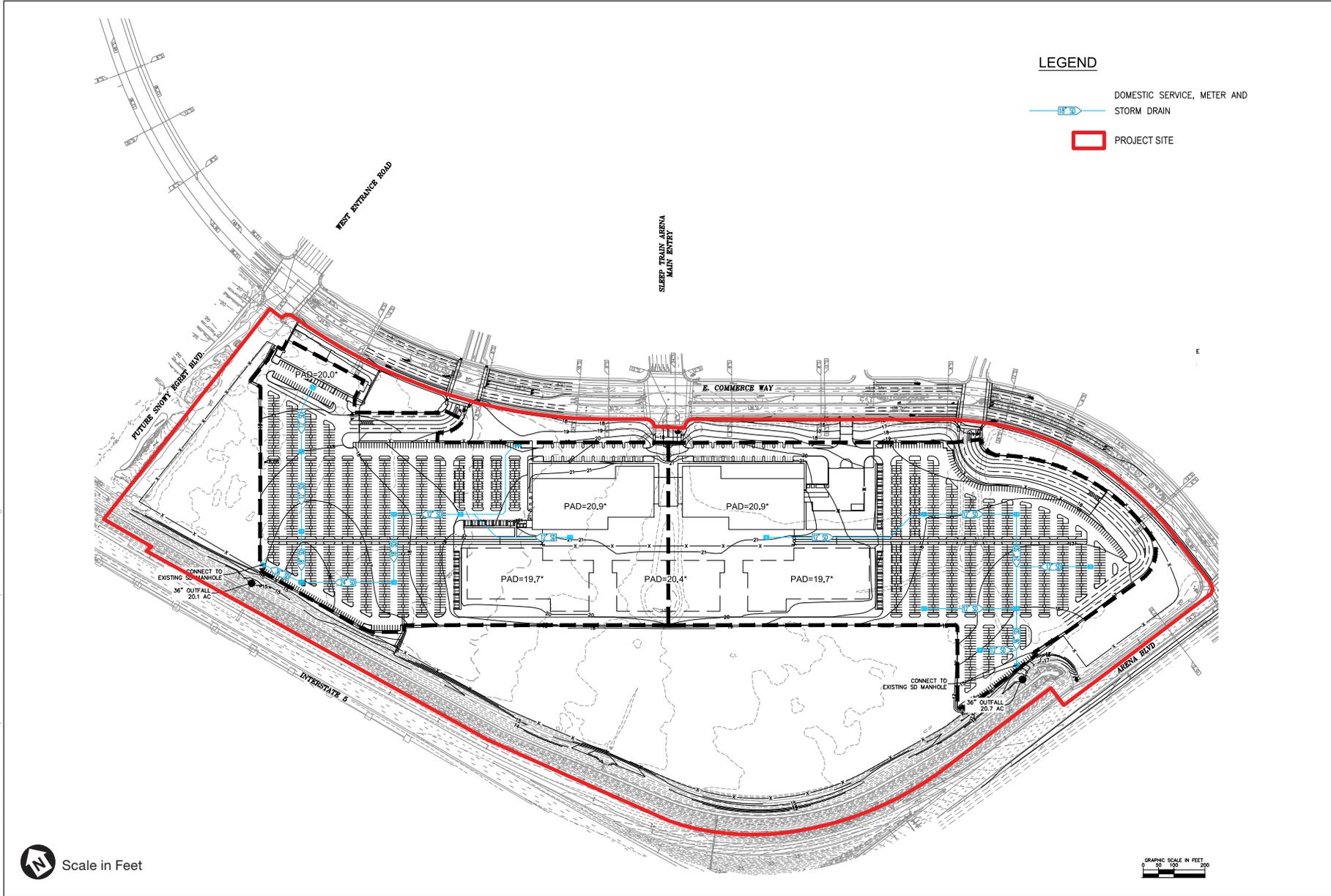


SOURCE: Stantec, 2018

Natomas Quad B Office Project

Figure 9
Water Supply and Wastewater Plan





SOURCE: Stantec, 2018

Natomas Quad B Office Project

Figure 10
Grading and Drainage Plan



Energy

Electrical Service

The project site would be provided electrical service by the Sacramento Municipal Utility District (SMUD). The main electrical system connection to the project site would be located within East Commerce Way, similar to other utilities. Aside from connections that may be necessary to tie project systems to the SMUD system under adjacent streets, no further offsite improvements to the SMUD electrical system would be required.

Natural Gas

The project site would be provided with natural gas service by Pacific Gas & Electric (PG&E), which provides service to the City of Sacramento through both high and low-pressure systems. The main gas service connection to the project site would be located in East Commerce Way, similar to other utilities. Other than connections between the project buildings and the existing PG&E natural gas mains, no further improvements to the PG&E distribution system would be required.

Telecommunications

The proposed project would acquire telephone and data service from the current existing carrier(s) that are established in North Natomas. Connection(s) would be completed in existing telephonic and data manholes. The project applicant would coordinate with the City and other utility providers to determine the optimal solution for gaining access to adjacent lines, potentially including either open cuts or directional drilling that could be done in these manholes concurrent with other utility infrastructure connections. If feasible, service to the project site would be coordinated with SMUD in a common joint trench, in which a few 2-inch conduits would be added to the joint trench for telecommunication service.

Project Operations

The proposed project would be anticipated to operate during normal business hours, with most onsite activity occurring from morning until early evening hours Monday through Friday. Commute trips to and from the project site would be anticipated to occur within the same morning and evening commuter-timeframes on traditional work days as occur at other office development within the City.

The proposed childcare center would operate during similar hours as the proposed office buildings. The facility would have a maximum capacity of approximately 200 children, and have approximately 34 employees, across two shifts. Employees would drop off children at the daycare facility at the beginning of the workday and pick them up at the end of the workday.

On-Site Project Circulation

Vehicular Circulation

Both the North and South Driveways would be 3- to 4-lane entry drives designed to handle the anticipated morning and afternoon traffic peaks for the office workers in the buildings. Phase 1 of project construction would include installation of the infrastructure for the vehicle entry drives, including security gates and guard stations to allow the entire site to be secured by fencing and access gates. Dedicated drive aisles would direct employees to parking spaces north or south of the office buildings, depending on which site driveway employees use. Visitors to the site would arrive through the Center Driveway and intersection to a separate visitor parking area, along the east side of Buildings A and B and the joint lobby, outside of the secured perimeter.

Delivery and Loading Operations

Delivery truck access would be provided from a right-in, right-out service driveway segregated from the vehicle entry drives. Loading areas for the Phase 1 buildings would occur at the south outboard end of Building B through the service court enclosed by walls and solid gates. The service court would also provide space for pad-mounted electrical gear, trash enclosures and a diesel generator for one of the buildings fully screened from view.

Pedestrian Circulation

Access to the project site for pedestrians would be provided via separated sidewalks, constructed as required by City design guidelines along the perimeter of the project site, along East Commerce Way. Internal site circulation would be directed to the lobby from areas along the exterior of the project site. Internal pedestrian circulation would be directed from on-site parking areas to and from the cluster of office buildings in the center of the site. All office buildings would be accessible from the internal courtyard and pedestrian pathways that would run across the project site from parking lots, into and between the Phase 1 office buildings and the Future Phase office buildings. Main employee building entrances would be located along the southwest faces of each proposed office structure.

Bicycle Facilities

The proposed project would include 319 long-term and 20 short-term bicycle parking spaces on the project site. Short-term bicycle parking spaces would be publicly accessible and located near the proposed Office Lobby. Long term bicycle parking spaces would be provided near the proposed fitness center within Building A. Bicycle traffic would have access to the project site via the existing Class II bicycle lane the runs along the west side of East Commerce Way, along the project site.

The proposed project would also include the Class I bike path along the western perimeter of the project site, outside of the gated perimeter of the project site, with gated access to

the project site along the west perimeter of the project site, near Building C, as shown in Figures 7 and 8.

Transit Facilities

The proposed project would include the construction of a bus turnout to accommodate potential future bus service adjacent to the project site, south of the main entrance on East Commerce Way. The nearest public transit routes to the project site are provided by Sacramento Regional Transit (SacRT) and the North Natomas Transit Management Association (TMA) at Truxel Road/Natomas Boulevard, approximately 0.6 mile east of the project site. The City anticipates that the proposed project would generate sufficient transit demand for transit service providers in North Natomas to add or alter existing transit routes to provide more proximate service to the project site. However, no transit services are planned at this time.

Project Construction

Phasing

As described above, the proposed project would be constructed in two phases: Phase 1 and a Future Phase. Phase 1 would construct Buildings A and B, the Lobby, Childcare Center, internal circulation and parking areas to serve Phase 1 uses, and general site perimeter elements including fencing and landscaped areas, and is expected to commence in October of 2018 and would last approximately 18 months. The Future Phase would develop Buildings C, D, and E and the internal circulation and parking areas, including a parking structure, to serve the Future Phase development. As part of Phase 1, areas to be developed as part of the Future Phase would be graded and temporarily vegetated with hydroseed until construction of the Future Phase occurs. The timing of Future Phase construction is not known at this time but will take place as determined by the growth timeline of the future corporate tenant.

Demolition

The project site is vacant, clear of vegetation such as trees, and regularly disced for weed control. No demolition activities would occur as part of the proposed project.

Excavation

Excavation on the project site associated with the proposed project would be limited to the establishment of building foundations and utility infrastructure. No subgrade building levels are proposed. Early utility work and site preparation would be anticipated to take approximately 2.5 months, from October through December of 2018. Heavy earthwork would be anticipated to last approximately 3.5 months, occurring from late November 2018 through March 2019.

Construction

The foundations/footings phase of construction would involve the construction of reinforcement and pouring of concrete for spread footing foundations for the proposed Phase 1 building footprints. The construction phase would involve the erection of steel, concrete and/or precast concrete elements. Building erection for Phase 1 would take approximately 6 months, with construction anticipated to start in February 2019. This activity would involve the use of numerous cranes, loaders, welders, generators, concrete pumpers, and similar construction equipment. The following construction phase would include interior and exterior finish work, which would involve a wide variety of construction activities involving creating and outfitting interior spaces and completing the exterior finish of the building, including plumbing, electrical, heating and air conditioning systems, and the like. Interior work and exterior treatments for Phase 1 would be anticipated to take approximately 11 months, beginning approximately July 2019. Exterior site work and landscaping would be undertaken over a period of about 2 months, concurrent with interior and exterior finish work.

Construction Circulation

Project Site

During construction, active areas of the project site would be fenced off.

Road Closures

The proposed project would not require road closures. Temporary lane closures may be required along southbound East Commerce Way for the construction of driveway cut-ins, pedestrian facilities, and other improvements within the City's right-of-way.

Truck Routes

Construction vehicles would follow already established truck routes for the City which are largely determined by the streets that can access the project site. Inbound truck trips would access the project site from East Commerce Way. The direction of outbound truck trips would exit the project site traveling south on East Commerce Way, turning right on Arena Boulevard, and accessing north- and southbound I-5 at Arena Boulevard. This truck route would require only right-turn movements, reducing required lane changes, minimizing idling, and reducing potential conflicts with opposing traffic.

Project Actions

The proposed project would require the following planning approvals from the City of Sacramento:

- Site Plan and Design Review for conceptual review of the proposed office development;

- Approval of a deviation from the Development Standard to allow for up to 5 parking spaces per 1,000 square feet based on a proposed operational employment density of 146-square-feet-per-employee (or 6.8-employees-per-1,000 square feet);
- Planned Unit Development (PUD) amendment for signage to allow more than one monument sign per parcel; and
- Approval of a PUD Guidelines Amendment for the Natomas Crossing PUD.

The proposed project would also require the following actions by entities other than the City of Sacramento:

- Granting of a construction activity stormwater permit from the Central Valley Regional Water Quality Board (CVRWQCB).

Discussion

In the case of a project proposal requiring discretionary approval by the City concerning changes to a project for which the City has previously certified an EIR for the overall project, as here, the City must determine whether, in light of the proposed changes to the project, the environmental analysis in the original EIR remains relevant because it retains some informational value. If so, the City then determines whether a subsequent EIR or MND is required. A subsequent EIR, for example, would be required if substantial evidence supports a fair argument that the changes to the project may result in a significant environmental impact that was not previously considered when the project was originally approved. A subsequent MND would be required if the City identified new significant impacts and could mitigate them to a less-than-significant level.

The proposed project seeks entitlements to develop an office development on a site where substantial development, with similar impacts, was evaluated in an EIR. The changes to the prior project will occur within the same original parcel configuration and will retain many of the original features, rendering the previously certified EIR highly relevant to the environmental analysis of the changes to the project now proposed.

As described in State CEQA Guidelines Section 15164, a lead agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions identified in State CEQA Guidelines Section 15162 calling for the preparation of a subsequent EIR have occurred. The following identifies the standards set forth in State CEQA Guidelines Section 15162, for which the preparation of a subsequent EIR would be required:

1. Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:
 - a. The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
 - b. Significant effects previously examined will be substantially more severe than shown in the previous EIR;
 - c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project but the project proponents decline to adopt the mitigation measure or alternative; or
 - d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

The Natomas Crossing EIR provides CEQA coverage for existing entitlements on the project site. Because the Natomas Quad B Office project does not include substantial changes to assumed development of Quadrant B under the Natomas Crossing project and no other circumstances have changed that would meet the criteria set forth in State CEQA Guidelines Section 15162, requiring the preparation of a subsequent EIR, the City has determined that a subsequent EIR is not required for the proposed project. This document has been prepared as an addendum to the Natomas Crossing EIR. Differences in the potential impacts associated with the proposed project relative to those previously described in the Natomas Crossing EIR, are discussed below.

I. Land Use and Planning

Project Site

The 68.2-acre project site comprises the majority of the approximately 75-acre Quadrant B of Area 3 of the Natomas Crossing PUD (see Figure 3). At the time of the preparation of the Natomas Crossing EIR, and as described in that EIR, the project site was vacant and mass-graded. The former Arco Arena (now former Sleep Train Arena) and parking lot was and remains located east of the project site. Land uses surrounding the project site included a multi-family residential development, medical and dental office uses, and

vacant lots to the east; I-5 to the west; Arena Boulevard to the south; and a lot under development as a hotel and an undeveloped residential project site with stubbed utilities and model homes to the north.

Since certification of the of the Natomas Crossing EIR, the physical conditions of the project site and surrounding areas have remained substantially similar to those analyzed in the EIR. The project site remains vacant and is covered with seasonal grasses that are regularly disced as part of ongoing site maintenance and weed control. Surrounding uses include commercial, office, and residential uses to the east; I-5 to the west; Arena Boulevard to the south; and a hotel under development and undeveloped planned residential project site to the north.

Land Use and Zoning Designations

At the time of the preparation of the Natomas Crossing EIR, the Sacramento 2030 General Plan (March 2009) designation for the entire Natomas Crossing project site was Planned Development (PD). Under the Natomas Crossing project analyzed in the EIR (August 2009), the PD land use designation would remain for the northern half of Quadrant B (i.e., the northern portion of the Natomas Quad B Office Project site), and the land use designation for the southern half of Quadrant B (i.e., the southern half of the Natomas Quad B Office Project site) would be changed from PD to Regional Commercial.

Under the project analyzed in the Natomas Crossing EIR, the southern portion of Quadrant B would be rezoned from Employment Center and Commercial to Shopping Center to allow for the future development of retail space within the range of 309,276 to 463,914 square feet. The northern portion of Quadrant B (i.e., the northern portion of the Natomas Quad B Office Project site) would not require a rezone, as the land uses proposed in the Natomas Crossing project were determined to be generally consistent with those planned for the site in previous approvals. Under the project analyzed in the Natomas Crossing EIR, future development would include the following uses:

Northern portion of Quadrant B

- 10 acres of residential use with an approximate total of 180 units
- 5 acres of hotel use consisting of approximately 130,000 square feet or 300 rooms
- 14 acres of office uses consisting of approximately 240,000 square feet

Southern portion of Quadrant B

- 309,276 to 463,914 square feet of shopping center uses

The EIR confirmed that development of Quadrant B was not proposed at the time the EIR was prepared, and the EIR therefore evaluated development of Quadrant B at a programmatic level rather than at a project level.

In 2015, the City adopted the Sacramento 2035 General Plan and certified the Sacramento 2035 General Plan Master EIR, which maintained the PD land use designation for the northern portion of Quadrant B and the Regional Commercial land use designation for the southern portion of Quadrant B, both of which comprise the proposed project site. Based on existing entitlements, allowable development for the project site would be guided by the Development Agreement in place for the project site. The Development Agreement remains in force, and provides that the PUD and development policies originally included in each policy subsection of the 1994 NNCP, as well as the 2030 Sacramento General Plan and which were analyzed in the Natomas Crossing EIR, are to remain the applicable standards for the proposed project.

The Sacramento 2035 General Plan land use designation for the southern portion of the project site is Regional Commercial. This designation provides for a balanced mix of high-density/intensity single-use commercial or residential development or horizontal and vertical mixed-use development that includes retail, service, office, and/or residential uses; gathering places such as plazas, courtyards, or parks; and compatible public, quasi-public, and special uses.

Development standards within Regional Commercial are as follows:

- Minimum Density: 32.0 Units/ Net Acre
- Maximum Density: 80.0 Units/ Net Acre
- Minimum FAR: 0.15 FAR
- Maximum FAR: 3.00 FAR

Existing Zoning

Zoning designations for the Natomas Crossing PUD, Area 3, Quadrant B, including the project site include Employment Center/50 Employees Per Acre/Planned Unit Development (EC-50-PUD) on most of the northerly two parcels, Shopping Center/Planned Unit Development (SC-PUD) on most of the southerly parcel, Agriculture-Open Space/Planned Unit Development (A-OS-PUD) along I-5, and a small portion of Limited Commercial – Planned Unit Development (C-1-PUD) in the southern portion of the project site.

Employment Center Zone

The purpose of the EC zone is to provide a flexible zone for employment-generating uses in a pedestrian-friendly setting with ample open space. The EC zone also provides for a variety of supporting uses, including retail, residential, and light industrial. The close proximity of supporting uses allows for pedestrian, bicycle, transit, and rideshare-connection opportunities, which collectively help reduce dependence on the automobile. Consequently, parking needs are reduced and shared parking opportunities increase. The EC zone was developed specifically for North Natomas,

but may be applicable to other areas of the city if the site is appropriate for a flexible, mixed-use, employment-generating complex.

Shopping Center Zone

The purpose of the SC zone is to provide a wide range of goods and services to the community. However, general commercial uses that are incompatible with a retail shopping center are prohibited. The maximum height is 35 feet. The maximum density is 30 dwelling units per net acre.

Agricultural – Open Space Zone

The purpose of the A-OS zone is to ensure the long-term preservation of agricultural and open space land. This zone is intended to prevent the premature development of land to urban uses. The maximum height is 50 feet.

Limited Commercial Zone

The purpose of the C-1 Zone is to provide for certain offices, retail stores, and commercial service establishments that are compatible with residential developments. This zone is intended to be applied to small lots that are surrounded by a residential neighborhood. The maximum height is 35 feet. The maximum density is 30 dwelling units per net care.

Planned Unit Development

The purpose of Planned Unit Development is to provide for greater flexibility in the design of integrated developments than otherwise possible through strict application of zoning regulations. It is the intent of Planned Unit Development to encourage the design of well-planned facilities that offer a variety of housing or other land uses through creative and imaginative planning.

Land Use Evaluation

The proposed project would construct up to 1.25 million square feet of office and related uses. The proposed development would include five 4-story office buildings surrounding a central outdoor courtyard area, a one-story centralized shared lobby, a childcare center at the northeast corner of the site, surface parking lots for the office and childcare facilities, and a potential structured parking garage that would be located west of the office buildings.

The proposed project would deviate from the anticipated uses included in the Natomas Crossing EIR by not including retail or hotel uses. The proposed project would require the City to approve development of additional office space, a childcare center, a deviation request for a parking ratio of up to 6 spaces/1,000 gross square feet, and a lot line adjustment. Nonetheless, similar to the uses described in the Natomas Crossing EIR, the proposed project involves the construction of office buildings in an area that is primarily a mix of residential, commercial, industrial, office, and undeveloped land. The proposed

project would be consistent with the allowable land uses and development intensities identified in the Development Agreement for the project site, for which the majority of the Quadrant B project site was under the Employment Center (EC-50) zoning designation with a 4.8-acre parcel at the intersection of Arena Boulevard and East Commerce Way under the Community Commercial zoning designation (CC).

The proposed project would be compatible with surrounding land uses. Incompatibilities typically exist when uses such as residences, parks, churches, and schools are located adjacent to more disruptive uses such as heavy industrial uses, major transportation corridors, and regional commercial centers where traffic levels and attendant noise may be high. The identification of incompatible uses occurs if one land use is anticipated to be disruptive of the existing or planned use of an adjacent property. The proposed project would develop office and related uses in an area that includes a mix of residential, commercial, industrial, office and undeveloped land. Consequently, as with the project analyzed in the Natomas Crossing EIR, the proposed project would not introduce uses that would be incompatible with or disruptive to surrounding land uses.

In addition, as discussed in the Natomas Crossing EIR, the project site has not been used for agricultural activities in many years and was mass graded in 2002, with routine discing performed on the site. In evaluating development within the General Plan area, the Sacramento 2030 General Plan Master EIR and the subsequently adopted Sacramento 2035 General Plan Master EIR found that remaining agricultural areas within the General Plan boundaries are not considered viable or suitable for large scale agricultural operations. As with the project analyzed in the Natomas Crossing EIR, the proposed project would not result in impacts to farmland or important agricultural resources.

The proposed project would not have significant land use effects that were not discussed in the Natomas Crossing EIR nor would it increase the severity of land use impacts discussed in the EIR. Under existing conditions, the proposed project would not make feasible mitigation measures that were found to be infeasible in the Natomas Crossing EIR. Further, there are no mitigation measures that were not considered in the Natomas Crossing EIR that would more substantially reduce the potential effects of the proposed project on Land Use. For these reasons, impacts to land use from the proposed project would not require the preparation of a subsequent EIR.

II. Population, Employment and Housing

The Initial Study prepared for the Natomas Crossing Project as a part of the Natomas Crossing EIR determined that, at full buildout, the proposed Natomas Crossing project would involve the construction of a maximum of 2,637,494 square feet of hotel, housing, office, hospital, retail, restaurant uses, and the development of associated infrastructure. The analysis determined that infrastructure for the project would not be oversized to accommodate previously unserved growth. In addition, the analysis determined that the project site and surrounding areas have been designated for urban development in previous planning documents, and impacts from the infrastructure related to growth

inducement have already been evaluated within the 2030 General Plan Master EIR (and subsequently in the 2035 General Plan Master EIR). Population increases resulting from the previously analyzed project were determined not be substantial because buildout of the project included up to 180 residential units, or the addition of approximately 468 residents in a part of the City that is expected to accommodate over 30,000 residents. Regarding the potential for the project to displace existing residents or housing, the analysis determined that the proposed project site was vacant land that had been designated for urban uses, and development of the project site would not displace existing residents or housing because the site is not currently residentially developed. The analysis concluded that the proposed project would not have an adverse impact on population or housing in the area, and the impact would be less than significant.

The proposed project would deviate from the proposed uses included in the Natomas Crossing EIR by not including retail or hotel uses. Nonetheless, similar to the uses described in the Natomas Crossing EIR, the proposed project involves the construction of office buildings in an area that is primarily a mix of residential, commercial, industrial, office, and undeveloped land. The proposed project would be consistent with the allowable land uses and development intensities identified the General Plan land use designations and zoning for the project site.

The proposed changes would not add population or affect housing, and would not alter the anticipated effects on population and housing associated with the project described in the previous EIR. The proposed project would not have more significant effects related to population and housing that were not discussed in the previous EIR or increase the severity of impacts discussed therein. For these reasons, impacts to population and housing from the proposed project would not require the preparation of a subsequent EIR.

III. Seismicity, Soils, and Geology

Seismic Hazards

The seismic ground shaking conditions at the proposed project site would be the same as those of the originally-proposed project at Quadrant B of the Area 3 in the Natomas Crossing PUD, as described in the Natomas Crossing EIR.

As described in Section III of the Initial Study prepared for and appended to the Natomas Crossing EIR, the City of Sacramento requires implementation of Uniform Building Code (UBC) requirements that recognize State and federal earthquake protection. The State of California provides minimum standards for building design in Chapter 23 of the California Building Code (CBC) (Title 24 of California Code of Regulations), which is based on the UBC, but is more stringent and detailed than the federal code. Chapter 16 of the CBC further requires that the design of foundation and excavation-wall supports must reduce the exposure to potentially damaging seismic vibrations through seismic-resistant design (Section A33 – Excavation and Grading).

North Natomas, where the project site is located, is susceptible to liquefaction events. However, the proposed project is not located within a State Designated Seismic Hazard Zone for liquefaction.¹ Development associated with the proposed project would conform to the regulatory requirements and associated design standards of the CBC. Therefore, the impacts of seismic ground shaking, liquefaction, and associated hazards would remain less than significant. Changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the analysis of anticipated development within the Natomas Crossing EIR, result in new significant impacts relating to seismic hazards or significant impacts that are substantially more severe than significant impacts previously disclosed. No new mitigation measures would be required.

Erosion

There is potential for erosion and/or unstable earth conditions as a result of the construction activities that would result from development of the project site. As identified in the Initial Study prepared for and appended to the Natomas Crossing EIR, the proposed project site contains expansive soils, which would likely experience subsidence and could be subject to soil erosion and liquefaction. This potentially significant impact would be mitigated to a less-than-significant level through implementation of Natomas Crossing EIR Mitigation Measure MM-1, which would require final foundation investigations, to evaluate specific soil conditions at each structure location and provision of recommendation for site preparation and structural elements, prior to issuance of a grading permit. The potential for subsidence would be further minimized through implementation of the provisions of the UBC. Additionally, the City has adopted standard measures to control erosion and sediment during construction and all projects in the City are required to comply with the City's Standard Construction Specifications for Erosion and Sediment Control.

Development of the proposed project would comply with the City's standards set forth in the "Administrative and Technical Procedures Manual for Grading and Erosion and Sediment Control."² The proposed project would also comply with the City's grading ordinance (Chapter 15.88 of Sacramento City Code), which specifies construction standards to minimize erosion and runoff and requires the preparation and implementation of an erosion and sediment control plan. As a result of compliance with these regulatory requirements and implementation of Natomas Crossing EIR Mitigation Measure MM-1, the potential for erosion as a result of the proposed project would be minimized, and the impact would be less than significant. Changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the anticipated development analyzed in the Natomas Crossing EIR, result

- ¹ California Department of Conservation, 2015. Department of Conservation Website: Seismic Hazard Zones. Available: http://www.conservation.ca.gov/cgs/shzp/Pages/shmpreadis.aspx#in_zone. Accessed April 24, 2018.
- ² City of Sacramento Department of Utilities, 2013. Department of Conservation Website: Seismic Hazard Zones. Available: <https://www.google.com/search?q=city+of+sacramento+Administrative+and+Technical+Procedures+Manual+for+Grading+and+Erosion+and+Sediment+Control&ie=utf-8&oe=utf-8&client=firefox-b-1-ab#>. Accessed April 24, 2018.

in new significant impacts relating to erosion or significant impacts that are substantially more severe than significant impacts previously disclosed. No new mitigation measures would be required.

Unstable Soils, Subsidence, and Topography

In the Initial Study prepared for and appended to the Natomas Crossing EIR, the City determined that impacts relating to geology and soils would be less than significant. Landslides are not considered to be a potential threat to the project area given its relatively flat topography and lack of unique geological or physical features that could result in a landslide. The Initial Study referenced the preliminary soil investigation prepared for the project site, which determined that the project site consists primarily of moderate- to high-plasticity clays overlying interlayered low plasticity clays, silts, and sands at depths of two to four feet in the north/central portion of the EIR project site, and four to seven feet in the southern portion of the EIR project site. Consistent with anticipated development of the project site, the proposed project would not include any long-term permanent groundwater pumping or dewatering activities. Furthermore, as described in Natomas Crossing EIR Mitigation Measure MM-1, within Section III of the Initial Study, the City of Sacramento requires the results of site-specific soil investigations to be incorporated into the engineering and seismic designs for individual structures proposed for development at the site prior to the issuance of building permits. These investigations are intended to identify potentially unsuitable soil conditions, including possible exposure to potentially damaging seismic vibrations, ground failure, liquefaction, settlement, subsidence, lateral spreading, and collapse. As part of the construction permitting process, the soil evaluations must contain recommendations for areas of potentially unstable soils specific to the site, and be incorporated into the construction design. Therefore, impacts related to unstable soils, subsidence, or unique topographical issues would be less than significant.

Changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the Natomas Crossing EIR, result in new significant impacts relating to unstable soils, subsidence, or topography, or result in significant impacts that are substantially more severe than significant impacts previously described in the EIR. No new mitigation measures would be required. In addition, there is no new information of substantial importance showing that the project would have one or more significant effects not previously discussed or that any previously examined significant effects would be substantially more severe than significant effects shown in the previous EIR. Nor is there new information of substantial importance showing (i) that mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative or (ii) that mitigation measures or alternatives considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects, but the proponents decline to adopt the mitigation measure or alternative. For these reasons, impacts relating to

geology, soils, or seismicity from the proposed project would not require the preparation of a subsequent EIR.

IV. Water

Risk of Flooding

Prior to the preparation of the Natomas Crossing EIR, the USACE released a report in January 2008 that found that some portions of the Natomas Basin do not have 30-year flood protection. As a result, FEMA designated the Basin under the AE special hazard flood zone designation in December 2008. The AE designation required all property owners within the basin with federally-backed mortgages to obtain flood insurance. At the time of certification of the Natomas Crossing EIR, SAFCA was working with State and federal agencies to implement the Natomas Levee Improvement Program (NLIP), which would improve the Natomas Basin levee system to reach 100-year flood protection in 2012, and reach 200-year protection in 2013. Under those regulatory conditions, the City intended to apply for an A99 FEMA designation, which would not have development requirements.

Impacts related to flood risk, as analyzed in the Natomas Crossing EIR, were determined to be potentially significant if development of the project site were to occur prior to recertification of the Natomas Basin levee system or the granting of an A99 flood zone designation by FEMA. Impacts from flood risk would be minimized with the implementation of Natomas Crossing EIR Mitigation Measures 4.5-1(a) and 4.5-1(b).

Levee improvements have been ongoing under the SAFCA NLIP, continuing from 2007 to the present. In April 2015, FEMA determined that SAFCA had made sufficient progress in required improvement to the levee system to approve an A99 flood zone designation for the Natomas Basin. An A99 designation is an interim flood zone designation that does not diminish the risk consideration for the flood zone, but allows construction if certain conditions are met.³ Mandatory flood insurance purchase requirements and floodplain management are required of properties located in Zone A99.⁴ At a minimum, projects located within Zone A99 would need to adhere to the floodplain management and building requirements set forth in Section 60.3 of the National Flood Insurance Program (NFIP) regulations, which include, but are not limited to, the following:⁵

- Review all permit applications to determine whether proposed building sites will be reasonably safe from flooding. If a proposed building site is in a flood-prone area, all

³ Federal Emergency Management Agency, 2015. Flood Insurance Rate Map, Sacramento County: Map Number 06067C0045J. Available: <https://msc.fema.gov/portal/search?AddressQuery=natomas%2C%20ca#searchresultsanchor>. Accessed April 24, 2018.

⁴ Federal Emergency Management Agency, 2014. Adequate Progress on Flood Control Systems: Zone A99 Requirements Summary for State and Local Officials. Available: https://www.fema.gov/media-library-data/1417370512021-87d10b406536999e03e3f63fe55873f5/Zone_A99_Fact_Sheet.pdf. Accessed April 24, 2018.

⁵ Federal Emergency Management Agency, 2000. Section 60.3 Flood Plain Management Criteria for Flood Prone Areas. Available: https://www.fema.gov/media-library-data/20130726-1622-20490-7844/section60_3.pdf. Accessed April 24, 2018.

new construction and substantial improvements shall (i) be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, (ii) be constructed with materials resistant to flood damage, (iii) be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

- Review subdivision proposals and other proposed new development, including manufactured home parks or subdivisions, to determine whether such proposals will be reasonably safe from flooding. If a subdivision proposal or other proposed new development is in a flood-prone area, any such proposals shall be reviewed to assure that (i) all such proposals are consistent with the need to minimize flood damage within the flood-prone area, (ii) all public utilities and facilities, such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage, and (iii) adequate drainage is provided to reduce exposure to flood hazards.

The proposed project would be required to comply with floodplain management and building requirements of Section 60.3 of the NFIP, consistent with the A99 flood zone designation.

Although the flood designation has changed, this revised designation does not impact the risk determination for the project site as described in the EIR. Therefore, the potential for the proposed project to exacerbate flood elevations or to be affected by flood conditions would be the same as those analyzed in the EIR. Changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the EIR, result in new significant impacts relating to flooding or impacts that are substantially more severe than significant impacts previously disclosed. No new mitigation measures would be required; however, present conditions would eliminate the need for Natomas Crossing EIR Mitigation Measures 4.5-1(a) and 4.5-1(b).

Construction-Related Impacts to Surface Water

The Natomas Crossing EIR analyzed impacts to surface waters from development of commercial buildings, roadways, parking lots, and infrastructure, which would require grading, excavation, and other construction-related activities that could cause soil erosion at an accelerated rate during storm events. As described in the EIR, anticipated development on the project site would be required to comply with the requirements of the City's Stormwater Quality Improvement Plan (SQIP) and to obtain coverage under the NPDES Construction General Permit (CGP). Conformance with the CGP would require the preparation of erosion and sediment control plans to control pollutant discharges through the implementation of best available technology (BAT), that is economically feasible, and best conventional pollutant control technology (BCT) to reduce pollutants. Construction contractors would also be required to prepare and submit a construction stormwater pollution prevention plan (SWPPP). Anticipated development on the proposed Quadrant B project site would be required to adhere to the above requirements,

conformance with which would reduce potential impacts from construction runoff to less than significant.

The proposed project would be subject to and implement all of the stormwater and erosion prevention requirements described in the EIR. The proposed project would implement present-day best management practices (BMPs) for the prevention of impacts to surface waters from construction activities. For this reason, impacts to surface water from the proposed project would be less than significant with no mitigation required. The proposed project would not have more significant effects from construction related impacts to surface waters that were not discussed in the Natomas Crossing EIR or increase the severity of those impacts discussed therein. Under existing conditions, the proposed project would not make feasible, mitigation measures that were found to be infeasible in the Natomas Crossing EIR. Further, there are no mitigation measures that were not considered in the Natomas Crossing EIR, that would more substantially reduce the potential effects of the project construction on surface waters. For these reasons, impacts to surface waters from proposed project construction would not require the preparation of a subsequent EIR.

Operational Water Quality

The Hydrology, Water Quality, and Drainage Section of the Natomas Crossing EIR included analysis of potential impacts to water quality from urban runoff from the Natomas Crossing project site. The Natomas Crossing project would increase impervious surfaces within the project site that would alter the types and levels of pollutants that could be present in project site runoff. As described in the EIR, the existing downstream drainage system, including Detention Basin 6-B, is designed to control urban runoff pollutants and improve water quality by allowing water pollutants to settle out within the detention basin. In addition, the EIR, stated that project applicants would be required to comply with the City's Stormwater Management and Discharge Control Ordinance (Title 13), which requires that the Improvement Plans incorporate controls to minimize the operational discharge of pollutants from the project site. The proposed stormwater design of project site would meet the requirements of the Stormwater Quality Standards for Development Projects to ensure that stormwater runoff meets the water quality standards identified by the RWQCB for water entering the Sacramento River.⁶ The EIR concluded that conformance of the project with the regulations and standards described above would minimize the potential for adverse impacts from urban runoff generated by anticipated development on the project site would be considered less than significant.

In 2015, the City of Sacramento adopted the 2035 General Plan, which included policy updates intended to provide adequate stormwater drainage facilities and services that are environmentally-sensitive, accommodate growth, and protect residents and property

⁶ Sacramento Stormwater Quality Partnership, 2007. *Stormwater Quality Design Manual; for the Sacramento and South Placer Regions*. May 2007. Available: http://www.beriverfriendly.net/docs/files/File/2007_DesignManual/SWQ_DesignManual_2007.pdf. Accessed April 25, 2018.

(Goal U 4.1) for anticipated development.⁷ The 2035 General Plan included the following policies, intended to improve adverse impacts from urban runoff:

Policies

- U 4.1.5 **Green Stormwater Infrastructure.** The City shall encourage “green infrastructure” design and Low Impact Development (LID) techniques for stormwater facilities (i.e., using vegetation and soil to manage stormwater) to achieve multiple benefits (e.g., preserving and creating open space, improving runoff water quality).
- U 4.1.6 **New Development.** The City shall require proponents of new development to submit drainage studies that adhere to City stormwater design requirements and incorporate measures, including “green infrastructure” and Low Impact Development (LID) techniques, to prevent on- or off-site flooding.

The proposed project would develop the project site with impermeable surfaces to levels similar to those anticipated for development analyzed in the EIR. The proposed project would be designed to direct stormwater runoff to the drainage canal, along the western boundary of the project site, which would drain to Detention Basin 6-B where runoff would settle and undergo processes assumed for development on the project site in the EIR. Stormwater runoff would not be directed to the nearby I-5 right-of-way. As described above, the project site would be approximately 72% covered in impermeable surface area, relative to the 90% coverage, anticipated for development of the project site in the EIR, and would not require the full stormwater drainage capacity available to the project site. For this reason, treatment capacity of urban runoff in Detention Basin 6-B would be commensurately adequate to accommodate urban runoff from the proposed project. In addition, the proposed project would be subject to and implement all of the regulatory requirements described in the EIR, which would minimize potentially adverse impacts from urban runoff. Required implementation of policies from the 2035 General Plan, requiring the implementation of LID design features and efficiencies into new development would further minimize potential adverse effects. With the utilization of required water quality features in the existing drainage system that would serve the project and conformance with City, regional, and statewide stormwater runoff requirements, impacts to surface water from urban runoff originating from the project site would be less than significant and would not require mitigation. The proposed project would not have more significant effects related impacts to urban runoff that were not discussed in the Natomas Crossing EIR or increase the severity of those impacts discussed therein. Under existing conditions, the proposed project would not make feasible, mitigation measures that were found to be infeasible in the Natomas Crossing EIR. Further, there are no mitigation measures that were not considered in the Natomas Crossing EIR, that would more substantially reduce the potential effects of the project construction on surface waters. For these reasons, impacts to surface waters from proposed project construction would not require the preparation of a subsequent EIR.

⁷ City of Sacramento, 2015. *2035 General Plan*. March 3, 2015.

Groundwater

Analysis of potential impacts to groundwater in the Natomas Crossing EIR, concluded that project construction would not excavate to depths where groundwater would be present. This conclusion was based on anticipated project design and the preliminary soil investigation prepared for the project area, which determined the groundwater level to be approximately 17 feet below surface level, and ranging between 20 feet above and 40 feet below mean sea level (msl).⁸ Based on the depth of groundwater described in the geotechnical report prepared for the proposed project, it is not anticipated that groundwater would be encountered during project construction. However, if groundwater is encountered during construction, dewatering would be necessary. If groundwater is encountered during construction activities, dewatering activities would comply with application requirements established by the Central Valley Regional Water Quality Control Board (CVRWQB) to ensure that dewatering activities would not result in adverse changes to groundwater. Ground-disturbing construction activities would include trenching for utility connections, grading, and other minimally invasive earthmoving, and would not involve substantial excavation. The construction processes for the proposed project would be the same as those processes anticipated and analyzed in the EIR. Accordingly, this impact would be less than significant, and no mitigation would be required.

Summary

Changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the EIR, result in new significant impacts relating to hydrology or water quality, or significant impacts that are substantially more severe than impacts previously disclosed. No new mitigation measures would be required. In addition, there is no new information of substantial importance showing that the project would have one or more significant effects not previously discussed or that any previously examined significant effects would be substantially more severe than significant effects shown in the previous EIR. Nor is there new information of substantial importance showing (i) that mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative or (ii) that mitigation measures or alternatives considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects, but the proponents decline to adopt the mitigation measure or alternative. For these reasons, impacts to hydrology or water quality from the proposed project would not require the preparation of a subsequent EIR.

V. Air Quality

The Air Quality chapter of the Natomas Crossing EIR concludes that the impact associated with the project's long-term increase in CO emissions, as well as the project's

⁸ Raney Geotechnical Inc., 2017. *Draft Geotechnical Investigation; Proposed Centene Development; Northeasterly of Arena Boulevard and I-5 Sacramento, California*. Page 4.

cumulative contribution to local air quality conditions would be less than significant. The analysis determined that impacts related to short-term increases of construction-generated emissions of criteria air pollutants, short-term increases in fugitive dust, exposure of sensitive receptors to toxic air contaminants, and exposure of sensitive receptors to odors would be significant; however, the impacts would be reduced to less than significant levels with the implementation of mitigation measures identified in the EIR. However, the air quality analysis determined that the impact related to long-term increases of criteria air pollutants and the project's cumulative contribution to regional air quality conditions would be significant and unavoidable, even with the implementation of feasible mitigation measures.

Since the publication of the Natomas Crossing EIR, the Sacramento Metropolitan Air Quality Management District (SMAQMD) has revised their recommended air quality model and thresholds of significance. The recommended model is the newest version of the California Emissions Estimator Model (CalEEMod). Air quality construction and operational-significance thresholds now include PM₁₀ and PM_{2.5}, and according to the SMAQMD CEQA guidance, project-related construction and operational emissions that exceed zero pounds per day of PM₁₀ and PM_{2.5} would result in a significant impact, unless all feasible Best Available Control Technologies/Best Management Practices (BACT/BMPs) are implemented. After implementation of all feasible SMAQMD BACT/BMPs, the SMAQMD's significance threshold for PM₁₀ and PM_{2.5} increases to 80 pounds per day (14.6 tons per year) of PM₁₀ and 82 pounds per day (15 tons per year) of PM_{2.5}. Since the proposed project would implement all feasible SMAQMD's BACT/BMPs during construction and operation, SMAQMD's 80 pounds per day (14.6 tons per year) of PM₁₀ and 82 pounds per day (15 tons per year) of PM_{2.5} significance thresholds would apply.

Short-Term Emissions

In the Natomas Crossing EIR, construction was assumed to begin in 2013. Maximum daily construction emissions identified in the Natomas Crossing EIR for development under Quadrant B is 492 lbs/day of ROG, 82 lbs/day of NO_x, 329 lbs/day of PM₁₀, and 72 lbs/day of PM_{2.5}.

To evaluate the potential increase or decrease in criteria pollutant emissions as result of the proposed project, operational and construction emissions of ROG, NO_x, PM₁₀ and PM_{2.5} were modeled using CalEEMod 2016.3.2. The proposed project is expected to be constructed in two phases: First Phase and Future Phase. It was assumed that construction would begin for the First Phase in October 2018 and end in the fourth quarter of 2020. Construction for the Future Phase was conservatively assumed to begin immediately following construction of the First Phase. CalEEMod defaults for construction phasing and construction-worker trip generation rates were used. The results of modeling are shown in **Table 3**. Modeling results and assumptions can be found in Attachment 1.

**TABLE 3
ESTIMATED UNMITIGATED CONSTRUCTION EMISSIONS**

Phase	Year	NO _x , ppd	ROG, ppd	PM ₁₀ , ppd	PM ₁₀ , tpy	PM _{2.5} , ppd	PM _{2.5} , tpy
First Phase	2018	104	7	24	0.5	13	0.3
	2019	56	6	8	1.0	3	0.4
	2020	51	161	8	0.7	3	0.3
Future Phase	2020	63	7	10	0.1	4	< 0.1
	2021	57	6	10	1.3	3	0.4
	2022	53	6	10	1.1	3	0.4
	2023	10	214	1	0.0	1	< 0.1
Maximum for Proposed Project		104	214	24	1.0	13	0.4
Quad B Emissions in Natomas Crossing EIR		82	492	329	9.0	72	2.06
SMAQMD Significance Thresholds		85	NA	80	14.6	82	15
Proposed Project Exceeds SMAQMD Significance thresholds?		Yes	NA	No	No	No	No

NOTES:

ppd = Pounds per day

tpy = Tons per year

NA = not applicable

1. Construction emissions for winter and annual emissions were made using CalEEMod 2016.3.2. See Attachment 1 for details. Unmitigated emissions do not include any mitigation measures identified in the Natomas Crossing EIR.
2. SMAQMD has established a zero emissions threshold for PM₁₀ and PM_{2.5} when projects do not implement their Best Available Control Technologies/Best Management Practices (BACT/BMPs). If all feasible BACT/BMPs are applied, then significance threshold for PM₁₀ is increased to 80 pounds per day/14.6 tons per year and PM_{2.5} is increased to 82 pounds per day/15 tons per year.

Source: ESA, 2018; Ambient Air Quality and Noise Consulting, 2009.

As shown in Table 3, construction emissions of NO_x would exceed the SMAQMD significance threshold. PM₁₀ and PM_{2.5} emissions generated by the proposed project would be below the SMAQMD significance thresholds and what was modeled in the Natomas Crossing EIR. The proposed project construction NO_x emissions would be more than what was modeled for the project site based on assumed development intensities under the EIR. While construction of the proposed project would generate construction emissions that would be in excess of what was already evaluated in the Natomas Crossing EIR, implementation of Natomas Crossing EIR Mitigation Measure 4.4-1(d) would offset any NO_x emissions in excess of the SMAQMD's significance threshold. Therefore, NO_x emissions would be offset to less than the significance threshold and would be less than significant.

The Natomas Crossing EIR concluded that no significant emissions are anticipated to result from anticipated development on the project site and surrounding areas. However, the construction of the proposed project could expose nearby sensitive receptors to toxic air contaminants (TACs) during project construction and operation. According to the

Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments should be based on a 30-year exposure period. However, such assessments should be limited to the period/duration of activities associated with the project. Thus, the duration of the proposed construction activities would only constitute a small percentage of the total 30-year exposure period. Due to this relatively short period of exposure, TACs generated during construction would not be expected to result in concentrations causing significant health risks.

While Mitigation Measure 4.4-2 of the Natomas Crossing EIR would potentially control short-term construction-generated fugitive dust to a less-than-significant level, all projects are subject to SMAQMD rules in effect at the time of construction and any construction project, regardless of size, is required to implement the SMAQMD's Basic Construction Emission Control Practices.

Long-Term Emissions

Mobile source trip generation for the proposed Natomas Quad B Office Project is anticipated to be less than the trip generation analyzed in the Natomas Crossing EIR.⁹ Total weekday daily trips for the Natomas Quad B Office Project are forecast to be 11,295, compared to 18,112 total weekday daily trips forecasted for the project analyzed in the Natomas Crossing EIR. Total peak hour trips for the AM peak hour are greater by 656 trips under the proposed Natomas Quad B Office Project, and total PM peak hour trips are 358 trips less than the project analyzed in the Natomas Crossing EIR.

The project is subject to the North Natomas Regional Retail and Medical Complex Air Quality Mitigation Plan (AQMP), which includes measures regarding the amount of bike parking, providing a connected pedestrian network, minimizing pedestrian barriers, providing a pedestrian pathway through the parking lot, traffic calming measures, and installing Energy Star-labeled roof materials. Adherence to the AQMP would reduce overall NO_x and ROG emissions by 15%.

As shown in **Table 4**, operational emissions of NO_x would exceed the SMAQMD significance threshold. Operational emissions of ROG, PM₁₀ and PM_{2.5} generated by the proposed project would be below the SMAQMD significance thresholds. Emissions of NO_x, ROG, PM₁₀, and PM_{2.5} are less than what was previously analyzed in the Natomas Crossing EIR. Since the modeled emissions for the proposed project would not exceed the SMAQMD significance thresholds and/or would not be greater than what could be emitted under development analyzed in the EIR, operation of the proposed project would not generate operational emissions that would result in impacts greater than what could occur for development anticipated under the EIR.

⁹ DKS Associates, 2018. *Draft Transportation Analysis, Natomas Crossing Quad B*, Prepared for the City of Sacramento. April 24, 2018. Page 7.

**TABLE 4
ESTIMATED UNMITIGATED OPERATIONAL EMISSIONS**

Phase	NO_x, ppd	ROG, ppd	PM₁₀, ppd	PM₁₀, tpy	PM_{2.5}, ppd	PM_{2.5}, tpy
First Phase	57	24	23	3	7	1
Future Phase	45	28	30	4	8	1
First Phase + Future Phase	112	56	52	7	15	2
Quad B Emissions in Natomas Crossing EIR	197	144	261	44	69	9
SMAQMD Significance Thresholds	65	65	80	14.6	82	15
Proposed Project Exceeds SMAQMD Significance thresholds?	Yes	No	No	No	No	No

NOTES:

ppd = Pounds per day

tpy = Tons per year

- Operational emissions for winter and annual emissions were made using CalEEMod 2016.3.2. See Attachment 1 for details. Unmitigated emissions do not include any mitigation measures identified in the Natomas Crossing EIR.
- SMAQMD has established a zero emissions threshold for PM10 and PM2.5 when projects do not implement their Best Available Control Technologies/Best Management Practices (BACT/BMPs). If all feasible BACT/BMPs are applied, then significance threshold for PM10 is reduced to 80 pounds per day/14.6 tons per year and PM2.5 is reduced to 82 pounds per day/15 tons per year.

Source: ESA, 2018; Ambient Air Quality and Noise Consulting, 2009.

The previous traffic analysis prepared for the Natomas Crossing EIR estimated a maximum of 5,074 peak-hour trips. For the Natomas Quad B Office, peak intersection volumes for intersections affected by the proposed project would be 4,946 vehicles per hour. The previous EIR modeled CO concentrations using the CALINE4 model and determined that this level of vehicles per hour would result in a less-than-significant impact. Furthermore, according to the current version of SMAQMD's CEQA Guidance, a project will be less than significant with regards to ambient CO concentrations if the project will not result in an affected intersection experiencing more than 31,600 vehicles per hour; will not contribute to a tunnel, parking garage, bridge overpass, urban street canyon, or below-ground roadway, or other locations where horizontal or vertical mixing of air will be substantially limited; and if vehicle types at the affected intersections would not be substantially different from the County average. Therefore, the project would not contribute to an exceedance of the CO ambient air quality standard and impacts would not be greater than what was previously analyzed in the EIR.

A diesel generator is planned for installation with the proposed project. SMAQMD Rule 201 requires any business or person to obtain an Authority to Construct and Permit to Operate before installing or operating new equipment or processes that may release or control air pollutants to ensure that all SMAQMD rules and regulations are considered. As described in the Natomas Crossing EIR, the permitting requirements would require the source to implement measures designed to ensure that potential health risks would not exceed established standards; therefore, impacts would not be greater than what was previously analyzed in the Natomas Crossing EIR.

As discussed in the Natomas Crossing EIR, Mitigation Measure 4.4-5(a) requires that sensitive land uses not be located in an area that exceeds the SMAQMD screening criteria for cancer risks associated with toxic air contaminants. As described in the Natomas Crossing EIR, if sensitive land uses are to be located within 200 feet from Interstate 5, a more detailed assessment of potential health risks shall be required. The only sensitive land use as part of the proposed project is the childcare facility located on the northeast of the project site, which is greater than 500 feet from I-5. Natomas Crossing EIR Mitigation Measure 4.4-5(b) requires that the project applicant plant vegetation (e.g., trees), between the proposed on-site sensitive land uses and the Interstate 5 corridor, with the type and location to be determined in consultation with SMAQMD. The proposed project would plant trees in the parking lot (including European Hackberry and European Beech) to achieve greater than 50% total shade percentage in the parking lot, which would be located between I-5 and the childcare facility. Therefore, impacts to sensitive receptors would be less than significant and would be less than what was previously analyzed in the Natomas Crossing EIR.

The proposed project would not alter the impacts to air quality relative to those discussed in the Natomas Crossing EIR. Changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the Natomas Crossing EIR, result in a new significant impact or significant impacts that are substantially more severe than significant impacts previously disclosed. In addition, there is no new information of substantial importance showing that the proposed project would have one or more significant effects not previously discussed or that any previously examined significant effects would be substantially more severe than significant effects shown in the EIR. Nor is there new information of substantial importance showing (i) that mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents declined to adopt the mitigation measure or alternative or (ii) that mitigation measures or alternatives considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects, but the proponents decline to adopt the mitigation measure or alternative. For these reasons, impacts to air quality from the proposed project would not require the preparation of a subsequent IS/MND or EIR. No new mitigation measures will be required.

Global Climate Change

A discussion of greenhouse gases (GHG) was included in the Air Quality chapter of the Natomas Crossing EIR. The largest source of GHGs identified in the Natomas Crossing EIR would be on- and off-site motor vehicle use. The project analyzed in the Natomas Crossing EIR was designed to minimize emissions of GHGs and thereby reduce the project's contribution to global climate change. The analysis determined that impacts related to GHG emissions would be less than significant.

Since the publication of the Natomas Crossing EIR, the City of Sacramento has incorporated Global Climate Change or Greenhouse Gas Emissions as a required topic

for environmental analysis and adopted the Sacramento Climate Action Plan (CAP) as part of the 2035 General Plan. The City's CAP includes several initiatives to reach its goals of reducing community-wide emissions by 15 percent below 2005 levels by 2020, 38 percent below 2005 levels by 2030, and 83 percent below 2005 levels by 2050.

The proposed project would comply with the City's CAP. The proposed project is located within an area designated as Employment Center Mid-Rise designation in the City's General Plan. The 2035 General Plan Master EIR evaluated greenhouse gas emissions related to development anticipated in the City based on land use designations and anticipated citywide growth. Because the proposed project would not change the general plan land use designation for the project site, the greenhouse gas emissions for the proposed project would be consistent with the general plan and CAP. In addition, the proposed project would be constructed in an area with pedestrian access via sidewalks and public transportation. The proposed project would be designed in compliance with the 2016 Title 24 Building Energy Efficiency Standards. Since development under the general plan, including development of the project site, would comply with 2035 General Plan greenhouse gas policies and State law for emissions reductions, the proposed project would not conflict with the implementation of the City's CAP.

Changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the Natomas Crossing EIR, result in a new significant impact or significant impacts that are substantially more severe than significant impacts previously disclosed. No new mitigation measures would be required. In addition, there is no new information of substantial importance showing that the proposed project would have one or more significant effects not previously discussed. Nor is there new information of substantial importance showing that mitigation measures considerably different from those analyzed in the EIR would substantially reduce one or more significant effects, but the proponents decline to adopt the mitigation measure or alternative. For these reasons, impacts from the proposed project that would contribute to global climate change would not require the preparation of a subsequent IS/MND or EIR.

VI. Transportation and Circulation

Roadway System

The roadway component of the transportation system near the proposed project is described below.

Interstate 5

Interstate 5 (I-5) is located immediately west of the project site. I-5 would provide the primary regional access to the project site. To the south, I-5 provides access to I-80, and continues into Sacramento's Central City. To the north, I-5 provides access to State Routes 70 and 90 (SR 70 and SR 90), and provides access to Sacramento International Airport. The project site is served by interchanges with I-5 at Arena Boulevard and Del Paso Road.

Arena Boulevard

Arena Boulevard is an east-west arterial roadway, extending from El Centro Road to the west Gateway Park Boulevard to the east. It accommodates four to eight through lanes. In the project vicinity, it has six to eight lanes. Arena Boulevard has a full interchange with I-5. West of El Centro Road, it continues as Natomas Central Drive. East of Gateway Park Boulevard, it continues as North Market Boulevard.

East Commerce Way

East Commerce Way is a north-south arterial roadway which parallels I-5 to the east and forms the eastern boundary of the site. To the north, it extends to Elkhorn Boulevard. It currently terminates south of the Natomas Crossing Drive but is planned to extend to San Juan Road. East Commerce Way is planned to accommodate two to six through lanes. It currently has six lanes along the site frontage.

Del Paso Road

Del Paso Road is an east-west arterial roadway beginning at Power Line Road west of I-5 and continuing easterly to Northgate Boulevard where it becomes Main Avenue. Del Paso Road is primarily a six-lane roadway between I-5 and Blackrock Drive. Del Paso Road has a full interchange with I-5.

Snowy Egret Drive

Snowy Egret Drive is a planned two-lane east-west minor collector/local roadway. It is planned to extend from El Centro Road to East Commerce Way, crossing I-5. West of El Centro Road, it would become Manera Rica Drive. East of East Commerce Way, it becomes the West Entrance Road to the former arena site. The roadway is currently unconstructed adjacent to the project site.

Intersections and Roadway Segments

The Natomas Crossing EIR concluded, based on a traffic study prepared for the EIR, that intersection impacts from the Natomas Crossing project, under the 2030 General Plan level of service (LOS) thresholds, would increase traffic volumes at study area intersections and would cause a significant impact under the baseline-with-project scenario at the intersection of East Commerce Way and Arena Boulevard.¹⁰ This impact would be reduced to less than significant through the implementation of Natomas Crossing EIR Mitigation Measure 4.2-1, which included improvements to the roadway and the provision of funding to the City Traffic Operations Center (TOC) to monitor and retime the traffic signal. All other intersections were anticipated to operate at acceptable LOS levels, based on 2030 General Plan LOS thresholds. Under cumulative-plus-project conditions, the EIR concluded that project traffic would have significant effects at various intersections in the project vicinity, however implementation of Natomas Crossing EIR

¹⁰ DKS Associates, 2008. *Natomas Crossing Revised Project – Trip Generation*. December 3, 2008.

Mitigation Measures 4.2-18(a) through 4.2-18(h) would implement a range of roadway improvements and fair-share fees, that would mitigate project impacts to less-than-significant levels.

Subsequent to certification of the Natomas Crossing EIR, the City adopted the 2035 General Plan, which included policy revisions to the City's LOS standard (Policy M.1.2.2. Level of Service (LOS) Standard), to allow for greater flexibility in the application of the City's standards based on area-specific needs. The policy revision established variable LOS thresholds. While the City would maintain the goal of roadway operations at LOS D or better, the policy revisions identified areas and roadway segments for which LOS E or F would be permitted. However, the project site remains within an area for which LOS D or better is the applicable threshold under the 2035 General Plan.

Land uses have evolved in the vicinity of the project site since certification of the Natomas Crossing EIR. At the time of preparation of the EIR, Sleep Train Arena (also called Arco Arena in the EIR) was in operation, bringing substantial traffic to the project vicinity during special events. Sleep Train Arena is no longer in operation and redevelopment of the site for other uses is anticipated in the future, however the types of uses resulting from redevelopment of that site are not known at this time. As it relates to traffic impacts, the analysis in the EIR did not include special event traffic at Sleep Train Arena, and instead focused on weekday and weekend AM and PM peak hour traffic baselines, to determine impacts from the Natomas Crossing project on normal traffic conditions. For this reason, the present non-operational status of Sleep Train Arena would not have a substantive influence on AM and PM peak hour traffic conditions, as compared to conditions analyzed in the EIR. Development has also commenced in Quadrant A of Area 3 in the Natomas Crossing PUD, immediately north of the proposed Snowy Egret Way, to the north of the project site.

The proposed Natomas Quad B Office project would develop Quadrant B within Area 3 of the Natomas Crossing PUD, with office and related uses. The proposed project would provide vehicle access via four project driveways to East Commerce Way, configured as described in the Project Description. The vehicle access points would create a North Driveway, Center Driveway, Service Driveway, and South Driveway.

The north and south driveways will accommodate most employee motor vehicle traffic. All employee traffic would pass through security entering and exiting the parking area. The Center Driveway would serve visitor parking, as well as employee drop-off/pick-up.

A transportation analysis was prepared for the proposed project to evaluate potential impacts from the project on roadways and pedestrian, bicycle, and transit facilities and circulation (see **Attachment 2**).¹¹ According to the Transportation Analysis, the proposed project would generate 11,295 average daily weekday trips, 1,533 a.m. peak hour

¹¹ DKS Associates, 2018. *Draft Transportation Analysis, Natomas Crossing Quad B*, Prepared for the City of Sacramento. April 24, 2018.

weekday trips, and 1,440 p.m. peak hour weekday trips.¹² The Transportation Analysis compared the potential transportation impacts from the proposed project to the Natomas Crossing project and the No Project-Existing Zoning alternative from the Natomas Crossing EIR, which was fully analyzed in the Transportation section of the Natomas Crossing EIR and most closely resembles anticipated impacts from the proposed project. **Table 5** compares vehicle trips generation between the proposed project to the No Project-Existing Zoning alternative from the Natomas Crossing EIR.

TABLE 5
COMPARISON OF MOTOR VEHICLE TRIP GENERATION BASED ON ITE DATA

Project	Vehicle Trips Generated (Trip-Ends)						
	Weekday	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Proposed Project	11,295	1,349	184	1,533	259	1,181	1,440
Natomas Crossing No Project-Existing Zoning Alternative	10,937	1,127	164	1,291	310	1,085	1,394
Total Change	358	222	20	242	(51)	96	46
Percent Change	3%	20%	12%	19%	-16%	9%	3%

Source: DKS Associates, 2018; ITE Trip Generation, Tenth Edition, 2017.

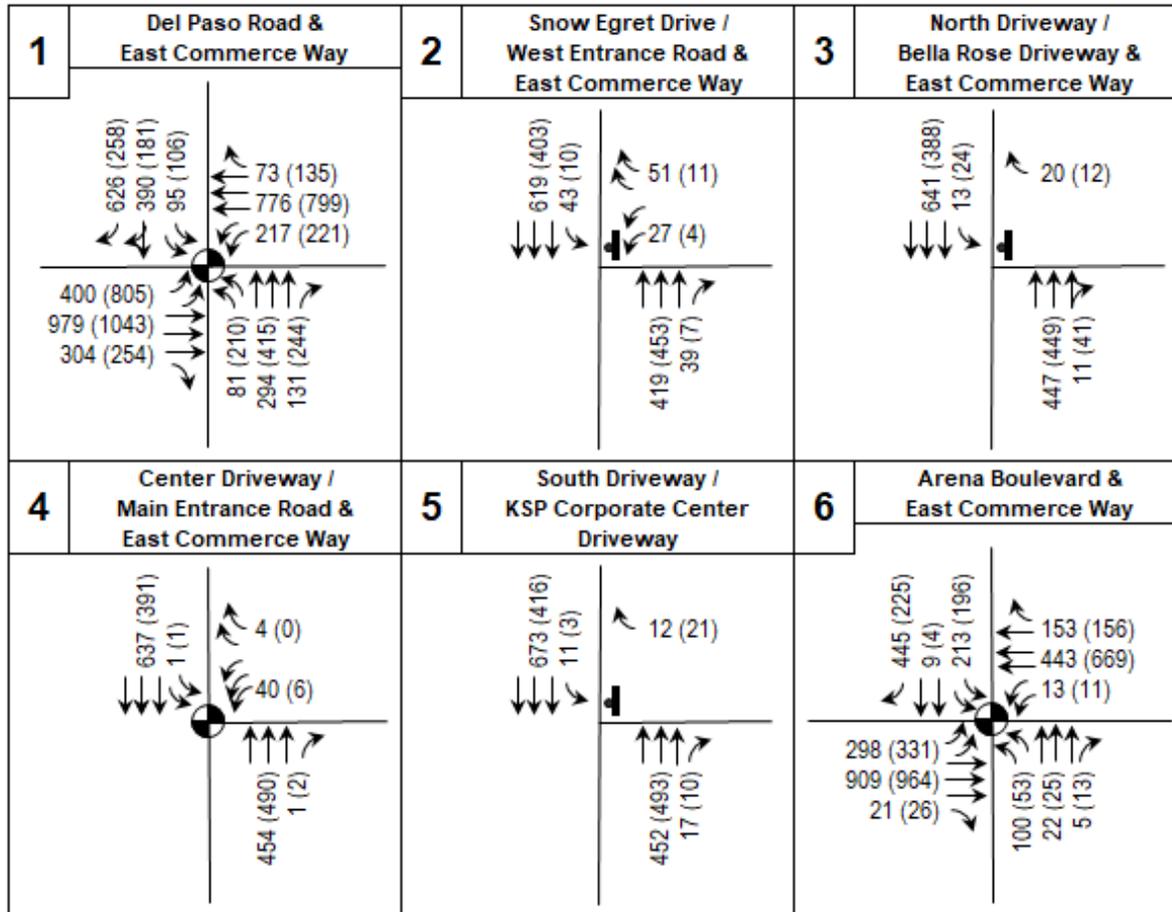
The Transportation Analysis evaluated impacts from the proposed project on intersections in the project area including modified or proposed intersections at project driveway locations and at the Del Paso Road/East Commerce Way, Snowy Egret Drive/West Entrance Road/East Commerce Way, and Arena Boulevard/East Commerce Way intersections in the vicinity of the Quadrant B project site. **Figure 11** shows the existing peak hour traffic volumes and geometry for analyzed area intersections, which currently operate at LOS D or better. The proposed project would add delays to existing baseline conditions at study area intersections. The Transportation Analysis modeled existing plus project turning movements at the study area intersections (see **Figure 12**) to determine impacts to LOS from the proposed project.

Table 6 shows a comparison of Existing delays and LOS levels to existing-plus-project delays and LOS levels.

As shown in Table 6, project area intersections would continue to operate at or above LOS D under existing plus project conditions. Therefore, the impact to level of service at project area intersections as a result of the proposed project would remain less than significant. The proposed project would have similar cumulative impacts to those

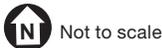
¹² DKS Associates, 2018. *Draft Transportation Analysis, Natomas Crossing Quad B*, Prepared for the City of Sacramento. April 24, 2018. Page 9.

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KEY

- 31 (27) = AM (PM) peak hour traffic volume
- ⊙ = Signalized intersection
- ↙ = Intersection approach lane
- ⊥ = Stop sign control
- = Roundabout
- E St. & N St. = East West street / North South street

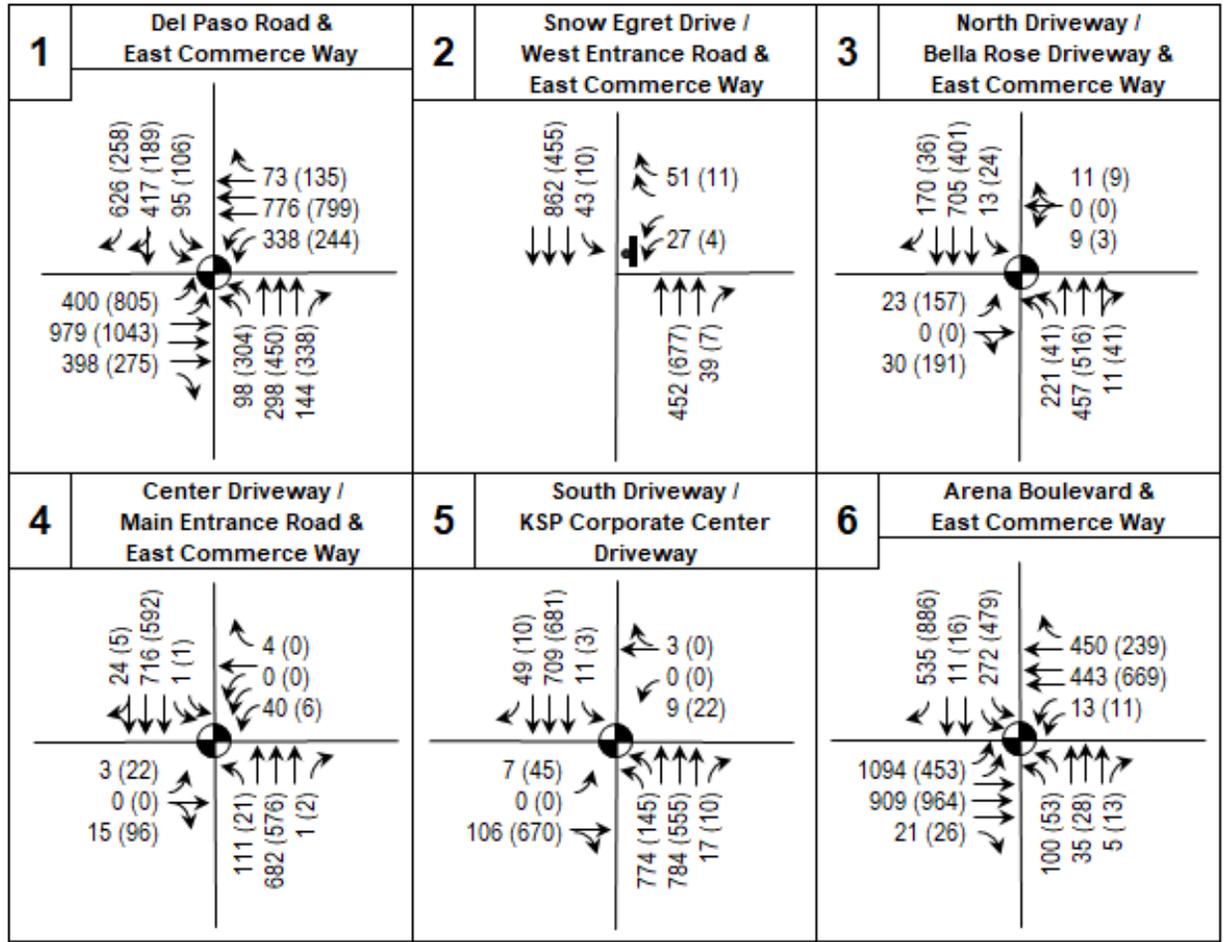


SOURCE: DKS, 2018

Natomas Quad B Office Project

Figure 11
Existing Peak Hour Traffic Volumes and Geometry





KEY
 31 (27) = AM (PM) peak hour traffic volume
 = Signalized intersection
 = Intersection approach lane
 = Stop sign control
 = Roundabout
 E St. & N St. = East West street / North South street

Not to scale

SOURCE: DKS, 2018

Natomas Quad B Office Project

Figure 12
 Existing Plus Project Peak Hour Traffic Volumes and Geometry



**TABLE 6
EXISTING PLUS PROJECT INTERSECTION OPERATING CONDITIONS**

Intersection	Existing				Existing Plus Project			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS
1. Del Paso Road/East Commerce Way	48.5	D	44.4	D	55.0	D	46.3	D
2. Snowy Egret Drive/East Commerce Way	1.3	A	0.3	A	1.0	A	0.2	A
- Northbound U-turn	11.1	B	9.8	A	0.0	A	0.0	A
- Southbound Left	10.2	B	10.1	B	10.4	B	11.6	B
- Westbound Left	15.2	C	12.9	B	16.7	C	15.4	C
- Westbound Right	10.8	B	10.5	B	10.9	B	11.5	B
3. North Driveway/Bella Rose Driveway and East Commerce Way	0.3	A	0.4	A	41.4	D	21.5	C
- Southbound Left	10.2	B	10.3	B	-	-	-	-
- Westbound Right	10.6	B	10.7	B	-	-	-	-
4. Center Driveway/Main Entrance Road and East Commerce Way	5.7	A	4.3	A	41.2	D	38.8	D
5. South Driveway/KSP Arena Corporate Center Driveway and East Commerce Way	0.2	A	0.3	A	40.1	D	49.4	D
- Southbound Left	10.1	B	10.3	B	-	-	-	-
- Westbound Right	10.5	B	10.8	B	-	-	-	-
6. Arena Boulevard and East Commerce Way	26.0	C	23.0	C	42.6	D	38.5	D

NOTE:

1. For unsignalized intersections, the impact threshold is based upon intersection average.

Source: DKS Associates, 2018.

analyzed in the EIR. With implementation of the roadway improvements proposed as part of the project, acceptable LOS and traffic flow conditions would occur.

The proposed project would not alter the impacts to project area intersections relative to those discussed in the Natomas Crossing EIR. Changes introduced by the proposed project and/or new circumstances relevant to the project, as compared to the EIR, would not result in a new significant impact or significant impacts that are substantially more severe than significant impacts previously disclosed. In addition, there is no new information of substantial importance showing that the proposed project would have one or more significant effects not previously discussed or that any previously examined significant effects would be substantially more severe than significant effects shown in the EIR. Nor is there new information of substantial importance showing (i) that mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents declined to adopt the mitigation measure or alternative or (ii) that mitigation measures or alternatives considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects, but the proponents decline to adopt the mitigation measure or alternative. For these reasons, impacts to project area intersections from the proposed project would not require the preparation of a subsequent EIR. No new mitigation measures will be required.

Freeway Mainline, Ramp Junction, and Ramp Queuing

The Natomas Crossing EIR analyzed impacts to the freeway mainline, ramp junctions, and ramp queuing, from the Natomas Crossing project. Impacts to those facilities, from the Natomas Crossing project, were found to be less than significant, as the proposed project would add traffic volumes to those facilities but traffic conditions would not exceed standards of significance. The EIR also concluded that the project would increase volumes on the freeway mainline and impact freeway ramp junctions during the pm peak hour, resulting in significant and unavoidable impacts.

The analysis of transportation impacts in the Natomas Crossing EIR and supporting transportation study included analysis for the no project scenario (Existing Zoning Alternative), in which the project area would be developed consistent with the existing zoning designations for the Natomas Crossing project site. The transportation analysis in the EIR projected that development under the Existing Zoning Alternative would include 447,000 square feet of office in the area designated as Quadrant B North and 63,600 square feet of retail and another 453,000 square feet of office in the area designated as Quadrant B South. The uses within Quadrant B, under the Existing Zoning Alternative would be anticipated to generate 10,937 average daily trips, including 1,291 a.m. peak hour trips and 1,394 p.m. peak hour trips. The analysis of impacts to freeway facilities under the No Project – Existing Zoning Alternative concluded that freeway mainline, ramp junctions, and ramp queuing would operate well above the LOS threshold for those facilities, as shown in Tables 4.2-15, 4.2-16, and 4.2-17 in the Natomas Crossing EIR.

The proposed project would develop the Quadrant B project site with 1,250,000 square feet of office and related uses, similar in development intensity and trip generation to anticipated development under the Existing Zoning Alternative. The proposed Natomas Quad B Office project would add similar traffic volumes to the facilities analyzed in the EIR, similar to the Existing Zoning Alternative. As described above, relative to the project evaluated in the EIR, the proposed project would generate fewer pm peak hour trips. As demonstrated in the EIR, freeway facilities in the project area function well within their respective capacities, and impacts to those facilities from the proposed project would be less than significant. The proposed project would not alter the impacts to freeway facilities relative to those discussed in the Natomas Crossing EIR. Changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the EIR, result in a new significant impact or significant impacts that are substantially more severe than significant impacts previously disclosed. In addition, there is no new information of substantial importance showing that the proposed project would have one or more significant effects not previously discussed or that any previously examined significant effects would be substantially more severe than significant effects shown in the EIR. Nor is there new information of substantial importance showing (i) that mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents declined to adopt the mitigation measure or alternative or (ii) that mitigation measures or alternatives considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects, but the proponents decline to adopt the mitigation measure or alternative. For these reasons, impacts to project area freeway facilities and freeway function from the proposed project would not require the preparation of a subsequent EIR. No new mitigation measures will be required.

Pedestrian and Bicycle Circulation

Analysis of impacts to pedestrian and bicycle circulation at the project site determined that the Natomas Crossing project would have a potentially significant impact on such facilities because specific information on improvements to on- and off-site bicycle and pedestrian facilities was not available at the time the EIR was prepared. This impact would be mitigated to a less than significant level through implementation of Natomas Crossing EIR Mitigation Measure 4.2-6. The measure required that prior to issuance of building permits, the project application shall identify the necessary on- and off-site pedestrian and bicycle facilities to serve the proposed development to the satisfaction of the City of Sacramento Traffic Engineering Division. The existing Quadrant B project site is undeveloped, but sidewalks and a Class II bicycle lane have been constructed along the eastern perimeter of the project site, along the western side of East Commerce Way.

The proposed project would maintain the pedestrian and bicycle facilities along East Commerce Way. Where driveways or curb cuts would be constructed to provide vehicular access to implement required roadway improvements, crosswalks, lane stripes, and other markers would be installed, consistent with City guidelines, to mark the continued routes

of the bicycle and pedestrian facilities. The proposed project would add new signalized intersections, at project driveways, that would include crosswalks and related improvements to pedestrian facilities. In addition, the proposed project would include the construction of a Class I bicycle path along the western perimeter of the project site, between the drainage canal and the perimeter fencing for the Quad B project site. Thus, the proposed project would maintain existing pedestrian and bicycle facilities, while adding additional bicycle facilities to the City's bicycle transportation network. Therefore, the proposed project would have a less-than-significant impact on pedestrian and bicycle circulation.

The proposed project would not alter the impacts to pedestrian and bicycle circulation relative to those discussed in the Natomas Crossing EIR. Changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the EIR, result in a new significant impact or significant impacts that are substantially more severe than significant impacts previously disclosed. In addition, there is no new information of substantial importance showing that the proposed project would have one or more significant effects not previously discussed or that any previously examined significant effects would be substantially more severe than significant effects shown in the EIR. Nor is there new information of substantial importance showing (i) that mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents declined to adopt the mitigation measure or alternative or (ii) that mitigation measures or alternatives considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects, but the proponents decline to adopt the mitigation measure or alternative. For these reasons, impacts to project area pedestrian and bicycle circulation from the proposed project would not require the preparation of a subsequent EIR. No new mitigation measures will be required.

Transit

Analysis in the Natomas Crossing EIR concluded that the Natomas Crossing project would increase demand for transit services. The EIR determined that although particular transit vehicles operate at or near capacity during the peak commuter periods, a review of existing transit operations and plans for future transit services indicate that there is ample capacity on the Regional Transit system to support the anticipated increase in trips from the Natomas Crossing project. The EIR further concluded that the existing and planned future transit system capacity is sufficient to accommodate the increased project-generated transit ridership. The EIR determined that project applicants would be required to contribute to the funding of the North Natomas Transit system, as described in the North Natomas Finance Plan, and to join the North Natomas Transportation Management Associations (TMA). The resultant impact to transit operations and facilities would be less than significant.

The proposed project was designed in consultation with agencies that provide transit services in the project area. The project would provide turnouts for transit services to the

satisfaction of the City's Department of Public Works, and shelters at new transit stops. There are no existing transit facilities in the immediate vicinity of the project site, so construction and operation of the proposed project would not eliminate or alter existing transit facilities or disrupt transit operations. For these reasons, impact to transit from the proposed project would be less than significant. No mitigation would be required.

The proposed project would not alter the impacts to transit relative to those discussed in the Natomas Crossing EIR. Changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the EIR, result in a new significant impact or significant impacts that are substantially more severe than significant impacts previously disclosed. In addition, there is no new information of substantial importance showing that the proposed project would have one or more significant effects not previously discussed or that any previously examined significant effects would be substantially more severe than significant effects shown in the EIR. Nor is there new information of substantial importance showing (i) that mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents declined to adopt the mitigation measure or alternative or (ii) that mitigation measures or alternatives considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects, but the proponents decline to adopt the mitigation measure or alternative. For these reasons, impacts to transit from the proposed project would not require the preparation of a subsequent EIR.

Parking

The Natomas Crossing EIR determined that impacts related to parking would be potentially significant because the number of parking spaces that would be provided as part of the Natomas Crossing project, were unknown as of the date of certification of the EIR. This impact from the Natomas Crossing project would be mitigated to less-than-significant levels through the implementation of Natomas Crossing EIR Mitigation Measure 4.2-8, which required the project to provide parking in accordance with City zoning requirements.

The proposed project would include City approval of a deviation from the City's maximum allowable parking spaces, to allow for additional parking spaces to adequately serve the project site. The proposed project would provide up to 6,375 parking spaces, 126 of which would be accessible parking, 383 would be for electric vehicle (EV) parking, 127 would be for carpooling, and 5 would be accessible EV spaces. The proposed project would also provide up to 319 long-term and 20 temporary bicycle parking spaces, in conformance with City requirements. Based on anticipated development, the proposed project would provide enough parking for uses proposed. Therefore, this impact would be less than significant. The proposed project would not alter the impacts to parking relative to those discussed in the Natomas Crossing EIR. Changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the EIR, result in a new significant impact or significant impacts that are substantially more

severe than significant impacts previously disclosed. In addition, there is no new information of substantial importance showing that the proposed project would have one or more significant effects not previously discussed or that any previously examined significant effects would be substantially more severe than significant effects shown in the EIR. Nor is there new information of substantial importance showing (i) that mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents declined to adopt the mitigation measure or alternative or (ii) that mitigation measures or alternatives considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects, but the proponents decline to adopt the mitigation measure or alternative. For these reasons, impacts to parking from the proposed project would not require the preparation of a subsequent EIR. No new mitigation measures will be required.

VII. Biological Resources

The project site is currently vacant, undeveloped land that was previously mass-graded in September 2002. A biological survey was conducted prior to grading activities, and the survey did not detect the presence of any special-status species. In addition, prior to grading, the applicant paid the required Natomas Basin Habitat Conservation Plan (NBHCP) mitigation fees in September 2002.¹³

Subsequent to the Natomas Crossing EIR, a due diligence assessment memo was prepared based on a reconnaissance level biological survey of the project site conducted in 2018.¹⁴ The project site is comprised of frequently tilled soil and weedy annual herbs. Dominant plants include: common fiddleneck (*Amsinckia menziesii*), milk thistle (*Silybum marianum*), redstem filaree (*Erodium cicutarium*), shepherd's purse (*Capsella bursa-pastoris*), henbit (*Lamium amplexicaule*), common groundsel (*Senecio vulgaris*), black mustard (*Brassica nigra*), ripgut brome (*Bromus diandrus*), and wild oat (*Avena fatua*). The project site lacks trees and sensitive habitats including wetlands or other waters of the U.S.

The area surrounding the project site is developed and includes Interstate 5, Arena Boulevard, North Commerce Way, commercial buildings, apartment complexes, and the Sleep Train Arena. Vegetation in these developed areas primarily consists of small ornamental trees and irrigated turfgrass along with weedy annual vegetation similar to those identified within the project site. A manmade concrete-lined drainage ditch is located approximately 60 feet west of the western boundary of the project site.

The existing conditions identified within the 2018 due diligence assessment memo align with the conditions on the project site described in the Natomas Crossing EIR regarding the lack of trees, wetlands or waters of the U.S., or regulated sensitive habitats occurring

¹³ City of Sacramento, 2013. HCP Fees Paid and Grading Permit Status. Available: <http://www.cityofsacramento.org/-/media/Corporate/Files/CDD/Natomas/HCP-fees-paid-2013.pdf?la=en>. Accessed April 17, 2018.

¹⁴ H.T. Harvey & Associates, 2018. Memo of Due Diligence Assessment of the Alleghany Project Site, in North Natomas, Sacramento, California. Project 4140-01. February 28, 2018.

within the project site. The project would not result in the removal of any native or heritage trees, would not result in fill of the concrete-lined channel to the west of the project site, and would not result in impacts to natural communities including riparian areas, vernal pools, or wetlands. Therefore, project-related impacts to trees, wetlands or other waters of the U.S., or natural communities are considered less than significant and no mitigation is required.

As identified within the Natomas Crossing EIR, the five special-status plants that could occur within the project site require riparian or wetland habitat. Neither of these habitats occur within the project site. The 2018 due diligence assessment memo does not identify any special-status plants with the potential to occur within the project site based on existing conditions. Therefore, project-related impacts to special-status plants are considered less than significant and no mitigation is required.

The Natomas Crossing EIR identified 13 of the 18 special-status wildlife species listed in the NBHCP with the potential to nest or forage within the project site. However, the 2018 due diligence assessment memo determined that only 4 of the 13 NBHCP-listed species identified within the EIR have the potential to occur within the project site, based on existing conditions. This is due to the Natomas Crossing EIR covering Quadrants B, C and D, a much larger area that includes habitats not present within the project site. These include nesting habitat for burrowing owl (*Athene cunicularia*), a species of special concern, and foraging habitat for the state threatened Swainson's hawk (*Buteo swainsoni*), a state-threatened species, loggerhead shrike (*Lanius ludovicianus*), a species of special concern, and tricolor blackbird (*Agelaius tricolor*), a species of special concern.¹⁵ While no nesting habitat occurs onsite for Swainson's hawk, potentially suitable nesting habitat exists within 0.25-miles of the project site.

The 2018 due diligence assessment memo identifies burrowing owl as potentially nesting within burrows along the embankment of the drainage ditch approximately 80 feet west of the project site. Two burrow entrances showed sign of burrowing owl use. While it is unclear that the owls were overwintering or breeding, there is potential for burrowing owls to breed within and in the vicinity of the site. Impacts to nesting burrowing owls are considered significant.

The proposed project would be required to implement the avoidance, minimization, and conservation measures to reduce nest disturbance of Swainson's hawk within 0.25–miles of the project site and to reduce take of burrowing owl, in accordance with the NBHCP and in accordance with Natomas Crossing EIR Mitigation Measure 2 (described in the Initial Study). As identified within the EIR, prior to and within 14 days of site disturbance, pre-construction surveys for special-status species would be conducted by a qualified biologist retained by the project applicant and approved by the Development Services Department. Should any special-status species be identified, appropriate measures would be implemented in compliance with the NBHCP (including implementation of Incidental Take Minimization Measures) for the review and approval of the Planning Director.

¹⁵ Tricolored blackbird is now considered a candidate for listing under the California Endangered Species Act by the California Department of Fish and Wildlife.

Project impacts would not be significantly changed from those previously analyzed in the EIR. No new or significant resources not previously identified were documented within the 2018 due diligence assessment memo. The proposed project would not have more significant impacts than were identified within the EIR or increase the severity of impacts discussed therein. No additional mitigation measures are described herein that were not considered in the EIR. For this reason, impacts to biological resources from the proposed project would not require the preparation of a subsequent EIR.

VIII. Energy and Mineral Resources

The Energy and Mineral Resources section of the Natomas Crossing Initial Study and EIR described the existing site and evaluated potential impacts of the project with respect to energy and mineral resource use and accessibility for the Natomas Crossing project site. Electrical service for the project site is provided by the Sacramento Municipal Utilities District (SMUD) and natural gas service is provided by Pacific Gas and Electric (PG&E). In addition, the project site has no existing overhead utility power lines.

As analyzed in the Natomas Crossing Initial Study, the project site was previously planned to be used for urban development in the Sacramento General Plan, as well as in the North Natomas Community Plan. Development of the proposed project would generate similar demand for gas and electricity services as anticipated for the site in the 2030 Sacramento General Plan, and Gas and electricity lines currently exist adjacent to the project site. Further, the applicant would be required to construct the necessary infrastructure on-site to serve the project. With the expected energy demand and planned utility expansion at the site remaining as analyzed in the Initial Study and EIR, and services attributed to the project not requiring new sources of energy, a less than significant impact would result.

The proposed project site, the Natomas Quad B Office Project site, would have the same energy requirements as were described in the Initial Study and EIR, including the updated 2017 State Building Energy Efficient Standards (Title 24). Therefore, impacts to energy infrastructure would be consistent with those previously analyzed. Changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the Initial Study and EIR, result in a new significant impact or significant impacts that are substantially more severe than significant impacts previously disclosed. No new mitigation measures would be required. In addition, there is no new information of substantial importance showing that the project would have one or more significant effects not previously discussed or that any previously examined significant effects would be substantially more severe than significant effects shown in the Natomas Crossing EIR. Further, there are no mitigation measures that were not considered in the Natomas Crossing EIR, that would more substantially reduce the potential effects of the proposed project on energy or mineral resource uses. For these reasons, impacts related to energy and mineral resources from the proposed project would not require the preparation of a subsequent IS/MND or EIR.

IX. Hazards and Hazardous Materials

Accidental Release of Hazardous Substances

The Natomas Crossing EIR noted that the proposed project (including Quadrants B, C and D) would include retail, commercial, residential, general office, medical office, and hospital uses. The EIR concluded that retail, commercial, residential, and general office uses (anticipated uses at Quadrant B) would not routinely use hazardous materials and dismissed those uses from further discussion relating to hazards or hazardous materials.

Based on the uses within the proposed project, hazardous materials would not be used, stored, or transported in a manner that would cause a threat to public safety, either during construction or operation of the proposed project. The use and transportation of hazardous materials are subject to stringent local, state, and federal regulations, the intent of which is to minimize the public's risk of exposure. Therefore, the risk that the proposed project would cause an accidental release of hazardous materials that could create a public or environmental health hazard is unlikely, and the impact of construction and medical operation-related hazardous chemical use would be considered less than significant and no new or previously dismissed mitigation measures would be required.

Contaminated Soil or Groundwater

The Natomas Crossing EIR evaluated the potential for exposure to contaminated soil or contaminated groundwater, with a focus on Quadrant C of Area 3, within the Natomas Crossing PUD. The EIR cited the Phase I Environmental Site Assessment (Phase I), prepared in December 1996 for Pacific Crest Properties (Property B), which included Quadrant C and other properties, not identified in the Initial Study prepared for and appended to the Natomas Crossing EIR. Subsequent to the Phase I, the Quadrant B project site was evaluated as in the Natomas Crossing – Area 3 IS/MND. Under the project evaluated for the Natomas Crossing – Area 3 IS/MND, no evidence of hazardous materials was found on the project site. A hazardous materials database search found two leaking underground storage tanks (LUSTs), one potential Superfund site, and six underground storage tanks (USTs) within the vicinity of the project area. However, the IS/MND found each of these sites to have no effect on development anticipated in the Natomas Crossing – Area 3 project area, which includes the Quadrant B project site.

Based on a review of the Cortese List conducted in April 24, 2018, there are no active sites on the proposed project site or within 0.5 miles of the project site.^{16,17} Accordingly, changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the EIR, result in new significant impacts relating to

¹⁶ U.S. Department of Toxic Substances Control, 2018. Envirostor Database. California Department of Toxic Substances Control. DTSC's Hazardous Waste and Substances Site List – Site Cleanup (Cortese List). Available: <https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=natomas>. Accessed April 24, 2018.

¹⁷ California State Water Resources Control Board, 2018. Geotracker Database. State of California Central Plant Block 261 (T0606794060), 625 Q Street, Sacramento, CA 95814. Available: <https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=natomas>. Accessed April 24, 2018.

hazardous materials or significant impacts that are substantially more severe than significant impacts previously disclosed. No new mitigation measures would be required. For these reasons, impacts related to hazards from exposure to contaminated soil or groundwater resulting from implementation of the proposed project would not require the preparation of a subsequent EIR.

Emergency Evacuation Plan

As described in the Initial Study prepared for and appended to the Natomas Crossing EIR, development of the project site would be located within an area planned for urban development. Development analyzed in the Natomas Crossing EIR would not be anticipated to impair the implementation of, or physically interfere with, an emergency response plan or emergency evacuation plan. The proposed project would develop all of Quadrant B, similar to anticipated development levels analyzed in the EIR. Development would not require substantial road closures or other elements that may impair the implementation of, or physically interfere with, an emergency response plan or emergency evacuation plan. This project impact would remain less than significant and no mitigation would be required.

Fire Hazards

Impacts related to Fire Hazards as a result of the proposed project were evaluated in the Initial Study prepared for and appended to the Natomas Crossing EIR. As described in the Initial Study, the project site is regularly disced but can be seasonally covered by grasses. Construction activities occurring during the dry season may create sparks that could ignite dry grasses and weeds in the project area or on the project site. However, this risk is similar to that found at other construction sites and vegetation management practices related to agricultural and urban uses in the project area would ensure that wildland fires would be unlikely to occur. The proposed project would develop the project site with urbanized uses, similar to anticipated development analyzed in the EIR for Quadrant B. The proposed project would be subject to similar conditions for which vegetation management practices would remain applicable and effective in minimizing the potential fire hazards from construction. For this reason, this impact would remain less than significant and no new or previously dismissed mitigation measures would be required.

Conclusion

As they relate to hazards and hazardous materials, project impacts would not be significantly changed from those previously analyzed in the EIR. The proposed project would not have more significant impacts than were identified within the EIR or increase the severity of impacts discussed therein. No additional mitigation measures are described herein that were not considered in the EIR. For this reason, impacts relating to hazards or hazardous materials resulting from the proposed project would not require the preparation of a subsequent EIR.

X. Noise

As presented in Section 4.2 (Noise) of the Natomas Crossing EIR, construction activities within Quadrant B could expose nearby sensitive receptors to temporarily elevated noise levels. However, since construction was proposed to occur within the construction exempt hours identified in the City of Sacramento municipal code, it was concluded in the Natomas Crossing EIR that impacts related to construction noise would be less than significant. Since construction of the proposed development in Quadrant B would remain within the allowed hours specified in the City's municipal code and use similar construction equipment already anticipated and analyzed in the Natomas Crossing EIR, the proposed Project would not result in new significant impacts or a substantial increase in severity of significant impacts related to construction noise.

Prior to the certification of the Natomas Crossing EIR, the uses proposed within Quadrant B were unknown as no site plans were created for the area. Since a site plan was not created for Quadrant B, the Natomas Crossing EIR conservatively concluded that operational impacts related to stationary noise source (e.g., HVAC units, loading docks) would be potentially significant as there was insufficient data at the time to determine otherwise.

Since the certification of the Natomas Crossing EIR, civil site plans have been created for Quadrant B, which includes details of the locations of the proposed daycare, lobby and buildings A through E. Based on the site plans for Quadrant B, HVAC units and onsite loading dock could be located as close as 365 and 660 feet from multi-family residences along East Commerce Way, respectively. HVAC units can generate noise levels of approximately 51 dBA L_{eq} at a reference distance of 100 feet from the operating units during maximum heating or air conditioning operations.¹⁸ Loading dock activities could generate a noise level of 60 dBA L_{eq} from a distance of 50 feet.¹⁹ Assuming a 6 dB per doubling of distance attenuation rate, the nearest multi-family residences to the Project site would be exposed to a noise level of 40 dBA L_{eq} during the operation onsite HVAC units and 28 dBA L_{eq} during onsite truck loading and unloading activities. At these levels, these residences would not be exposed to noise levels that would exceed the City of Sacramento's nighttime stationary noise standard of 50 dBA L_{eq} . Therefore, the proposed project would not result in new significant impacts or a substantial increase in severity of significant impacts related to stationary noise sources.

Section 4.2 (Noise) of the Natomas Crossing EIR evaluated the potential for the proposed project to result in an increase in vehicular traffic noise along roadways in the vicinity of the Project site. As shown in in Table 4.3-9 of the Natomas Crossing EIR, traffic noise was modeled for the Baseline No Development and Baseline plus Project Conditions, which accounted for traffic that would be generated by Quadrants C and D, as well as Quadrant B. The Natomas Crossing EIR, concluded that existing sensitive receptors would not be expose to vehicular traffic noise that would exceed the exterior noise

¹⁸ Puron, 2005. *48PG03-28 Product Data*. p. 10 – 11.

¹⁹ ESA, 2008. *Fresh & Easy Distribution Truck Noise Study*. November 2008.

standards established in the City of Sacramento General Plan. However, prior to the certification of the Natomas Crossing EIR, the northern portion of Quadrant B was anticipated to include high density residential development as part of the Natomas Crossing design. Since a site plan was not yet submitted for the development of Quadrant B, the Natomas Crossing EIR concluded that these proposed residential units would be exposed to vehicular traffic noise that would be potentially significant as there was insufficient data at the time to determine otherwise.

Using algorithms from the Federal Highway Administration's (FHWA) *Traffic Noise Model Technical Manual* and the estimated traffic volumes under Existing and Existing plus Project (Quadrant B) Conditions, traffic noise levels were estimated for local roadways. As shown in **Table 7**, none of the sensitive land uses along roadway segments analyzed would be exposed to an increase in traffic noise that would exceed the incremental traffic noise increase standards identified in the City of Sacramento General Plan Policy EC 3.1.2. Therefore, proposed project would not result in new significant impacts or a substantial increase in severity of significant impacts related to vehicular traffic noise.

TABLE 7
EXISTING AND PROJECTED L_{DN} TRAFFIC NOISE LEVELS
FROM A DISTANCE OF 100 FEET FROM CENTER OF ROADWAY

Roadway Segment	Traffic Noise Level, dBA, Ldn ¹			
	Existing	Existing plus Project	Incremental Increase	Existing Sensitive Land uses Exposed to a Significant Increase in Traffic Noise? (Yes or No) ²
Commerce Way, from Del Paso Road to West Entrance Road	59	60	1	No
Commerce Way, from Entrance Road to Bella Rose Driveway	57	59	2	No
Commerce Way, from Bella Rose Driveway to Sleep Train Arena	57	59	2	No
Commerce Way, from Sleep Train Arena to KSP Corporate Center Driveway	57	59	2	No
Commerce Way, from KSP Corporate Center Driveway to Arena Boulevard	58	61	3	No
Commerce Way, from Del Paso Road to West Entrance Road	59	60	1	No

NOTES:

1. Noise levels were determined using methodology described in FHWA Traffic Noise Model Technical Manual using estimated traffic volumes.
2. Existing land uses exposed to traffic noise that result in a noise increase greater than what is allowed in the City of Sacramento General Plan Policy EC 3.1.2 is considered a significant impact.

ESA, 2018

Section 4.2 (Noise) of the Natomas Crossing EIR concluded that construction activities proposed within Quadrant B would not require the use of equipment known to generate significant vibration levels such as blasting or impact pile driving. Since construction of the proposed development in Quadrant B would not require the use of construction equipment such as impact pile drivers or blasting, the proposed project would not result in new significant impacts or a substantial increase in severity of significant impacts related to construction vibration.

The differences in noise impacts of the proposed project, relative to those discussed in the Natomas Crossing EIR, would not be changed as no additional noise-generated uses or new sources of noise are proposed. Changes introduced by the proposed project and/or new circumstances relevant to the proposed Project would not, as compared to the Natomas Crossing EIR, result in a new significant impact or significant impacts that are substantially more severe than significant impacts previously disclosed. No new mitigation measures would be required. In addition, there is no new information of substantial importance showing that the project would have one or more significant effects not previously discussed or that any previously examined significant effects would be substantially more severe than significant effects shown in the Natomas Crossing EIR.

Nor is there new information of substantial importance showing (i) that mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative or (ii) that mitigation measures or alternatives considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects, but the proponents decline to adopt the mitigation measure or alternative. For these reasons, impacts related to noise from the proposed Project would not require the preparation of a subsequent IS/MND or EIR.

XI. Public Services

The Public Services section of the Natomas Crossing EIR described existing public services for the Natomas Crossing project site and evaluated potential impacts of the project with respect to public resource use and available service for the project area. Potential impacts related to public services arising from the anticipated development of the project site were discussed within the Initial Study as well as within Chapter 4.8, Public Services, of the Natomas Crossing EIR. This analysis determined that the anticipated development at the project site would result in less-than-significant impacts to public services for law enforcement, fire protection, schools, and maintenance of public facilities, as the required public services for the project area were planned for within the 1994 North Natomas Community Plan (NNCP), as well as the 2030 Sacramento General Plan. In addition, the costs associated with operating and maintaining public services were accounted for in the Natomas Crossing EIR through requisite participation in the North Natomas Financing Plan.

Police protection services to the project site are provided by the Sacramento City Police Department (SPD). The project area is serviced by the William J. Kinney Police Facility, operating at 3550 Marysville Boulevard, approximately 5.5 miles east-southeast of the project site. In addition to the SPD, the Sacramento County Sheriff's Department, California Highway Patrol (CHP), UC Davis Police Department, and the Regional Transit Police Department aid the SPD to provide protection for the City. This remains consistent with the police protection services analyzed in the Natomas Crossing EIR.

Fire protection and emergency medical services to the project area are provided by the Sacramento Fire Department (SFD). First-response service is provided by the following stations, which remains consistent with the fire protection services analyzed in the Natomas Crossing EIR:

- Station 43, located at 4201 El Centro Road, approximately 0.72 miles southwest of the project site;
- Station 30, located at 1901 Club Center Drive, approximately 1.85 miles northeast of the project site;
- Station 18, located at 746 N. Market Street, approximately 2.64 miles east-southeast of the project site; and
- Station 15, located at 1591 Newborough Drive, approximately 3.00 miles southeast of the project site.

As described in the Natomas Crossing EIR, the project site is part of the larger Natomas Crossing Planned Unit Development (PUD), which is subdivided into three separately-defined development areas described as Area 1 through Area 3. The proposed project site is within Area 3 of the PUD, which is further segregated into four quadrants described as Quadrant A through Quadrant D. The proposed project site includes all of Quadrant B.

The proposed project is subject to the North Natomas Community Plan, zoning regulations, and PUD policies that were enforced prior to the March 3, 2009 adoption of the current 2035 General Plan. This is based on the development agreement that was executed at time of project approval. The Development Agreement remains in force, and provides that the PUD and development policies originally included in each policy subsection of the 1994 NNCP, as well as the 2030 Sacramento General Plan and which were analyzed in the Natomas Crossing EIR, are to remain the applicable standards for the proposed project.

Specifically, for Quadrant B of the Natomas Crossing project site, which comprises the Natomas Quad B Office Project site, the Natomas Crossing EIR noted that the plans for Natomas Crossing, and subsequently the Natomas Quad B Office Project site, were adequate and provided a detailed analysis of potential public service impacts. No additional demand for police protection, fire protection, schools or maintenance of public facilities were expected to occur from the demand anticipated in the 2030 General Plan, and subsequently analyzed in the Natomas Crossing EIR. Therefore, the demand for

police and fire protection services would be the same as, and potentially less than, the demand anticipated and analyzed in the Natomas Crossing EIR.

For the proposed project, within Quadrant B of the Natomas Crossing project site, development of the Natomas Quad B Office Project would construct up to 1.25 million square feet of office and related uses, and would not include a residential, or hotel component as analyzed in the Natomas Crossing EIR. Therefore, the proposed project would not alter the impacts to public services disclosed in the analysis presented in the Natomas Crossing EIR, because the proposed use of the project site would entirely be office and related uses instead of the previously anticipated retail, hotel, shopping center, or residential uses. Without any residential uses, the proposed project would not require school or library services, because the project would not contribute to the demand for these services. Further, without a residential component to the proposed project, it is not anticipated that there would be a substantial increase in demand for police or fire protection services beyond what was already anticipated in the 2030 General Plan and analyzed in the Natomas Crossing EIR.

The changes of the proposed project, relative to the anticipated development of the project site analyzed in the Initial Study and EIR, would not alter the impacts to public services relative to those discussed in the EIR, as no additional demand for these services would be created. Changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the EIR, result in new significant impacts that are substantially more severe than significant impacts previously disclosed. No new mitigation measures would be required. In addition, there is no new information of substantial importance showing significant effects not previously discussed or that any previously examined significant effects would be substantially more severe than significant effects shown in the Natomas Crossing EIR. Further, there are no mitigation measures that were not considered in the Natomas Crossing EIR, that would more substantially reduce the potential effects of the proposed project on public services. For these reasons, impacts related to public services from the proposed project would not require the preparation of a subsequent IS/MND or EIR.

XII. Utilities

Communication Systems

The Initial Study prepared for the Natomas Crossing EIR determined that the Natomas Crossing project would have a less-than-significant impact on communication systems (e.g., microwave, radar, radio transmissions). No communication system components are located on or adjacent to the project site. The IS/MND concluded that proposed building heights would not exceed five stories and, thus, would not be of sufficient height to interfere with communications equipment in the greater vicinity. Since preparation of the Initial Study, no communication system components have been constructed on or adjacent to the project site. The proposed Natomas Quad B Office project would construct multiple four-story buildings. As with the Natomas Crossing project, the proposed project

would not construct buildings of sufficient height to interfere with communication equipment in the greater vicinity. For these reasons, impacts from the proposed project would remain less than significant and no mitigation would be required.

Local or Regional Water Supplies

The Initial Study prepared for the Natomas Crossing EIR determined that the Natomas Crossing project would have a less-than-significant impact related to water supply. The analysis of project impacts to water supply in the Initial Study was based on the City's 2006 Urban Water Management Plan (UWMP), which indicated that the City would have adequate water supply to serve the total anticipated demand associated with City buildout, even in multiple dry year scenarios out to 2030. The 2006 UWMP analysis applied to the Existing Zoning scenario under the Natomas Crossing project. The Initial Study prepared for the Natomas Crossing EIR determined that the Natomas Crossing project would have a similar water demand to the Existing Zoning scenario. The Natomas Crossing project area was anticipated to have a demand of approximately 420.4 acre-feet per year. As described above, Quadrant B was comprised of approximately 61.3 acres of land under the EC-50-PUD zoning designation and 4.7 acres under the C-1-PUD zoning designation, with remaining Quadrant B acreage anticipated to remain undeveloped. Both zoning designations were analyzed as having a demand factor of 3.00 acre-feet per acre per year, generating a total water demand of approximately 198 acre-feet per year (see **Table 8**).

TABLE 8
QUADRANT B WATER DEMAND UNDER EXISTING ZONING SCENARIO
BASED ON 2006 UWMP ASSUMPTIONS

Existing Zoning Designation in EIR	Acres	2006 UWMP Water Demand Factors (ac-ft/ac-yr)	Demand
EC-50-PUD	61.3	3.00	183.90
C-1-PUD	4.7	3.00	14.10
Total	66		198.00

Source: City of Sacramento, 2009; ESA, 2018.

Since certification of the Natomas Crossing EIR, the City has adopted the 2035 General Plan and two UWMPs, the most recent 2015 UWMP adopted by the City Council on June 21, 2016.²⁰ The 2015 UWMP is based on the development assumptions in the 2035 General Plan. The 2015 UWMP concludes that the City would have adequate water supply to serve the total anticipated demand associated with City buildout, even in multiple dry year scenarios, out to 2040. The 2015 UWMP applies to existing zoning on the Quadrant B project site.

²⁰ City of Sacramento, 2016. *2015 Urban Water Management Plan*. June 21, 2016.

The proposed project would have a water demand of 775.5 acre-feet per year, as shown in Attachment 3. This amount is less than/comparable to the amount of water demanded for Quadrant B as described in the Natomas Crossing EIR. Sufficient water supplies are available to the City and for the proposed project, as demonstrated in the UWMP.

The Initial Study analyzed the water delivery infrastructure in the vicinity of the project site, concluding that Quadrant B would connect to an existing 12-inch water line that runs the length of eastern boundary of the project site in East Commerce Way. The proposed project would access existing water supply infrastructure within East Commerce Way and would not include offsite improvements.

As described above, the proposed project would not increase water demand beyond the amount anticipated in the UWMP or require substantial offsite improvements that would constitute new or more significant impacts. The proposed project would not have more significant effects that were not discussed in the Natomas Crossing EIR or increase the severity of impacts discussed therein. Under existing conditions, the proposed project would not make feasible, mitigation measures that were found to be infeasible in the Natomas Crossing EIR. Further, there are no mitigation measures that were not considered in the Natomas Crossing EIR, that would more substantially reduce the potential effects of the proposed project on local or regional water supplies. For these reasons, impacts related to local or regional water supplies from the proposed project would not require the preparation of a subsequent EIR.

Local or Regional Water Treatment or Distribution Facilities

Sewer or Septic Tanks

As described in the Natomas Crossing EIR, the project site would be served by the Sacramento Area Sewer District (SASD) and the Sacramento Regional County Sanitation District (SRCSD). Future development in Quadrant B would be conveyed through existing Sacramento Area Sewer District (SASD) eight-inch sewer lines in East Commerce Way. The Initial Study prepared for the Natomas Crossing EIR determined that impacts from the Natomas Crossing project to wastewater treatment and distribution facilities would be less than significant. Analysis in the Initial Study was based on a Revised Master Sewer Study for Natomas Crossing Area 3, prepared in May 2002. The Master Sewer Study indicated that Quadrant B comprised six shed areas. Each of the six shed areas had an existing eight-inch line sized for connection to the 54-inch trunk sewer in East Commerce Way. The estimated combined design flow for the six shed areas was 0.33 MGD; equivalent to the estimated design flow for the proposed land uses for Quadrant B, in the Natomas Crossing project. The estimated cumulative design flows for Quadrants B, C, and D would be less than the design capacity of an eight-inch sewer line at minimum design grades, from which the Initial Study concluded that impacts to wastewater facilities would be considered less than significant.

Table 9 compares anticipated wastewater generation between the proposed Natomas Quad B Office project and anticipated Quadrant B development in the Natomas Crossing project.

**TABLE 9
COMPARISON OF QUADRANT B AVERAGE WASTEWATER FLOW**

Project	Land Use Category	Applicable Units	ESD ¹ Conversion Factor	Total Equivalent ESD	Estimated Gallons per Day (GPD)
Natomas Crossing EIR Project	Residential	180 Dwelling Units	1.0/Dwelling Unit		
		300 Sleeping Rooms	0.3/Sleeping Room	180	72,000
		240,000 sf (gross floor area)	0.5/1,000 sf (gross floor area)	90	36,000
		Office	120	48,000	
		Retail	115.98	46391	
		463,914 sf (gross floor area)	0.25/1,000 sf (gross floor area)		
Total				505	202,391 GPD
Natomas Quad B Office Project	Office Childcare Facility	1,250,000 sf (gross floor area)	0.5/1,000 sf (gross floor area)	625	250,000
		200 Children	0.025/child	5	2,000
		Total		630	252,000 GPD
Difference				+124.02	+252,000 GPD
Percent Difference				+25%	+25%

NOTES:

1. ESD: Equivalent Single Family Dwelling Units, used for computing average flow (1 ESD = 400 gallons/day)

Source: City of Sacramento Department of Utilities, 2018; ESA, 2018.

As shown in Table 9, relative to anticipated mix of retail and other development of the project site analyzed in the Initial Study, wastewater flows from the proposed office development would be increased by approximately 25%. However, anticipated flows would not exceed capacity of conveyance infrastructure. Required developer financing of fees and infrastructure to provide wastewater collection and treatment to the project site by the SRCSD and County Sanitation District #1 would ensure that wastewater infrastructure would be adequate meet project demand. For these reasons, the proposed project would not substantially increase demand for wastewater conveyance beyond the amount anticipated in the Master Sewer Study or require substantial offsite improvements that would constitute new or more significant impacts. The proposed project would not have more significant effects that were not discussed in the Natomas Crossing EIR or increase the severity of impacts discussed therein. Under existing conditions, the proposed project would not make feasible, mitigation measures that were found to be infeasible in the Natomas Crossing EIR. Further, there are no mitigation measures that were not considered in the Natomas Crossing EIR, that would more substantially reduce

the potential effects of the proposed project on aesthetics, light, and glare. For these reasons, impacts related to wastewater treatment and conveyance from the proposed project would not require the preparation of a subsequent EIR.

Storm Water Drainage

The project site is currently vacant, undeveloped land that was previously mass-graded in September 2002. As described in the Initial Study prepared for and appended to the Natomas Crossing EIR, development proposed in the Initial Study and Natomas Crossing EIR would create impervious surfaces where none currently exist. Currently, stormwater on the Quadrant B project site drains to the existing drainage channel located along the western boundary of the project site, which flows to Detention Basin 6B, which is then pumped into the existing RD-1000 drainage channel south of the project site. As analyzed in the EIR, where impervious surfaces are proposed or anticipated, proposed stormwater lines would continue to route stormwater to the concrete-lined drainage channel along the western boundary of the project site. Thus, changes to currents, or the course of water movements would not result. As shown in Figure 10, Grading and Drainage Plan, stormwater lines from the proposed project would also route stormwater to the concrete-lined drainage channel along the western boundary of the project site. However, as noted in the Initial Study, creation of impervious surfaces on the project site would increase peak run-off rates, and the total amount of runoff.

A Master Drainage Study for Natomas Crossing Area 3 was prepared in June 2002 for Quadrants B, C, and D, which planned for a mixture of development assumed to cover 90 percent of the Natomas Crossing PUD Area 3 land area with impervious surfaces. The drainage facilities for the area, as master planned in 2002, were adequately sized for buildout of the Natomas Crossing EIR project area, which includes the proposed Quadrant B project site. Within Quadrant B, the EIR assumed that the site would have the ability to discharge stormwater to the channel at three locations from 36-inch pipes. Under existing conditions, Quadrant B drains into the drainage channel via 42-inch outfalls at 3 locations along the western perimeter of the project site.

The drainage system for the proposed project would route stormwater runoff from the project site through three, 36-inch, drainage lines that would outfall to the drainage canal along the western perimeter of the project site. The site plan for the proposed project at full buildout includes approximately 833,168 square feet of pervious, permanent landscape area. This pervious area would account for approximately 28% of the 2,983,872-square-foot (68.2-acre) Quadrant B project site, which would have a drainage requirement well below the anticipated drainage capacity requirement (90% impervious surfaces) for the project site in the Master Drainage Study. The City of Sacramento's existing drainage facilities for the larger Natomas drainage basin have also been designed with sufficient capacity to serve the project site. The project applicant would be required to construct on-site internal drainage infrastructure to City of Sacramento specifications and pay fees associated with the development and maintenance of the existing drainage infrastructure, pursuant to the North Natomas Financing Plan. As with

anticipated development for Quadrant B analyzed in the Natomas Crossing EIR, the proposed project would have a less-than-significant impact on existing drainage facilities and no mitigation would be required.

Solid Waste Disposal

As described in the Initial Study prepared for the Natomas Crossing EIR, the City provides solid waste and recycling collection and disposal services to the Natomas Crossing project site. The Lockwood Landfill and Kiefer Landfill have sufficient capacity to serve the project site. The Initial Study concluded that waste generated by the proposed project would represent a tiny fraction of the amount of solid waste received by the Lockwood and Kiefer landfills.

Waste generated by the proposed project would be collected and transported to local landfills by the City and/or private haulers, and either recycled in accordance with City programs and requirements or land filled at Kiefer Landfill or transported and landfilled at the Lockwood Landfill in Sparks, Nevada. Those facilities together currently have approximately 458 million cubic yards in available capacity. Waste from the proposed project would represent a fraction of a percentage of the available capacity from those facilities. Because there would be no need to expand or create new landfill or solid waste management facilities, there would be no related physical environmental effects. Similar to the impacts evaluated in the Initial Study, the proposed project would have a less than significant effect on solid waste disposal.

Conclusion

As with the project analyzed in the Natomas Crossing EIR, required compliance with the City's Site Plan and Design Review process would ensure that the proposed project is consistent with applicable plans and design guidelines, is of high quality, and is compatible with surrounding development, thus avoiding adverse impacts to visual character within the context of an urban setting. Consequently, the proposed project would not have more significant effects that were not discussed in the Natomas Crossing EIR or increase the severity of impacts discussed therein. Under existing conditions, the proposed project would not make feasible, mitigation measures that were found to be infeasible in the Natomas Crossing EIR. Further, there are no mitigation measures that were not considered in the Natomas Crossing EIR, that would more substantially reduce the potential effects of the proposed project on utilities. For these reasons, impacts related to utilities from the proposed project would not require the preparation of a subsequent EIR.

XIII. Aesthetics, Light, and Glare

The Aesthetics section of the Natomas Crossing EIR described existing visual and aesthetic resources for the Natomas Crossing project site and the region and evaluated potential impacts of the project with respect to urbanization of the project area. The proposed site plan, conceptual drawings, and the Natomas Crossing Design Guidelines

were used to evaluate the potential effects of project development of the visual character of the project site and surrounding area.

The Natomas Crossing EIR noted that the plans for Quadrant B were program-level and did not provide information for a detailed analysis of potential visual impacts. Future development of Quadrant B would require the applicant to submit detailed plans for Planning Director Plan Reviews, as well as approval of Tentative Maps. The Natomas Crossing EIR determined that the Planning Director Plan Review process would result in compliance with the Natomas Crossing PUD Development Guidelines and the North Natomas Community Plan Development Guidelines, which would ensure that the architecture and landscaping of specific uses would not adversely affect the adjacent uses. As a result, the EIR concluded that the proposed project would be expected to have less-than-significant impacts related to altering the visual character or quality of the project site.

In the analysis of light and glare impacts, the Natomas Crossing EIR noted that the Natomas Crossing project site consists predominantly of vacant land, and therefore very little light or glare emitted from the project site. The EIR stated that change from an undeveloped property to a mixture of commercial, office, hotel, medical, and residential uses would generate new sources of light and glare such as parking lots, building lighting, and streetlights. The Natomas Crossing EIR noted that the types of lighting and specific locations were not specified, and required Planning Director Plan Review would ensure that future development of Quadrant B would be in conformance with the Natomas Crossing PUD Development Guidelines, the North Natomas Community Plan Development Guidelines, and the Natomas Crossing Design Guidelines, which would ensure that adverse light and glare impacts would not occur as a result of the project. As a result, the EIR concluded that the proposed project would be expected to have less-than-significant impacts related light and glare.

Since certification of the of the Natomas Crossing EIR, the project site and surrounding uses have remained similar to those analyzed in the EIR. The project site remains vacant, and surrounding uses include commercial, office, and residential uses to the east; I-5 to the west; Arena Boulevard to the south; and a hotel under development and the aforementioned undeveloped residential project site to the north.

The proposed project would construct up to 1.25 million square feet of office and related uses. The proposed development would include five 4-story office buildings surrounding a central outdoor courtyard area, a one-story centralized shared lobby, a childcare center at the northeast corner of the site, surface parking lots for the office and childcare facilities, and a potential structured parking garage that would be located west of the office buildings.

Onsite landscaping would consist of turf areas along the street frontages, interspersed with trees and shrubs. Within the project site, parking aisles and building frontages would be lined with planter boxes with trees and shrubs. The northern, southern, and western

boundaries of the project site would have landscape buffering along the sidewalks and external walls and fencing.

The proposed project would include construction of illuminated monument signs at each of the three signalized project driveways. The proposed project would include two 10-foot-by-20-foot sign easements on the perimeter of the project site along the north side of Arena Boulevard (see “Project Description” for further detail on proposed project elements).

As with the project analyzed in the Natomas Crossing EIR, the proposed project would develop urban uses in an area designated in the Sacramento General Plan for urban uses. As with the project analyzed in the Natomas Crossing EIR, the proposed project would be subject to City site plan and design review to ensure that proposed project complies with applicable design guidelines and is compatible with surrounding uses. At the time of preparation of the Natomas Crossing EIR, this process was referred to as the Planning Director Plan Review process, which allowed an opportunity for the City to conduct a review to ensure that the proposed project complied with the Natomas Crossing PUD, the North Natomas Community Plan, and the City’s General Plan. This process was subsequently replaced by the City’s Site Plan and Design Review process. Although the Development Agreement covering this property grants the applicant the right to proceed with entitlements pursuant to the City’s Land Use and Development Regulations as they existed on the Effective Date of the 1997 Development Agreement, the City and the applicant have agreed to process the application using the City’s current Site Plan and Design Review process.

Pursuant to Chapter 17.808 of the City Code, with specific and limited exemptions, none of which is applicable to the proposed project, development in the City is subject to Site Plan and Design Review. The intent of this process is to (1) ensure that the development is consistent with applicable plans and design guidelines; (2) is high quality and compatible with surrounding development; (3) is supported by adequate circulation, utility, and related infrastructure; (4) is water and energy efficient; and (5) avoids environmental effects to the extent feasible. The aspects of design considered in the site plan and design review process include architectural design, site design, adequacy of streets and accessways for all modes of travel, energy consumption, protection of environmentally sensitive features, safety, noise, and other relevant considerations.

As with the project analyzed in the Natomas Crossing EIR, compliance with the City’s Site Plan and Design Review process would ensure that the proposed project is consistent with applicable plans and design guidelines, is of high quality, and is compatible with surrounding development, thus avoiding adverse impacts to visual character within the context of an urban setting. Consequently, the proposed project would not have more significant effects that were not discussed in the Natomas Crossing EIR or increase the severity of impacts discussed therein. Under existing conditions, the proposed project would not make feasible, mitigation measures that were found to be infeasible in the Natomas Crossing EIR. Further, there are no mitigation measures that were not

considered in the Natomas Crossing EIR, that would more substantially reduce the potential effects of the proposed project on aesthetics, light, and glare. For these reasons, impacts related to aesthetics, light, and glare from the proposed project would not require the preparation of a subsequent EIR.

XIV. Cultural Resources

The project site is currently vacant, undeveloped land that was previously mass-graded in September 2002. An intensive cultural resources survey was conducted by PAR Environmental Services, Inc. in March 1997.²¹ The PAR study identified one prehistoric archaeological resource within the project vicinity. The resource consists of an area, located near the intersection of San Juan Road and Airport Road in a plowed field, containing stone tool remnants along with several groundstone and flaked stone tool fragments. The Initial Study prepared for the Natomas Crossing Project as a part of the Natomas Crossing EIR determined that no additional cultural resources were located within the project site or immediate vicinity. Review of the Sacramento 2035 General Plan Master EIR, determined that the project site is not located within a high or moderate archaeological sensitive area. Mitigation Measures 3, 4, and 5 within the Initial Study appended to the Natomas Crossing EIR include mitigation to address impacts relating to accidental discovery of archaeological sites, Native American resources, or human remains. Implementation of these measures would reduce potential impacts to less than significant.

Project impacts related to cultural resources would not significantly change from the previous analysis in the Initial Study prepared for and appended to the Natomas Crossing EIR. No new or significant resources, have been identified within or near the project site. Thus, relative to the project analyzed in the Natomas Crossing Initial Study, the proposed project would not be a substantial change, requiring major revisions to the cultural resources analysis in the Natomas Crossing Initial Study. No substantial changes to the circumstances relating to cultural resources under which the proposed project would be undertaken have occurred.

The proposed project would not result in significant effects that were not discussed in the previous Natomas Crossing Initial Study and EIR, or increase the severity of impacts discussed identified in that document. The proposed project would not make feasible mitigation measures that were found to be infeasible in the Initial Study and EIR. The proposed changes would not alter the anticipated effects on cultural resources associated with the project described in the Initial Study and EIR. The proposed project would not have more significant effects related to cultural resources that were not discussed in the Initial Study and EIR or increase the severity of impacts discussed therein. For these reasons, impacts to cultural resources from the proposed project would not require the preparation of a subsequent EIR.

²¹ PAR Environmental Services, 1997. Cultural Resources Inventory and Evaluation. March 1997.

XV. Recreation

The Recreation section of the Natomas Crossing Initial Study and EIR noted that the project site is located on vacant land in the North Natomas Community Plan (NNCP) area of Sacramento and has been identified for urbanized land uses that do not include recreational uses. In addition, the Initial Study and EIR evaluated potential impacts of the project with respect to recreational uses and access to recreational uses for the project area. This analysis determined that the anticipated development at the project site would result in less-than-significant impacts to recreation as the proposed project would not create a new demand for additional recreational facilities or affect existing recreational opportunities planned for within the 1994 NNCP, as well as the 2030 Sacramento General Plan.

Anticipated development analyzed within the Natomas Crossing Initial Study and EIR for Quadrant B focused on the planned land use designations within the NNCP, as well as the 2030 Sacramento General Plan. At the time of the Natomas Crossing Initial Study and EIR, the assumed buildout of Quadrant B included the analysis of residential, hotel, office, and shopping center uses. Such development of Quadrant B would result in an increase in the area's population, and demand for recreational facilities would increase. However, it was determined that the project would be required to provide sufficient parklands or pay in-lieu fees in accordance with the City of Sacramento standards. Based on this analysis, the Initial Study concluded that the proposed project would have a less than significant impact related to the quality or quantity of recreational facilities and mitigation would not be required.

The proposed project site, the Natomas Quad B Office Project site, is currently undeveloped, and development of the project site would not remove recreational facilities. The Natomas Crossing Initial Study and EIR noted that the plans for Natomas Crossing, and subsequently the Natomas Quad B Office Project site, were adequate and provided a detailed analysis of potential impacts to recreation. Additionally, the development of office space and related uses are not expected to result in the increased demand for recreational facilities as no residential uses are proposed as part of the project. With anticipated demand for recreational facilities being less than the demand assumed in the buildout of the 2030 General Plan, and subsequently analyzed in the Natomas Crossing Initial Study and EIR the development of the proposed project would not warrant changes to the recreation analysis or conclusions reached in the Initial Study and EIR.

Changes introduced by the proposed project and/or new circumstances relevant to the project would not, as compared to the EIR, result in a new significant impact or significant impacts that are substantially more severe than significant impacts previously disclosed. No new mitigation measures would be required. In addition, there is no new information of substantial importance showing that the project would have one or more significant effects not previously discussed or that any previously examined significant effects would be substantially more severe than significant effects shown in the Natomas Crossing EIR. Further, there are no mitigation measures that were not considered in the Natomas

Crossing EIR, that would more substantially reduce the potential effects of the proposed project on recreational uses. For these reasons, impacts related to recreation from the proposed project would not require the preparation of a subsequent IS/MND or EIR.

Conclusion

As established in the discussions above regarding the potential effects of the proposed project, substantial changes are not proposed to the project, nor have any substantial changes occurred with respect to the circumstances under which the project is undertaken, that would require major revisions to the original Natomas Crossing EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. The proposed project would not include any substantial new information, changes, or impacts that would require major revisions to the Natomas Crossing EIR and no new mitigation measures would be required.

In addition, there is no new information of substantial importance showing that the project would have one or more significant effects not previously discussed or that any previously examined significant effects would be substantially more severe than significant effects shown in the previous EIR. Nor is there new information of substantial importance showing (i) that mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative or (ii) that mitigation measures or alternatives considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects, but the proponents decline to adopt the mitigation measure or alternative.

Having considered the analysis set forth in this Addendum, the City of Sacramento's Community Development Department has concluded that the analyses conducted, and the conclusions reached in the Natomas Crossing EIR remain relevant and valid. Based on the record, there is no substantial evidence to support a fair argument that the proposed project may result in significant environmental impacts not previously studied in the EIR and, accordingly, the project changes would not result in any conditions identified in CEQA Guidelines Section 15162. Thus, a subsequent EIR is not required for the changes to the project. The proposed project would remain subject to all applicable previously required mitigation measures from the EIR.

Based on the above analysis, this Addendum to the previously certified EIR for the project has been prepared.

Attachments:

- 1) Air Quality Data
- 2) Transportation Analysis; Natomas Crossing Quad B
- 3) Water Supply Assessment

References Cited

- Ambient Air Quality & Noise Consulting. 2009. Air Quality Impact Assessment for Natomas Crossing, Sacramento, CA. March 31, 2009.
- California Department of Conservation, 2015. Department of Conservation Website: Seismic Hazard Zones. Available: http://www.conservation.ca.gov/cgs/shzp/Pages/shmprealdis.aspx#in_zone. Accessed April 24, 2018.
- California State Water Resources Control Board, 2018. Geotracker Database. State of California Central Plant Block 261 (T0606794060), 625 Q Street, Sacramento, CA 95814. Available: <https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=natomas>. Accessed April 24, 2018.
- City of Sacramento, 2015. *2035 General Plan*. March 3, 2015.
- City of Sacramento, 2013. HCP Fees Paid and Grading Permit Status. Available: <http://www.cityofsacramento.org/-/media/Corporate/Files/CDD/Natomas/HCP-fees-paid-2013.pdf?la=en>. Accessed April 17, 2018.
- City of Sacramento, 2016. *2015 Urban Water Management Plan*. June 21, 2016.
- City of Sacramento Department of Utilities, 2013. Department of Conservation Website: Seismic Hazard Zones. Available: <https://www.google.com/search?q=city+of+sacramento+Administrative+and+Technical+Procedures+Manual+for+Grading+and+Erosion+and+Sediment+Control&ie=utf-8&oe=utf-8&client=firefox-b-1-ab#>. Accessed April 24, 2018.
- City of Sacramento Department of Utilities, 2018. Draft Sewer Generation Rates. Updated April 30, 2018.
- DKS Associates, 2008. Natomas Crossing Revised Project – Trip Generation. December 3, 2008.
- DKS Associates, 2018. *Draft Transportation Analysis, Natomas Crossing Quad B*, Prepared for the City of Sacramento. April 24, 2018.
- ESA, 2008. Fresh & Easy Distribution Truck Noise Study. November 2008.
- Federal Emergency Management Agency, 2000. Section 60.3 Flood Plain Management Criteria for Flood Prone Areas. Available: https://www.fema.gov/media-library-data/20130726-1622-20490-7844/section60_3.pdf. Accessed April 24, 2018.
- Federal Emergency Management Agency, 2014. Adequate Progress on Flood Control Systems: Zone A99 Requirements Summary for State and Local Officials. Available: https://www.fema.gov/media-library-data/1417370512021-87d10b406536999e03e3f63fe55873f5/Zone_A99_Fact_Sheet.pdf. Accessed April 24, 2018.

- Federal Emergency Management Agency, 2015. Flood Insurance Rate Map, Sacramento County: Map Number 06067C0045J. Available: <https://msc.fema.gov/portal/search?AddressQuery=natomas%2C%20ca#searchresultsanchor>. Accessed April 24, 2018.
- H.T. Harvey & Associates, 2018. Memo of Due Diligence Assessment of the Alleghany Project Site, in North Natomas, Sacramento, California. Project 4140-01. February 28, 2018.
- PAR Environmental Services, 1997. Cultural Resources Inventory and Evaluation. March 1997.
- Puron, 2005. *48PG03-28 Product Data*.
- Raney Geotechnical Inc., 2017. *Draft Geotechnical Investigation; Proposed Centene Development; Northeasterly of Arena Boulevard and I-5 Sacramento, California*.
- Raney Planning and Management, Inc., 2009. Final Environmental Impact Report for Natomas Crossing. Project No. P04-264. State Clearing House No. 2007112088. Prepared for the City of Sacramento. June 2009.
- Sacramento Stormwater Quality Partnership, 2007. *Stormwater Quality Design Manual; for the Sacramento and South Placer Regions*. May 2007. Available: http://www.beriverfriendly.net/docs/files/File/2007_DesignManual/SWQ_DesignManual_2007.pdf. Accessed April 25, 2018.
- U.S. Department of Toxic Substances Control, 2018. Envirostor Database. California Department of Toxic Substances Control. DTSC's Hazardous Waste and Substances Site List – Site Cleanup (Cortese List). Available: <https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=natomas>. Accessed April 24, 2018.

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Attachment 1
Air Quality Data

Natomas Quad B Office Project (First Phase) - Sacramento County, Annual

Natomas Quad B Office Project (First Phase)
Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	537.06	1000sqft	12.33	537,060.00	0
Parking Lot	2,741.00	Space	24.67	1,096,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2020
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MW hr)	590.31	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Natomas Quad B Office Project (First Phase) - Sacramento County, Annual

Project Characteristics -

Land Use - Combined office space, lobby, and childcare facility into 'General Office Building' land use.

Construction Phase - Based on anticipated project-specific construction schedule.

Trips and VMT -

Grading -

Vehicle Trips - Trip rate adjusted based on project-specific trip rate.

Construction Off-road Equipment Mitigation -

Stationary Sources - Emergency Generators and Fire Pumps - 2000HP diesel fueled emergency generator assumed.

Off-road Equipment -

Natomas Quad B Office Project (First Phase) - Sacramento County, Annual

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	30.00	18.00
tblConstructionPhase	NumDays	75.00	45.00
tblConstructionPhase	NumDays	740.00	444.00
tblConstructionPhase	NumDays	55.00	33.00
tblConstructionPhase	NumDays	55.00	33.00
tblConstructionPhase	PhaseEndDate	7/4/2018	10/24/2018
tblConstructionPhase	PhaseEndDate	10/17/2018	12/26/2018
tblConstructionPhase	PhaseEndDate	8/18/2021	9/8/2020
tblConstructionPhase	PhaseEndDate	11/3/2021	10/23/2020
tblConstructionPhase	PhaseEndDate	1/19/2022	12/9/2020
tblConstructionPhase	PhaseStartDate	5/24/2018	10/1/2018
tblConstructionPhase	PhaseStartDate	7/5/2018	10/25/2018
tblConstructionPhase	PhaseStartDate	10/18/2018	12/27/2018
tblConstructionPhase	PhaseStartDate	8/19/2021	9/9/2020
tblConstructionPhase	PhaseStartDate	11/4/2021	10/24/2020
tblGrading	MaterialImported	0.00	24,000.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	2,000.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	2.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	100.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	ST_TR	2.46	2.02
tblVehicleTrips	SU_TR	1.05	0.86
tblVehicleTrips	WD_TR	11.03	9.04

2.0 Emissions Summary

Natomas Quad B Office Project (First Phase) - Sacramento County, Annual

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					
2018	0.1831	2.3618	1.2145	3.2100e-003	0.3994	0.0874	0.4867	0.1814	0.0805	0.2619	0.0000	300.0523	300.0523	0.0583	0.0000	301.5103
2019	0.8093	7.2754	6.0818	0.0183	0.8103	0.2034	1.0136	0.2202	0.1916	0.4118	0.0000	1,693.2309	1,693.2309	0.1442	0.0000	1,696.8351
2020	3.2039	4.8410	4.1817	0.0131	0.5759	0.1319	0.7078	0.1564	0.1241	0.2805	0.0000	1,201.6979	1,201.6979	0.1066	0.0000	1,204.3618
Maximum	3.2039	7.2754	6.0818	0.0183	0.8103	0.2034	1.0136	0.2202	0.1916	0.4118	0.0000	1,693.2309	1,693.2309	0.1442	0.0000	1,696.8351

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					
2018	0.1831	2.3618	1.2145	3.2100e-003	0.2012	0.0874	0.2886	0.0875	0.0805	0.1680	0.0000	300.0522	300.0522	0.0583	0.0000	301.5101
2019	0.8093	7.2754	6.0818	0.0183	0.8103	0.2034	1.0136	0.2202	0.1916	0.4118	0.0000	1,693.2306	1,693.2306	0.1442	0.0000	1,696.8348
2020	3.2039	4.8410	4.1817	0.0131	0.5759	0.1319	0.7078	0.1564	0.1241	0.2805	0.0000	1,201.6976	1,201.6976	0.1066	0.0000	1,204.3615
Maximum	3.2039	7.2754	6.0818	0.0183	0.8103	0.2034	1.0136	0.2202	0.1916	0.4118	0.0000	1,693.2306	1,693.2306	0.1442	0.0000	1,696.8348

Natomas Quad B Office Project (First Phase) - Sacramento County, Annual

	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	11.10	0.00	8.97	16.82	0.00	9.84	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
2	8-24-2018	11-23-2018	1.6375	1.6375
3	11-24-2018	2-23-2019	2.0877	2.0877
4	2-24-2019	5-23-2019	1.9644	1.9644
5	5-24-2019	8-23-2019	2.0173	2.0173
6	8-24-2019	11-23-2019	2.0366	2.0366
7	11-24-2019	2-23-2020	1.9402	1.9402
8	2-24-2020	5-23-2020	1.8076	1.8076
9	5-24-2020	8-23-2020	1.8372	1.8372
10	8-24-2020	9-30-2020	0.4569	0.4569
		Highest	2.0877	2.0877

Natomas Quad B Office Project (First Phase) - Sacramento County, Annual

2.2 Overall Operational
Unmitigated Operational

	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					
Area	2.4365	3.9000e-004	0.0421	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.2000e-004	0.0000	0.0868
Energy	0.0379	0.3449	0.2897	2.0700e-003		0.0262	0.0262		0.0262	0.0262	0.0000	2,554.7095	2,554.7095	0.1143	0.0290	2,566.2179
Mobile	1.1799	4.8163	12.8530	0.0352	2.8425	0.0386	2.8810	0.7624	0.0362	0.7986	0.0000	3,227.9335	3,227.9335	0.1720	0.0000	3,232.2326
Stationary	0.1641	0.7339	0.4184	7.9000e-004		0.0241	0.0241		0.0241	0.0241	0.0000	76.1594	76.1594	0.0107	0.0000	76.4264
Waste						0.0000	0.0000		0.0000	0.0000	101.3879	0.0000	101.3879	5.9919	0.0000	251.1842
Water						0.0000	0.0000		0.0000	0.0000	33.7717	182.1762	215.9479	0.1252	0.0753	241.5152
Total	3.8184	5.8954	13.6032	0.0380	2.8425	0.0891	2.9315	0.7624	0.0867	0.8491	135.1596	6,041.0599	6,176.2195	6.4142	0.1043	6,367.6631

Natomas Quad B Office Project (First Phase) - Sacramento County, Annual

2.2 Overall Operational

Mitigated Operational

	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					
Area	2.4365	3.9000e-004	0.0421	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.2000e-004	0.0000	0.0868
Energy	0.0379	0.3449	0.2897	2.0700e-003		0.0262	0.0262		0.0262	0.0262	0.0000	2,554.7095	2,554.7095	0.1143	0.0290	2,566.2179
Mobile	1.1799	4.8163	12.8530	0.0352	2.8425	0.0386	2.8810	0.7624	0.0362	0.7986	0.0000	3,227.9335	3,227.9335	0.1720	0.0000	3,232.2326
Stationary	0.1641	0.7339	0.4184	7.9000e-004		0.0241	0.0241		0.0241	0.0241	0.0000	76.1594	76.1594	0.0107	0.0000	76.4264
Waste						0.0000	0.0000		0.0000	0.0000	101.3879	0.0000	101.3879	5.9919	0.0000	251.1842
Water						0.0000	0.0000		0.0000	0.0000	33.7717	182.1762	215.9479	0.1252	0.0753	241.5152
Total	3.8184	5.8954	13.6032	0.0380	2.8425	0.0891	2.9315	0.7624	0.0867	0.8491	135.1596	6,041.0599	6,176.2195	6.4142	0.1043	6,367.6631

	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
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

Natomas Quad B Office Project (First Phase) - Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2018	10/24/2018	5	18	
2	Grading	Grading	10/25/2018	12/26/2018	5	45	
3	Building Construction	Building Construction	12/27/2018	9/8/2020	5	444	
4	Paving	Paving	9/9/2020	10/23/2020	5	33	
5	Architectural Coating	Architectural Coating	10/24/2020	12/9/2020	5	33	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 24.67

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 805,590; Non-Residential Outdoor: 268,530; Striped Parking Area: 65,784 (Architectural Coating – sqft)

OffRoad Equipment

Natomas Quad B Office Project (First Phase) - Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Site Preparation	7	18.00	0.00	3,000.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	632.00	268.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	126.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

Natomas Quad B Office Project (First Phase) - Sacramento County, Annual

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2018

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					0.1651	0.0000	0.1651	0.0898	0.0000	0.0898	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0411	0.4338	0.2023	3.4000e-004		0.0232	0.0232		0.0213	0.0213	0.0000	31.2839	31.2839	9.7400e-003	0.0000	31.5274
Total	0.0411	0.4338	0.2023	3.4000e-004	0.1651	0.0232	0.1883	0.0898	0.0213	0.1111	0.0000	31.2839	31.2839	9.7400e-003	0.0000	31.5274

Natomas Quad B Office Project (First Phase) - Sacramento County, Annual

3.2 Site Preparation - 2018

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	0.0144	0.4965	0.1256	1.2100e-003	0.0253	2.1700e-003	0.0275	6.9500e-003	2.0800e-003	9.0300e-003	0.0000	117.2624	117.2624	7.0300e-003	0.0000	117.4383
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	7.2000e-004	5.2000e-004	5.5500e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.1259	1.1259	4.0000e-005	0.0000	1.1268
Total	0.0151	0.4970	0.1312	1.2200e-003	0.0265	2.1800e-003	0.0287	7.2700e-003	2.0900e-003	9.3500e-003	0.0000	118.3883	118.3883	7.0700e-003	0.0000	118.5651

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					0.0743	0.0000	0.0743	0.0404	0.0000	0.0404	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0411	0.4338	0.2023	3.4000e-004		0.0232	0.0232		0.0213	0.0213	0.0000	31.2839	31.2839	9.7400e-003	0.0000	31.5274
Total	0.0411	0.4338	0.2023	3.4000e-004	0.0743	0.0232	0.0975	0.0404	0.0213	0.0617	0.0000	31.2839	31.2839	9.7400e-003	0.0000	31.5274

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3.2 Site Preparation - 2018

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	0.0144	0.4965	0.1256	1.2100e-003	0.0253	2.1700e-003	0.0275	6.9500e-003	2.0800e-003	9.0300e-003	0.0000	117.2624	117.2624	7.0300e-003	0.0000	117.4383
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	7.2000e-004	5.2000e-004	5.5500e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.1259	1.1259	4.0000e-005	0.0000	1.1268
Total	0.0151	0.4970	0.1312	1.2200e-003	0.0265	2.1800e-003	0.0287	7.2700e-003	2.0900e-003	9.3500e-003	0.0000	118.3883	118.3883	7.0700e-003	0.0000	118.5651

3.3 Grading - 2018

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					0.1952	0.0000	0.1952	0.0809	0.0000	0.0809	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1145	1.3392	0.7895	1.4000e-003		0.0593	0.0593		0.0545	0.0545	0.0000	127.4591	127.4591	0.0397	0.0000	128.4511
Total	0.1145	1.3392	0.7895	1.4000e-003	0.1952	0.0593	0.2544	0.0809	0.0545	0.1354	0.0000	127.4591	127.4591	0.0397	0.0000	128.4511

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3.3 Grading - 2018

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	2.0000e-003	1.4500e-003	0.0154	3.0000e-005	3.3000e-003	3.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	3.1274	3.1274	1.1000e-004	0.0000	3.1301
Total	2.0000e-003	1.4500e-003	0.0154	3.0000e-005	3.3000e-003	3.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	3.1274	3.1274	1.1000e-004	0.0000	3.1301

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					0.0878	0.0000	0.0878	0.0364	0.0000	0.0364	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1145	1.3392	0.7895	1.4000e-003		0.0593	0.0593		0.0545	0.0545	0.0000	127.4590	127.4590	0.0397	0.0000	128.4510
Total	0.1145	1.3392	0.7895	1.4000e-003	0.0878	0.0593	0.1471	0.0364	0.0545	0.0909	0.0000	127.4590	127.4590	0.0397	0.0000	128.4510

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3.3 Grading - 2018

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	2.0000e-003	1.4500e-003	0.0154	3.0000e-005	3.3000e-003	3.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	3.1274	3.1274	1.1000e-004	0.0000	3.1301
Total	2.0000e-003	1.4500e-003	0.0154	3.0000e-005	3.3000e-003	3.0000e-005	3.3300e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	3.1274	3.1274	1.1000e-004	0.0000	3.1301

3.4 Building Construction - 2018

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	4.0200e-003	0.0351	0.0264	4.0000e-005		2.2500e-003	2.2500e-003		2.1100e-003	2.1100e-003	0.0000	3.5665	3.5665	8.7000e-004	0.0000	3.5884
Total	4.0200e-003	0.0351	0.0264	4.0000e-005		2.2500e-003	2.2500e-003		2.1100e-003	2.1100e-003	0.0000	3.5665	3.5665	8.7000e-004	0.0000	3.5884

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3.4 Building Construction - 2018

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	2.1800e-003	0.0522	0.0173	1.0000e-004	2.3500e-003	4.1000e-004	2.7600e-003	6.8000e-004	3.9000e-004	1.0700e-003	0.0000	9.6386	9.6386	6.2000e-004	0.0000	9.6542
Worker	4.2200e-003	3.0600e-003	0.0325	7.0000e-005	6.9600e-003	5.0000e-005	7.0200e-003	1.8500e-003	5.0000e-005	1.9000e-003	0.0000	6.5885	6.5885	2.2000e-004	0.0000	6.5941
Total	6.4000e-003	0.0553	0.0498	1.7000e-004	9.3100e-003	4.6000e-004	9.7800e-003	2.5300e-003	4.4000e-004	2.9700e-003	0.0000	16.2270	16.2270	8.4000e-004	0.0000	16.2482

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	4.0200e-003	0.0351	0.0264	4.0000e-005		2.2500e-003	2.2500e-003		2.1100e-003	2.1100e-003	0.0000	3.5665	3.5665	8.7000e-004	0.0000	3.5884
Total	4.0200e-003	0.0351	0.0264	4.0000e-005		2.2500e-003	2.2500e-003		2.1100e-003	2.1100e-003	0.0000	3.5665	3.5665	8.7000e-004	0.0000	3.5884

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3.4 Building Construction - 2018

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	2.1800e-003	0.0522	0.0173	1.0000e-004	2.3500e-003	4.1000e-004	2.7600e-003	6.8000e-004	3.9000e-004	1.0700e-003	0.0000	9.6386	9.6386	6.2000e-004	0.0000	9.6542
Worker	4.2200e-003	3.0600e-003	0.0325	7.0000e-005	6.9600e-003	5.0000e-005	7.0200e-003	1.8500e-003	5.0000e-005	1.9000e-003	0.0000	6.5885	6.5885	2.2000e-004	0.0000	6.5941
Total	6.4000e-003	0.0553	0.0498	1.7000e-004	9.3100e-003	4.6000e-004	9.7800e-003	2.5300e-003	4.4000e-004	2.9700e-003	0.0000	16.2270	16.2270	8.4000e-004	0.0000	16.2482

3.4 Building Construction - 2019

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	0.3081	2.7508	2.2399	3.5100e-003		0.1683	0.1683		0.1583	0.1583	0.0000	306.8110	306.8110	0.0747	0.0000	308.6795
Total	0.3081	2.7508	2.2399	3.5100e-003		0.1683	0.1683		0.1583	0.1583	0.0000	306.8110	306.8110	0.0747	0.0000	308.6795

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3.4 Building Construction - 2019

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	0.1676	4.2903	1.3112	8.6800e-003	0.2045	0.0306	0.2351	0.0591	0.0292	0.0884	0.0000	832.6977	832.6977	0.0522	0.0000	834.0028
Worker	0.3335	0.2343	2.5307	6.1300e-003	0.6057	4.4700e-003	0.6102	0.1611	4.1200e-003	0.1652	0.0000	553.7223	553.7223	0.0172	0.0000	554.1529
Total	0.5012	4.5246	3.8419	0.0148	0.8103	0.0350	0.8453	0.2202	0.0334	0.2536	0.0000	1,386.4200	1,386.4200	0.0694	0.0000	1,388.1556

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	0.3081	2.7508	2.2399	3.5100e-003		0.1683	0.1683		0.1583	0.1583	0.0000	306.8106	306.8106	0.0747	0.0000	308.6792
Total	0.3081	2.7508	2.2399	3.5100e-003		0.1683	0.1683		0.1583	0.1583	0.0000	306.8106	306.8106	0.0747	0.0000	308.6792

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3.4 Building Construction - 2019

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	0.1676	4.2903	1.3112	8.6800e-003	0.2045	0.0306	0.2351	0.0591	0.0292	0.0884	0.0000	832.6977	832.6977	0.0522	0.0000	834.0028
Worker	0.3335	0.2343	2.5307	6.1300e-003	0.6057	4.4700e-003	0.6102	0.1611	4.1200e-003	0.1652	0.0000	553.7223	553.7223	0.0172	0.0000	554.1529
Total	0.5012	4.5246	3.8419	0.0148	0.8103	0.0350	0.8453	0.2202	0.0334	0.2536	0.0000	1,386.4200	1,386.4200	0.0694	0.0000	1,388.1556

3.4 Building Construction - 2020

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	0.1908	1.7267	1.5164	2.4200e-003		0.1005	0.1005		0.0945	0.0945	0.0000	208.4490	208.4490	0.0509	0.0000	209.7203
Total	0.1908	1.7267	1.5164	2.4200e-003		0.1005	0.1005		0.0945	0.0945	0.0000	208.4490	208.4490	0.0509	0.0000	209.7203

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3.4 Building Construction - 2020

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	0.0923	2.7049	0.7544	5.9400e-003	0.1410	0.0140	0.1550	0.0408	0.0134	0.0542	0.0000	570.7115	570.7115	0.0338	0.0000	571.5563
Worker	0.2117	0.1436	1.5745	4.1000e-003	0.4178	3.0100e-003	0.4208	0.1111	2.7700e-003	0.1139	0.0000	370.1386	370.1386	0.0105	0.0000	370.4003
Total	0.3041	2.8485	2.3289	0.0100	0.5588	0.0170	0.5758	0.1519	0.0162	0.1680	0.0000	940.8501	940.8501	0.0443	0.0000	941.9566

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	0.1908	1.7267	1.5164	2.4200e-003		0.1005	0.1005		0.0945	0.0945	0.0000	208.4487	208.4487	0.0509	0.0000	209.7201
Total	0.1908	1.7267	1.5164	2.4200e-003		0.1005	0.1005		0.0945	0.0945	0.0000	208.4487	208.4487	0.0509	0.0000	209.7201

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3.4 Building Construction - 2020

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	0.0923	2.7049	0.7544	5.9400e-003	0.1410	0.0140	0.1550	0.0408	0.0134	0.0542	0.0000	570.7115	570.7115	0.0338	0.0000	571.5563
Worker	0.2117	0.1436	1.5745	4.1000e-003	0.4178	3.0100e-003	0.4208	0.1111	2.7700e-003	0.1139	0.0000	370.1386	370.1386	0.0105	0.0000	370.4003
Total	0.3041	2.8485	2.3289	0.0100	0.5588	0.0170	0.5758	0.1519	0.0162	0.1680	0.0000	940.8501	940.8501	0.0443	0.0000	941.9566

3.5 Paving - 2020

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	0.0224	0.2321	0.2418	3.8000e-004		0.0124	0.0124		0.0114	0.0114	0.0000	33.0466	33.0466	0.0107	0.0000	33.3138
Paving	0.0323					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0547	0.2321	0.2418	3.8000e-004		0.0124	0.0124		0.0114	0.0114	0.0000	33.0466	33.0466	0.0107	0.0000	33.3138

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3.5 Paving - 2020

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	9.2000e-004	6.2000e-004	6.8500e-003	2.0000e-005	1.8200e-003	1.0000e-005	1.8300e-003	4.8000e-004	1.0000e-005	5.0000e-004	0.0000	1.6106	1.6106	5.0000e-005	0.0000	1.6117
Total	9.2000e-004	6.2000e-004	6.8500e-003	2.0000e-005	1.8200e-003	1.0000e-005	1.8300e-003	4.8000e-004	1.0000e-005	5.0000e-004	0.0000	1.6106	1.6106	5.0000e-005	0.0000	1.6117

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	0.0224	0.2321	0.2418	3.8000e-004		0.0124	0.0124		0.0114	0.0114	0.0000	33.0465	33.0465	0.0107	0.0000	33.3137
Paving	0.0323					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0547	0.2321	0.2418	3.8000e-004		0.0124	0.0124		0.0114	0.0114	0.0000	33.0465	33.0465	0.0107	0.0000	33.3137

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3.5 Paving - 2020

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	9.2000e-004	6.2000e-004	6.8500e-003	2.0000e-005	1.8200e-003	1.0000e-005	1.8300e-003	4.8000e-004	1.0000e-005	5.0000e-004	0.0000	1.6106	1.6106	5.0000e-005	0.0000	1.6117
Total	9.2000e-004	6.2000e-004	6.8500e-003	2.0000e-005	1.8200e-003	1.0000e-005	1.8300e-003	4.8000e-004	1.0000e-005	5.0000e-004	0.0000	1.6106	1.6106	5.0000e-005	0.0000	1.6117

3.6 Architectural Coating - 2020

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					
Archit. Coating	2.6417					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-003	0.0278	0.0302	5.0000e-005		1.8300e-003	1.8300e-003		1.8300e-003	1.8300e-003	0.0000	4.2129	4.2129	3.3000e-004	0.0000	4.2210
Total	2.6457	0.0278	0.0302	5.0000e-005		1.8300e-003	1.8300e-003		1.8300e-003	1.8300e-003	0.0000	4.2129	4.2129	3.3000e-004	0.0000	4.2210

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3.6 Architectural Coating - 2020

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	7.7400e-003	5.2500e-003	0.0576	1.5000e-004	0.0153	1.1000e-004	0.0154	4.0600e-003	1.0000e-004	4.1600e-003	0.0000	13.5288	13.5288	3.8000e-004	0.0000	13.5384
Total	7.7400e-003	5.2500e-003	0.0576	1.5000e-004	0.0153	1.1000e-004	0.0154	4.0600e-003	1.0000e-004	4.1600e-003	0.0000	13.5288	13.5288	3.8000e-004	0.0000	13.5384

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					
Archit. Coating	2.6417					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-003	0.0278	0.0302	5.0000e-005		1.8300e-003	1.8300e-003		1.8300e-003	1.8300e-003	0.0000	4.2129	4.2129	3.3000e-004	0.0000	4.2210
Total	2.6457	0.0278	0.0302	5.0000e-005		1.8300e-003	1.8300e-003		1.8300e-003	1.8300e-003	0.0000	4.2129	4.2129	3.3000e-004	0.0000	4.2210

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3.6 Architectural Coating - 2020

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	7.7400e-003	5.2500e-003	0.0576	1.5000e-004	0.0153	1.1000e-004	0.0154	4.0600e-003	1.0000e-004	4.1600e-003	0.0000	13.5288	13.5288	3.8000e-004	0.0000	13.5384
Total	7.7400e-003	5.2500e-003	0.0576	1.5000e-004	0.0153	1.1000e-004	0.0154	4.0600e-003	1.0000e-004	4.1600e-003	0.0000	13.5288	13.5288	3.8000e-004	0.0000	13.5384

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	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					
Mitigated	1.1799	4.8163	12.8530	0.0352	2.8425	0.0386	2.8810	0.7624	0.0362	0.7986	0.0000	3,227.9335	3,227.9335	0.1720	0.0000	3,232.2326
Unmitigated	1.1799	4.8163	12.8530	0.0352	2.8425	0.0386	2.8810	0.7624	0.0362	0.7986	0.0000	3,227.9335	3,227.9335	0.1720	0.0000	3,232.2326

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	4,855.02	1,084.86	461.87	7,617,828	7,617,828
Parking Lot	0.00	0.00	0.00		
Total	4,855.02	1,084.86	461.87	7,617,828	7,617,828

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	10.00	5.00	6.50	33.00	48.00	19.00	77	19	4
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971
Parking Lot	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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					
Electricity Mitigated							0.0000	0.0000		0.0000	0.0000	2,179.2691	2,179.2691	0.1071	0.0222	2,188.5465
Electricity Unmitigated							0.0000	0.0000		0.0000	0.0000	2,179.2691	2,179.2691	0.1071	0.0222	2,188.5465
NaturalGas Mitigated	0.0379	0.3449	0.2897	2.0700e-003		0.0262	0.0262		0.0262	0.0262	0.0000	375.4403	375.4403	7.2000e-003	6.8800e-003	377.6714
NaturalGas Unmitigated	0.0379	0.3449	0.2897	2.0700e-003		0.0262	0.0262		0.0262	0.0262	0.0000	375.4403	375.4403	7.2000e-003	6.8800e-003	377.6714

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	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
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	7.03549e+006	0.0379	0.3449	0.2897	2.0700e-003		0.0262	0.0262		0.0262	0.0262	0.0000	375.4403	375.4403	7.2000e-003	6.8800e-003	377.6714
Parking Lot	0	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
Total		0.0379	0.3449	0.2897	2.0700e-003		0.0262	0.0262		0.0262	0.0262	0.0000	375.4403	375.4403	7.2000e-003	6.8800e-003	377.6714

Mitigated

	NaturalGas Use	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
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	7.03549e+006	0.0379	0.3449	0.2897	2.0700e-003		0.0262	0.0262		0.0262	0.0262	0.0000	375.4403	375.4403	7.2000e-003	6.8800e-003	377.6714
Parking Lot	0	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
Total		0.0379	0.3449	0.2897	2.0700e-003		0.0262	0.0262		0.0262	0.0262	0.0000	375.4403	375.4403	7.2000e-003	6.8800e-003	377.6714

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	7.75515e+006	2,076.5189	0.1020	0.0211	2,085.3588
Parking Lot	383740	102.7503	5.0500e-003	1.0400e-003	103.1877
Total		2,179.2691	0.1071	0.0222	2,188.5465

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	7.75515e+006	2,076.5189	0.1020	0.0211	2,085.3588
Parking Lot	383740	102.7503	5.0500e-003	1.0400e-003	103.1877
Total		2,179.2691	0.1071	0.0222	2,188.5465

6.0 Area Detail

6.1 Mitigation Measures Area

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	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					
Mitigated	2.4365	3.9000e-004	0.0421	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.2000e-004	0.0000	0.0868
Unmitigated	2.4365	3.9000e-004	0.0421	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.2000e-004	0.0000	0.0868

6.2 Area by SubCategory

Unmitigated

	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
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2642					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.1684					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.9600e-003	3.9000e-004	0.0421	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.2000e-004	0.0000	0.0868
Total	2.4365	3.9000e-004	0.0421	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.2000e-004	0.0000	0.0868

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6.2 Area by SubCategory

Mitigated

	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
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2642					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.1684					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.9600e-003	3.9000e-004	0.0421	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.2000e-004	0.0000	0.0868
Total	2.4365	3.9000e-004	0.0421	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0814	0.0814	2.2000e-004	0.0000	0.0868

7.0 Water Detail

7.1 Mitigation Measures Water

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	215.9479	0.1252	0.0753	241.5152
Unmitigated	215.9479	0.1252	0.0753	241.5152

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	95.4537 / 58.5039	215.9479	0.1252	0.0753	241.5152
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		215.9479	0.1252	0.0753	241.5152

Natomas Quad B Office Project (First Phase) - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	95.4537 / 58.5039	215.9479	0.1252	0.0753	241.5152
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		215.9479	0.1252	0.0753	241.5152

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	101.3879	5.9919	0.0000	251.1842
Unmitigated	101.3879	5.9919	0.0000	251.1842

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	499.47	101.3879	5.9919	0.0000	251.1842
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		101.3879	5.9919	0.0000	251.1842

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	499.47	101.3879	5.9919	0.0000	251.1842
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		101.3879	5.9919	0.0000	251.1842

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	2	100	2000	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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10.1 Stationary Sources

Unmitigated/Mitigated

	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
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.1641	0.7339	0.4184	7.9000e-004		0.0241	0.0241		0.0241	0.0241	0.0000	76.1594	76.1594	0.0107	0.0000	76.4264
Total	0.1641	0.7339	0.4184	7.9000e-004		0.0241	0.0241		0.0241	0.0241	0.0000	76.1594	76.1594	0.0107	0.0000	76.4264

11.0 Vegetation

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

Natomas Quad B Office Project (First Phase)
Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	537.06	1000sqft	12.33	537,060.00	0
Parking Lot	2,741.00	Space	24.67	1,096,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2020
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MW hr)	590.31	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

Project Characteristics -

Land Use - Combined office space, lobby, and childcare facility into 'General Office Building' land use.

Construction Phase - Based on anticipated project-specific construction schedule.

Trips and VMT -

Grading -

Vehicle Trips - Trip rate adjusted based on project-specific trip rate.

Construction Off-road Equipment Mitigation -

Stationary Sources - Emergency Generators and Fire Pumps - 2000HP diesel fueled emergency generator assumed.

Off-road Equipment -

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	30.00	18.00
tblConstructionPhase	NumDays	75.00	45.00
tblConstructionPhase	NumDays	740.00	444.00
tblConstructionPhase	NumDays	55.00	33.00
tblConstructionPhase	NumDays	55.00	33.00
tblConstructionPhase	PhaseEndDate	7/4/2018	10/24/2018
tblConstructionPhase	PhaseEndDate	10/17/2018	12/26/2018
tblConstructionPhase	PhaseEndDate	8/18/2021	9/8/2020
tblConstructionPhase	PhaseEndDate	11/3/2021	10/23/2020
tblConstructionPhase	PhaseEndDate	1/19/2022	12/9/2020
tblConstructionPhase	PhaseStartDate	5/24/2018	10/1/2018
tblConstructionPhase	PhaseStartDate	7/5/2018	10/25/2018
tblConstructionPhase	PhaseStartDate	10/18/2018	12/27/2018
tblConstructionPhase	PhaseStartDate	8/19/2021	9/9/2020
tblConstructionPhase	PhaseStartDate	11/4/2021	10/24/2020
tblGrading	MaterialImported	0.00	24,000.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	2,000.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	2.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	100.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	ST_TR	2.46	2.02
tblVehicleTrips	SU_TR	1.05	0.86
tblVehicleTrips	WD_TR	11.03	9.04

2.0 Emissions Summary

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

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					
2018	7.3759	101.3980	54.0613	0.1747	21.3799	2.8158	24.1957	10.8028	2.5993	13.4021	0.0000	18,435.9745	18,435.9745	2.0441	0.0000	18,487.0773
2019	6.5906	54.8066	49.5677	0.1461	6.4206	1.5558	7.9764	1.7395	1.4659	3.2053	0.0000	14,874.1207	14,874.1207	1.2214	0.0000	14,904.6544
2020	160.8902	50.0597	45.3927	0.1440	6.4205	1.3039	7.7243	1.7394	1.2279	2.9673	0.0000	14,634.0303	14,634.0303	1.1669	0.0000	14,663.2034
Maximum	160.8902	101.3980	54.0613	0.1747	21.3799	2.8158	24.1957	10.8028	2.5993	13.4021	0.0000	18,435.9745	18,435.9745	2.0441	0.0000	18,487.0773

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					
2018	7.3759	101.3980	54.0613	0.1747	11.2918	2.8158	14.1076	5.3180	2.5993	7.9173	0.0000	18,435.9745	18,435.9745	2.0441	0.0000	18,487.0773
2019	6.5906	54.8066	49.5677	0.1461	6.4206	1.5558	7.9764	1.7395	1.4659	3.2053	0.0000	14,874.1207	14,874.1207	1.2214	0.0000	14,904.6544
2020	160.8902	50.0597	45.3927	0.1440	6.4205	1.3039	7.7243	1.7394	1.2279	2.9673	0.0000	14,634.0303	14,634.0303	1.1669	0.0000	14,663.2034
Maximum	160.8902	101.3980	54.0613	0.1747	11.2918	2.8158	14.1076	5.3180	2.5993	7.9173	0.0000	18,435.9745	18,435.9745	2.0441	0.0000	18,487.0773

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

	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
Percent Reduction	0.00	0.00	0.00	0.00	29.48	0.00	25.29	38.40	0.00	28.02	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	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					
Area	13.3606	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655
Energy	0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585
Mobile	10.8251	33.4378	102.8214	0.2753	21.2789	0.2774	21.5564	5.6908	0.2607	5.9515		27,837.8779	27,837.8779	1.4050		27,873.0030
Stationary	6.5643	29.3550	16.7375	0.0315		0.9656	0.9656		0.9656	0.9656		3,358.0565	3,358.0565	0.4708		3,369.8265
Total	30.9579	64.6856	121.4831	0.3182	21.2789	1.3879	22.6668	5.6908	1.3712	7.0619		33,464.3347	33,464.3347	1.9212	0.0416	33,524.7536

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

2.2 Overall Operational

Mitigated Operational

	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					
Area	13.3606	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655
Energy	0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585
Mobile	10.8251	33.4378	102.8214	0.2753	21.2789	0.2774	21.5564	5.6908	0.2607	5.9515		27,837.8779	27,837.8779	1.4050		27,873.0030
Stationary	6.5643	29.3550	16.7375	0.0315		0.9656	0.9656		0.9656	0.9656		3,358.0565	3,358.0565	0.4708		3,369.8265
Total	30.9579	64.6856	121.4831	0.3182	21.2789	1.3879	22.6668	5.6908	1.3712	7.0619		33,464.3347	33,464.3347	1.9212	0.0416	33,524.7536

	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
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

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2018	10/24/2018	5	18	
2	Grading	Grading	10/25/2018	12/26/2018	5	45	
3	Building Construction	Building Construction	12/27/2018	9/8/2020	5	444	
4	Paving	Paving	9/9/2020	10/23/2020	5	33	
5	Architectural Coating	Architectural Coating	10/24/2020	12/9/2020	5	33	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 24.67

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 805,590; Non-Residential Outdoor: 268,530; Striped Parking Area: 65,784 (Architectural Coating – sqft)

OffRoad Equipment

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Site Preparation	7	18.00	0.00	3,000.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	632.00	268.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	126.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2018

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					18.3420	0.0000	18.3420	9.9724	0.0000	9.9724			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	4.5627	48.1988	22.4763	0.0380	18.3420	2.5769	20.9189	9.9724	2.3708	12.3432		3,831.6239	3,831.6239	1.1928		3,861.4448

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.2 Site Preparation - 2018

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	1.5818	53.1467	13.7521	0.1352	2.9010	0.2379	3.1389	0.7941	0.2276	1.0217		14,451.8261	14,451.8261	0.8460		14,472.9768
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	0.0928	0.0526	0.7238	1.5300e-003	0.1369	1.0100e-003	0.1379	0.0363	9.3000e-004	0.0373		152.5246	152.5246	5.2500e-003		152.6557
Total	1.6746	53.1993	14.4759	0.1367	3.0379	0.2389	3.2768	0.8304	0.2285	1.0589		14,604.3506	14,604.3506	0.8513		14,625.6325

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					8.2539	0.0000	8.2539	4.4876	0.0000	4.4876			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	4.5627	48.1988	22.4763	0.0380	8.2539	2.5769	10.8308	4.4876	2.3708	6.8584	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.2 Site Preparation - 2018

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	1.5818	53.1467	13.7521	0.1352	2.9010	0.2379	3.1389	0.7941	0.2276	1.0217		14,451.8261	14,451.8261	0.8460		14,472.9768
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	0.0928	0.0526	0.7238	1.5300e-003	0.1369	1.0100e-003	0.1379	0.0363	9.3000e-004	0.0373		152.5246	152.5246	5.2500e-003		152.6557
Total	1.6746	53.1993	14.4759	0.1367	3.0379	0.2389	3.2768	0.8304	0.2285	1.0589		14,604.3506	14,604.3506	0.8513		14,625.6325

3.3 Grading - 2018

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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230		6,244.4284	6,244.4284	1.9440		6,293.0278
Total	5.0901	59.5218	35.0894	0.0620	8.6733	2.6337	11.3071	3.5965	2.4230	6.0195		6,244.4284	6,244.4284	1.9440		6,293.0278

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.3 Grading - 2018

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	0.1031	0.0585	0.8042	1.7000e-003	0.1521	1.1200e-003	0.1533	0.0404	1.0300e-003	0.0414		169.4717	169.4717	5.8300e-003		169.6174
Total	0.1031	0.0585	0.8042	1.7000e-003	0.1521	1.1200e-003	0.1533	0.0404	1.0300e-003	0.0414		169.4717	169.4717	5.8300e-003		169.6174

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					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278
Total	5.0901	59.5218	35.0894	0.0620	3.9030	2.6337	6.5367	1.6184	2.4230	4.0415	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.3 Grading - 2018

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	0.1031	0.0585	0.8042	1.7000e-003	0.1521	1.1200e-003	0.1533	0.0404	1.0300e-003	0.0414		169.4717	169.4717	5.8300e-003		169.6174
Total	0.1031	0.0585	0.8042	1.7000e-003	0.1521	1.1200e-003	0.1533	0.0404	1.0300e-003	0.0414		169.4717	169.4717	5.8300e-003		169.6174

3.4 Building Construction - 2018

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	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.4 Building Construction - 2018

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	1.4394	33.9170	11.0683	0.0677	1.6132	0.2712	1.8844	0.4643	0.2594	0.7237		7,157.6964	7,157.6964	0.4438		7,168.7909
Worker	3.2570	1.8475	25.4126	0.0539	4.8076	0.0353	4.8429	1.2753	0.0326	1.3079		5,355.3063	5,355.3063	0.1842		5,359.9112
Total	4.6964	35.7646	36.4809	0.1216	6.4208	0.3065	6.7274	1.7395	0.2920	2.0316		12,513.0028	12,513.0028	0.6280		12,528.7021

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	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883
Total	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.4 Building Construction - 2018

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	1.4394	33.9170	11.0683	0.0677	1.6132	0.2712	1.8844	0.4643	0.2594	0.7237		7,157.6964	7,157.6964	0.4438		7,168.7909
Worker	3.2570	1.8475	25.4126	0.0539	4.8076	0.0353	4.8429	1.2753	0.0326	1.3079		5,355.3063	5,355.3063	0.1842		5,359.9112
Total	4.6964	35.7646	36.4809	0.1216	6.4208	0.3065	6.7274	1.7395	0.2920	2.0316		12,513.0028	12,513.0028	0.6280		12,528.7021

3.4 Building Construction - 2019

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	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.4 Building Construction - 2019

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	1.2680	32.1012	9.5847	0.0672	1.6130	0.2316	1.8447	0.4642	0.2216	0.6858		7,108.7249	7,108.7249	0.4272		7,119.4050
Worker	2.9614	1.6266	22.8192	0.0520	4.8076	0.0343	4.8419	1.2753	0.0316	1.3069		5,173.8157	5,173.8157	0.1628		5,177.8859
Total	4.2295	33.7278	32.4039	0.1192	6.4206	0.2659	6.6865	1.7395	0.2532	1.9926		12,282.5405	12,282.5405	0.5900		12,297.2909

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	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.4 Building Construction - 2019

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	1.2680	32.1012	9.5847	0.0672	1.6130	0.2316	1.8447	0.4642	0.2216	0.6858		7,108.7249	7,108.7249	0.4272		7,119.4050
Worker	2.9614	1.6266	22.8192	0.0520	4.8076	0.0343	4.8419	1.2753	0.0316	1.3069		5,173.8157	5,173.8157	0.1628		5,177.8859
Total	4.2295	33.7278	32.4039	0.1192	6.4206	0.2659	6.6865	1.7395	0.2532	1.9926		12,282.5405	12,282.5405	0.5900		12,297.2909

3.4 Building Construction - 2020

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.4 Building Construction - 2020

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	1.0106	29.4275	7.9093	0.0667	1.6128	0.1534	1.7662	0.4641	0.1468	0.6109		7,065.9654	7,065.9654	0.4004		7,075.9751
Worker	2.7252	1.4462	20.6349	0.0504	4.8076	0.0334	4.8410	1.2753	0.0308	1.3061		5,015.0019	5,015.0019	0.1437		5,018.5938
Total	3.7358	30.8737	28.5442	0.1171	6.4205	0.1868	6.6073	1.7394	0.1776	1.9169		12,080.9673	12,080.9673	0.5441		12,094.5689

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.4 Building Construction - 2020

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	1.0106	29.4275	7.9093	0.0667	1.6128	0.1534	1.7662	0.4641	0.1468	0.6109		7,065.9654	7,065.9654	0.4004		7,075.9751
Worker	2.7252	1.4462	20.6349	0.0504	4.8076	0.0334	4.8410	1.2753	0.0308	1.3061		5,015.0019	5,015.0019	0.1437		5,018.5938
Total	3.7358	30.8737	28.5442	0.1171	6.4205	0.1868	6.6073	1.7394	0.1776	1.9169		12,080.9673	12,080.9673	0.5441		12,094.5689

3.5 Paving - 2020

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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	1.9587					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	3.3152	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.5 Paving - 2020

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	0.0647	0.0343	0.4898	1.2000e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		119.0269	119.0269	3.4100e-003		119.1122
Total	0.0647	0.0343	0.4898	1.2000e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		119.0269	119.0269	3.4100e-003		119.1122

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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	1.9587					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	3.3152	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.5 Paving - 2020

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	0.0647	0.0343	0.4898	1.2000e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		119.0269	119.0269	3.4100e-003		119.1122
Total	0.0647	0.0343	0.4898	1.2000e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		119.0269	119.0269	3.4100e-003		119.1122

3.6 Architectural Coating - 2020

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					
Archit. Coating	160.1047					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	160.3469	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.6 Architectural Coating - 2020

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	0.5433	0.2883	4.1139	0.0101	0.9585	6.6600e-003	0.9651	0.2543	6.1400e-003	0.2604		999.8263	999.8263	0.0286		1,000.5424
Total	0.5433	0.2883	4.1139	0.0101	0.9585	6.6600e-003	0.9651	0.2543	6.1400e-003	0.2604		999.8263	999.8263	0.0286		1,000.5424

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					
Archit. Coating	160.1047					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	160.3469	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

3.6 Architectural Coating - 2020

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	0.5433	0.2883	4.1139	0.0101	0.9585	6.6600e-003	0.9651	0.2543	6.1400e-003	0.2604		999.8263	999.8263	0.0286		1,000.5424
Total	0.5433	0.2883	4.1139	0.0101	0.9585	6.6600e-003	0.9651	0.2543	6.1400e-003	0.2604		999.8263	999.8263	0.0286		1,000.5424

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

	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					
Mitigated	10.8251	33.4378	102.8214	0.2753	21.2789	0.2774	21.5564	5.6908	0.2607	5.9515		27,837.87 79	27,837.87 79	1.4050		27,873.00 30
Unmitigated	10.8251	33.4378	102.8214	0.2753	21.2789	0.2774	21.5564	5.6908	0.2607	5.9515		27,837.87 79	27,837.87 79	1.4050		27,873.00 30

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	4,855.02	1,084.86	461.87	7,617,828	7,617,828
Parking Lot	0.00	0.00	0.00		
Total	4,855.02	1,084.86	461.87	7,617,828	7,617,828

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	10.00	5.00	6.50	33.00	48.00	19.00	77	19	4
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971
Parking Lot	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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					
NaturalGas Mitigated	0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585
NaturalGas Unmitigated	0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	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
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	19275.3	0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585
Parking Lot	0	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
Total		0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585

Mitigated

	NaturalGas Use	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
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	19.2753	0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585
Parking Lot	0	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
Total		0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585

6.0 Area Detail

6.1 Mitigation Measures Area

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

	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					
Mitigated	13.3606	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655
Unmitigated	13.3606	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655

6.2 Area by SubCategory

Unmitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.4475					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.8814					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0317	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655
Total	13.3606	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

6.2 Area by SubCategory

Mitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.4475					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.8814					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0317	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655
Total	13.3606	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Natomas Quad B Office Project (First Phase) - Sacramento County, Summer

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	2	100	2000	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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10.1 Stationary Sources

Unmitigated/Mitigated

	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
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (750 - 9999 HP)	6.5643	29.3550	16.7375	0.0315		0.9656	0.9656		0.9656	0.9656		3,358.0565	3,358.0565	0.4708		3,369.8265
Total	6.5643	29.3550	16.7375	0.0315		0.9656	0.9656		0.9656	0.9656		3,358.0565	3,358.0565	0.4708		3,369.8265

11.0 Vegetation

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

Natomas Quad B Office Project (First Phase)
Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	537.06	1000sqft	12.33	537,060.00	0
Parking Lot	2,741.00	Space	24.67	1,096,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2020
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MW hr)	590.31	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

Project Characteristics -

Land Use - Combined office space, lobby, and childcare facility into 'General Office Building' land use.

Construction Phase - Based on anticipated project-specific construction schedule.

Trips and VMT -

Grading -

Vehicle Trips - Trip rate adjusted based on project-specific trip rate.

Construction Off-road Equipment Mitigation -

Stationary Sources - Emergency Generators and Fire Pumps - 2000HP diesel fueled emergency generator assumed.

Off-road Equipment -

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	30.00	18.00
tblConstructionPhase	NumDays	75.00	45.00
tblConstructionPhase	NumDays	740.00	444.00
tblConstructionPhase	NumDays	55.00	33.00
tblConstructionPhase	NumDays	55.00	33.00
tblConstructionPhase	PhaseEndDate	7/4/2018	10/24/2018
tblConstructionPhase	PhaseEndDate	10/17/2018	12/26/2018
tblConstructionPhase	PhaseEndDate	8/18/2021	9/8/2020
tblConstructionPhase	PhaseEndDate	11/3/2021	10/23/2020
tblConstructionPhase	PhaseEndDate	1/19/2022	12/9/2020
tblConstructionPhase	PhaseStartDate	5/24/2018	10/1/2018
tblConstructionPhase	PhaseStartDate	7/5/2018	10/25/2018
tblConstructionPhase	PhaseStartDate	10/18/2018	12/27/2018
tblConstructionPhase	PhaseStartDate	8/19/2021	9/9/2020
tblConstructionPhase	PhaseStartDate	11/4/2021	10/24/2020
tblGrading	MaterialImported	0.00	24,000.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	2,000.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	2.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	100.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	ST_TR	2.46	2.02
tblVehicleTrips	SU_TR	1.05	0.86
tblVehicleTrips	WD_TR	11.03	9.04

2.0 Emissions Summary

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

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					
2018	7.1989	103.7710	52.0906	0.1726	21.3799	2.8232	24.2031	10.8028	2.6064	13.4092	0.0000	18,204.0062	18,204.0062	2.0855	0.0000	18,256.1435
2019	6.4200	55.9752	47.6991	0.1381	6.4206	1.5620	7.9827	1.7395	1.4719	3.2113	0.0000	14,065.7606	14,065.7606	1.2385	0.0000	14,096.7226
2020	160.8468	51.0015	43.6153	0.1362	6.4205	1.3090	7.7295	1.7394	1.2328	2.9722	0.0000	13,842.6481	13,842.6481	1.1828	0.0000	13,872.2180
Maximum	160.8468	103.7710	52.0906	0.1726	21.3799	2.8232	24.2031	10.8028	2.6064	13.4092	0.0000	18,204.0062	18,204.0062	2.0855	0.0000	18,256.1435

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					
2018	7.1989	103.7710	52.0906	0.1726	11.2918	2.8232	14.1150	5.3180	2.6064	7.9244	0.0000	18,204.0062	18,204.0062	2.0855	0.0000	18,256.1435
2019	6.4200	55.9752	47.6991	0.1381	6.4206	1.5620	7.9827	1.7395	1.4719	3.2113	0.0000	14,065.7606	14,065.7606	1.2385	0.0000	14,096.7226
2020	160.8468	51.0015	43.6153	0.1362	6.4205	1.3090	7.7295	1.7394	1.2328	2.9722	0.0000	13,842.6481	13,842.6481	1.1828	0.0000	13,872.2180
Maximum	160.8468	103.7710	52.0906	0.1726	11.2918	2.8232	14.1150	5.3180	2.6064	7.9244	0.0000	18,204.0062	18,204.0062	2.0855	0.0000	18,256.1435

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

	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
Percent Reduction	0.00	0.00	0.00	0.00	29.48	0.00	25.27	38.40	0.00	27.99	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	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					
Area	13.3606	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655
Energy	0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585
Mobile	8.0958	35.8304	97.5787	0.2484	21.2789	0.2815	21.5604	5.6908	0.2646	5.9554		25,137.6659	25,137.6659	1.4018		25,172.7102
Stationary	6.5643	29.3550	16.7375	0.0315		0.9656	0.9656		0.9656	0.9656		3,358.0565	3,358.0565	0.4708		3,369.8265
Total	28.2286	67.0782	116.2404	0.2913	21.2789	1.3919	22.6709	5.6908	1.3751	7.0658		30,764.1227	30,764.1227	1.9180	0.0416	30,824.4608

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

2.2 Overall Operational

Mitigated Operational

	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					
Area	13.3606	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655
Energy	0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585
Mobile	8.0958	35.8304	97.5787	0.2484	21.2789	0.2815	21.5604	5.6908	0.2646	5.9554		25,137.6659	25,137.6659	1.4018		25,172.7102
Stationary	6.5643	29.3550	16.7375	0.0315		0.9656	0.9656		0.9656	0.9656		3,358.0565	3,358.0565	0.4708		3,369.8265
Total	28.2286	67.0782	116.2404	0.2913	21.2789	1.3919	22.6709	5.6908	1.3751	7.0658		30,764.1227	30,764.1227	1.9180	0.0416	30,824.4608

	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
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

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2018	10/24/2018	5	18	
2	Grading	Grading	10/25/2018	12/26/2018	5	45	
3	Building Construction	Building Construction	12/27/2018	9/8/2020	5	444	
4	Paving	Paving	9/9/2020	10/23/2020	5	33	
5	Architectural Coating	Architectural Coating	10/24/2020	12/9/2020	5	33	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 24.67

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 805,590; Non-Residential Outdoor: 268,530; Striped Parking Area: 65,784 (Architectural Coating – sqft)

OffRoad Equipment

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Site Preparation	7	18.00	0.00	3,000.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	632.00	268.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	126.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2018

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					18.3420	0.0000	18.3420	9.9724	0.0000	9.9724			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	4.5627	48.1988	22.4763	0.0380	18.3420	2.5769	20.9189	9.9724	2.3708	12.3432		3,831.6239	3,831.6239	1.1928		3,861.4448

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.2 Site Preparation - 2018

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	1.6440	55.5072	14.7711	0.1332	2.9010	0.2453	3.1463	0.7941	0.2347	1.0288		14,238.4093	14,238.4093	0.8880		14,260.6088
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	0.0856	0.0651	0.6267	1.3500e-003	0.1369	1.0100e-003	0.1379	0.0363	9.3000e-004	0.0373		133.9731	133.9731	4.6700e-003		134.0898
Total	1.7296	55.5723	15.3977	0.1345	3.0379	0.2463	3.2842	0.8304	0.2356	1.0660		14,372.3824	14,372.3824	0.8927		14,394.6987

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					8.2539	0.0000	8.2539	4.4876	0.0000	4.4876			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	4.5627	48.1988	22.4763	0.0380	8.2539	2.5769	10.8308	4.4876	2.3708	6.8584	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.2 Site Preparation - 2018

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	1.6440	55.5072	14.7711	0.1332	2.9010	0.2453	3.1463	0.7941	0.2347	1.0288		14,238.4093	14,238.4093	0.8880		14,260.6088
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	0.0856	0.0651	0.6267	1.3500e-003	0.1369	1.0100e-003	0.1379	0.0363	9.3000e-004	0.0373		133.9731	133.9731	4.6700e-003		134.0898
Total	1.7296	55.5723	15.3977	0.1345	3.0379	0.2463	3.2842	0.8304	0.2356	1.0660		14,372.3824	14,372.3824	0.8927		14,394.6987

3.3 Grading - 2018

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					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230		6,244.4284	6,244.4284	1.9440		6,293.0278
Total	5.0901	59.5218	35.0894	0.0620	8.6733	2.6337	11.3071	3.5965	2.4230	6.0195		6,244.4284	6,244.4284	1.9440		6,293.0278

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.3 Grading - 2018

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	0.0951	0.0723	0.6963	1.5000e-003	0.1521	1.1200e-003	0.1533	0.0404	1.0300e-003	0.0414		148.8589	148.8589	5.1900e-003		148.9887
Total	0.0951	0.0723	0.6963	1.5000e-003	0.1521	1.1200e-003	0.1533	0.0404	1.0300e-003	0.0414		148.8589	148.8589	5.1900e-003		148.9887

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					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	5.0901	59.5218	35.0894	0.0620		2.6337	2.6337		2.4230	2.4230	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278
Total	5.0901	59.5218	35.0894	0.0620	3.9030	2.6337	6.5367	1.6184	2.4230	4.0415	0.0000	6,244.4284	6,244.4284	1.9440		6,293.0278

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.3 Grading - 2018

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	0.0951	0.0723	0.6963	1.5000e-003	0.1521	1.1200e-003	0.1533	0.0404	1.0300e-003	0.0414		148.8589	148.8589	5.1900e-003		148.9887
Total	0.0951	0.0723	0.6963	1.5000e-003	0.1521	1.1200e-003	0.1533	0.0404	1.0300e-003	0.0414		148.8589	148.8589	5.1900e-003		148.9887

3.4 Building Construction - 2018

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	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.4 Building Construction - 2018

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	1.5146	34.8240	12.5073	0.0661	1.6132	0.2780	1.8912	0.4643	0.2660	0.7302		6,980.3275	6,980.3275	0.4810		6,992.3536
Worker	3.0048	2.2856	22.0029	0.0473	4.8076	0.0353	4.8429	1.2753	0.0326	1.3079		4,703.9426	4,703.9426	0.1640		4,708.0431
Total	4.5194	37.1095	34.5102	0.1134	6.4208	0.3134	6.7342	1.7395	0.2986	2.0381		11,684.2701	11,684.2701	0.6451		11,700.3967

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	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883
Total	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.4 Building Construction - 2018

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	1.5146	34.8240	12.5073	0.0661	1.6132	0.2780	1.8912	0.4643	0.2660	0.7302		6,980.3275	6,980.3275	0.4810		6,992.3536
Worker	3.0048	2.2856	22.0029	0.0473	4.8076	0.0353	4.8429	1.2753	0.0326	1.3079		4,703.9426	4,703.9426	0.1640		4,708.0431
Total	4.5194	37.1095	34.5102	0.1134	6.4208	0.3134	6.7342	1.7395	0.2986	2.0381		11,684.2701	11,684.2701	0.6451		11,700.3967

3.4 Building Construction - 2019

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	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.4 Building Construction - 2019

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	1.3330	32.8852	10.9031	0.0655	1.6130	0.2379	1.8509	0.4642	0.2276	0.6918		6,930.0997	6,930.0997	0.4629		6,941.6725
Worker	2.7258	2.0112	19.6322	0.0457	4.8076	0.0343	4.8419	1.2753	0.0316	1.3069		4,544.0808	4,544.0808	0.1442		4,547.6867
Total	4.0588	34.8964	30.5353	0.1112	6.4206	0.2721	6.6928	1.7395	0.2592	1.9986		11,474.1805	11,474.1805	0.6072		11,489.3591

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	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.4 Building Construction - 2019

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	1.3330	32.8852	10.9031	0.0655	1.6130	0.2379	1.8509	0.4642	0.2276	0.6918		6,930.0997	6,930.0997	0.4629		6,941.6725
Worker	2.7258	2.0112	19.6322	0.0457	4.8076	0.0343	4.8419	1.2753	0.0316	1.3069		4,544.0808	4,544.0808	0.1442		4,547.6867
Total	4.0588	34.8964	30.5353	0.1112	6.4206	0.2721	6.6928	1.7395	0.2592	1.9986		11,474.1805	11,474.1805	0.6072		11,489.3591

3.4 Building Construction - 2020

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.4 Building Construction - 2020

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	1.0646	30.0286	9.0981	0.0651	1.6128	0.1586	1.7714	0.4641	0.1517	0.6158		6,885.2496	6,885.2496	0.4333		6,896.0822
Worker	2.5076	1.7868	17.6687	0.0443	4.8076	0.0334	4.8410	1.2753	0.0308	1.3061		4,404.3354	4,404.3354	0.1266		4,407.5013
Total	3.5722	31.8154	26.7668	0.1093	6.4205	0.1920	6.6124	1.7394	0.1825	1.9219		11,289.5850	11,289.5850	0.5600		11,303.5835

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.4 Building Construction - 2020

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	1.0646	30.0286	9.0981	0.0651	1.6128	0.1586	1.7714	0.4641	0.1517	0.6158		6,885.2496	6,885.2496	0.4333		6,896.0822
Worker	2.5076	1.7868	17.6687	0.0443	4.8076	0.0334	4.8410	1.2753	0.0308	1.3061		4,404.3354	4,404.3354	0.1266		4,407.5013
Total	3.5722	31.8154	26.7668	0.1093	6.4205	0.1920	6.6124	1.7394	0.1825	1.9219		11,289.5850	11,289.5850	0.5600		11,303.5835

3.5 Paving - 2020

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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	1.9587					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	3.3152	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.5 Paving - 2020

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	0.0595	0.0424	0.4194	1.0500e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		104.5333	104.5333	3.0100e-003		104.6084
Total	0.0595	0.0424	0.4194	1.0500e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		104.5333	104.5333	3.0100e-003		104.6084

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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	1.9587					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	3.3152	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.5 Paving - 2020

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	0.0595	0.0424	0.4194	1.0500e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		104.5333	104.5333	3.0100e-003		104.6084
Total	0.0595	0.0424	0.4194	1.0500e-003	0.1141	7.9000e-004	0.1149	0.0303	7.3000e-004	0.0310		104.5333	104.5333	3.0100e-003		104.6084

3.6 Architectural Coating - 2020

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					
Archit. Coating	160.1047					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	160.3469	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.6 Architectural Coating - 2020

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	0.4999	0.3562	3.5226	8.8200e-003	0.9585	6.6600e-003	0.9651	0.2543	6.1400e-003	0.2604		878.0795	878.0795	0.0253		878.7107
Total	0.4999	0.3562	3.5226	8.8200e-003	0.9585	6.6600e-003	0.9651	0.2543	6.1400e-003	0.2604		878.0795	878.0795	0.0253		878.7107

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					
Archit. Coating	160.1047					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	160.3469	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

3.6 Architectural Coating - 2020

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	0.4999	0.3562	3.5226	8.8200e-003	0.9585	6.6600e-003	0.9651	0.2543	6.1400e-003	0.2604		878.0795	878.0795	0.0253		878.7107
Total	0.4999	0.3562	3.5226	8.8200e-003	0.9585	6.6600e-003	0.9651	0.2543	6.1400e-003	0.2604		878.0795	878.0795	0.0253		878.7107

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

	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					
Mitigated	8.0958	35.8304	97.5787	0.2484	21.2789	0.2815	21.5604	5.6908	0.2646	5.9554		25,137.6659	25,137.6659	1.4018		25,172.7102
Unmitigated	8.0958	35.8304	97.5787	0.2484	21.2789	0.2815	21.5604	5.6908	0.2646	5.9554		25,137.6659	25,137.6659	1.4018		25,172.7102

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	4,855.02	1,084.86	461.87	7,617,828	7,617,828
Parking Lot	0.00	0.00	0.00		
Total	4,855.02	1,084.86	461.87	7,617,828	7,617,828

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	10.00	5.00	6.50	33.00	48.00	19.00	77	19	4
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971
Parking Lot	0.551662	0.040953	0.203778	0.123762	0.021802	0.005583	0.018466	0.022043	0.002076	0.002280	0.006004	0.000618	0.000971

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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					
NaturalGas Mitigated	0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585
NaturalGas Unmitigated	0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	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
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	19275.3	0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585
Parking Lot	0	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
Total		0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585

Mitigated

	NaturalGas Use	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
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	19.2753	0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585
Parking Lot	0	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
Total		0.2079	1.8897	1.5874	0.0113		0.1436	0.1436		0.1436	0.1436		2,267.6828	2,267.6828	0.0435	0.0416	2,281.1585

6.0 Area Detail

6.1 Mitigation Measures Area

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

	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					
Mitigated	13.3606	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655
Unmitigated	13.3606	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655

6.2 Area by SubCategory

Unmitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.4475					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.8814					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0317	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655
Total	13.3606	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

6.2 Area by SubCategory

Mitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.4475					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	11.8814					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0317	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655
Total	13.3606	3.1100e-003	0.3368	3.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003		0.7174	0.7174	1.9200e-003		0.7655

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Natomas Quad B Office Project (First Phase) - Sacramento County, Winter

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	2	100	2000	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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10.1 Stationary Sources

Unmitigated/Mitigated

	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
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (750 - 9999 HP)	6.5643	29.3550	16.7375	0.0315		0.9656	0.9656		0.9656	0.9656		3,358.0565	3,358.0565	0.4708		3,369.8265
Total	6.5643	29.3550	16.7375	0.0315		0.9656	0.9656		0.9656	0.9656		3,358.0565	3,358.0565	0.4708		3,369.8265

11.0 Vegetation

Natomas Quad B Office Project (Future Phase) - Sacramento County, Annual

Natomas Quad B Office Project (Future Phase)
Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	738.20	1000sqft	16.95	738,200.00	0
Parking Lot	1,665.00	Space	14.98	666,000.00	0
Unenclosed Parking with Elevator	2,118.00	Space	19.06	847,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2022
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	590.31	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Natomas Quad B Office Project (Future Phase) - Sacramento County, Annual

Project Characteristics -

Land Use - Building C, D, and E, with add'l surface parking and parking structure.

Construction Phase - Based on estimated future phase project-specific construction schedule.

Trips and VMT -

Grading -

Vehicle Trips - Trip rate adjusted based on project-specific trip rate.

Construction Off-road Equipment Mitigation -

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	75.00	34.00
tblConstructionPhase	NumDays	1,110.00	505.00
tblConstructionPhase	NumDays	75.00	34.00
tblConstructionPhase	PhaseEndDate	5/5/2025	2/20/2023
tblConstructionPhase	PhaseEndDate	10/7/2024	11/16/2022
tblConstructionPhase	PhaseEndDate	1/20/2025	1/3/2023
tblConstructionPhase	PhaseStartDate	1/21/2025	1/4/2023
tblConstructionPhase	PhaseStartDate	7/7/2020	12/10/2020
tblConstructionPhase	PhaseStartDate	10/8/2024	11/17/2022
tblVehicleTrips	ST_TR	2.46	2.02
tblVehicleTrips	SU_TR	1.05	0.86
tblVehicleTrips	WD_TR	11.03	9.04

2.0 Emissions Summary

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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					
2020	0.0542	0.5022	0.4202	1.4500e-003	0.0685	0.0110	0.0795	0.0186	0.0104	0.0290	0.0000	133.7724	133.7724	9.9400e-003	0.0000	134.0209
2021	0.7935	7.4584	6.3599	0.0232	1.1173	0.1446	1.2619	0.3037	0.1360	0.4397	0.0000	2,147.5037	2,147.5037	0.1563	0.0000	2,151.4115
2022	0.6759	6.2468	5.4768	0.0203	0.9778	0.1167	1.0945	0.2657	0.1097	0.3754	0.0000	1,878.5214	1,878.5214	0.1433	0.0000	1,882.1027
2023	3.6464	0.0378	0.1089	2.7000e-004	0.0218	1.8600e-003	0.0237	5.8100e-003	1.8100e-003	7.6100e-003	0.0000	23.6849	23.6849	1.3000e-003	0.0000	23.7175
Maximum	3.6464	7.4584	6.3599	0.0232	1.1173	0.1446	1.2619	0.3037	0.1360	0.4397	0.0000	2,147.5037	2,147.5037	0.1563	0.0000	2,151.4115

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2.1 Overall Construction

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					
2020	0.0542	0.5022	0.4202	1.4500e-003	0.0685	0.0110	0.0795	0.0186	0.0104	0.0290	0.0000	133.7724	133.7724	9.9400e-003	0.0000	134.0209
2021	0.7935	7.4584	6.3599	0.0232	1.1173	0.1446	1.2619	0.3037	0.1360	0.4397	0.0000	2,147.5033	2,147.5033	0.1563	0.0000	2,151.4111
2022	0.6759	6.2468	5.4768	0.0203	0.9778	0.1167	1.0945	0.2657	0.1097	0.3754	0.0000	1,878.5211	1,878.5211	0.1433	0.0000	1,882.1024
2023	3.6464	0.0378	0.1089	2.7000e-004	0.0218	1.8600e-003	0.0237	5.8100e-003	1.8100e-003	7.6100e-003	0.0000	23.6849	23.6849	1.3000e-003	0.0000	23.7175
Maximum	3.6464	7.4584	6.3599	0.0232	1.1173	0.1446	1.2619	0.3037	0.1360	0.4397	0.0000	2,147.5033	2,147.5033	0.1563	0.0000	2,151.4111

	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
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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
5	12-10-2020	3-9-2021	2.0959	2.0959
6	3-10-2021	6-9-2021	2.0705	2.0705
7	6-10-2021	9-9-2021	2.0641	2.0641
8	9-10-2021	12-9-2021	2.0622	2.0622
9	12-10-2021	3-9-2022	1.9376	1.9376
10	3-10-2022	6-9-2022	1.9273	1.9273
11	6-10-2022	9-9-2022	1.9217	1.9217
12	9-10-2022	12-9-2022	1.5429	1.5429

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13	12-10-2022	3-9-2023	3.8230	3.8230
		Highest	3.8230	3.8230

2.2 Overall Operational

Unmitigated Operational

	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					
Area	3.3494	5.3000e-004	0.0578	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	0.1122	0.1122	3.0000e-004	0.0000	0.1196
Energy	0.0521	0.4740	0.3982	2.8400e-003		0.0360	0.0360		0.0360	0.0360	0.0000	3,872.7651	3,872.7651	0.1748	0.0436	3,890.1216
Mobile	1.3793	5.7559	14.8348	0.0455	3.9046	0.0406	3.9452	1.0468	0.0380	1.0848	0.0000	4,185.5379	4,185.5379	0.2049	0.0000	4,190.6594
Waste						0.0000	0.0000		0.0000	0.0000	139.3594	0.0000	139.3594	8.2359	0.0000	345.2570
Water						0.0000	0.0000		0.0000	0.0000	46.4199	250.4050	296.8248	0.1721	0.1035	331.9676
Total	4.7809	6.2305	15.2908	0.0484	3.9046	0.0768	3.9814	1.0468	0.0742	1.1210	185.7792	8,308.8202	8,494.5994	8.7879	0.1471	8,758.1251

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2.2 Overall Operational

Mitigated Operational

	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					
Area	3.3494	5.3000e-004	0.0578	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	0.1122	0.1122	3.0000e-004	0.0000	0.1196
Energy	0.0521	0.4740	0.3982	2.8400e-003		0.0360	0.0360		0.0360	0.0360	0.0000	3,872.7651	3,872.7651	0.1748	0.0436	3,890.1216
Mobile	1.3793	5.7559	14.8348	0.0455	3.9046	0.0406	3.9452	1.0468	0.0380	1.0848	0.0000	4,185.5379	4,185.5379	0.2049	0.0000	4,190.6594
Waste						0.0000	0.0000		0.0000	0.0000	139.3594	0.0000	139.3594	8.2359	0.0000	345.2570
Water						0.0000	0.0000		0.0000	0.0000	46.4199	250.4050	296.8248	0.1721	0.1035	331.9676
Total	4.7809	6.2305	15.2908	0.0484	3.9046	0.0768	3.9814	1.0468	0.0742	1.1210	185.7792	8,308.8202	8,494.5994	8.7879	0.1471	8,758.1251

	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
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	Building Construction	Building Construction	12/10/2020	11/16/2022	5	505	
2	Paving	Paving	11/17/2022	1/3/2023	5	34	
3	Architectural Coating	Architectural Coating	1/4/2023	2/20/2023	5	34	

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Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 34.04

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,107,300; Non-Residential Outdoor: 369,100; Striped Parking Area: 90,792 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Building Construction	9	872.00	369.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	174.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Building Construction - 2020

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	0.0170	0.1535	0.1348	2.2000e-004		8.9400e-003	8.9400e-003		8.4000e-003	8.4000e-003	0.0000	18.5288	18.5288	4.5200e-003	0.0000	18.6418
Total	0.0170	0.1535	0.1348	2.2000e-004		8.9400e-003	8.9400e-003		8.4000e-003	8.4000e-003	0.0000	18.5288	18.5288	4.5200e-003	0.0000	18.6418

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3.2 Building Construction - 2020

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	0.0113	0.3311	0.0923	7.3000e-004	0.0173	1.7100e-003	0.0190	4.9900e-003	1.6400e-003	6.6300e-003	0.0000	69.8483	69.8483	4.1400e-003	0.0000	69.9517
Worker	0.0260	0.0176	0.1931	5.0000e-004	0.0512	3.7000e-004	0.0516	0.0136	3.4000e-004	0.0140	0.0000	45.3953	45.3953	1.2800e-003	0.0000	45.4274
Total	0.0373	0.3487	0.2854	1.2300e-003	0.0685	2.0800e-003	0.0706	0.0186	1.9800e-003	0.0206	0.0000	115.2436	115.2436	5.4200e-003	0.0000	115.3791

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	0.0170	0.1535	0.1348	2.2000e-004		8.9400e-003	8.9400e-003		8.4000e-003	8.4000e-003	0.0000	18.5288	18.5288	4.5200e-003	0.0000	18.6418
Total	0.0170	0.1535	0.1348	2.2000e-004		8.9400e-003	8.9400e-003		8.4000e-003	8.4000e-003	0.0000	18.5288	18.5288	4.5200e-003	0.0000	18.6418

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3.2 Building Construction - 2020

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	0.0113	0.3311	0.0923	7.3000e-004	0.0173	1.7100e-003	0.0190	4.9900e-003	1.6400e-003	6.6300e-003	0.0000	69.8483	69.8483	4.1400e-003	0.0000	69.9517
Worker	0.0260	0.0176	0.1931	5.0000e-004	0.0512	3.7000e-004	0.0516	0.0136	3.4000e-004	0.0140	0.0000	45.3953	45.3953	1.2800e-003	0.0000	45.4274
Total	0.0373	0.3487	0.2854	1.2300e-003	0.0685	2.0800e-003	0.0706	0.0186	1.9800e-003	0.0206	0.0000	115.2436	115.2436	5.4200e-003	0.0000	115.3791

3.2 Building Construction - 2021

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	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2867	302.2867	0.0729	0.0000	304.1099
Total	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2867	302.2867	0.0729	0.0000	304.1099

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3.2 Building Construction - 2021

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	0.1514	4.9260	1.3166	0.0118	0.2815	0.0136	0.2952	0.0814	0.0130	0.0944	0.0000	1,129.9193	1,129.9193	0.0646	0.0000	1,131.5344
Worker	0.3941	0.2575	2.8802	7.9200e-003	0.8358	5.8400e-003	0.8416	0.2223	5.3800e-003	0.2277	0.0000	715.2978	715.2978	0.0188	0.0000	715.7672
Total	0.5455	5.1836	4.1968	0.0197	1.1173	0.0195	1.1368	0.3037	0.0184	0.3221	0.0000	1,845.2171	1,845.2171	0.0834	0.0000	1,847.3016

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	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2863	302.2863	0.0729	0.0000	304.1095
Total	0.2481	2.2749	2.1631	3.5100e-003		0.1251	0.1251		0.1176	0.1176	0.0000	302.2863	302.2863	0.0729	0.0000	304.1095

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3.2 Building Construction - 2021

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	0.1514	4.9260	1.3166	0.0118	0.2815	0.0136	0.2952	0.0814	0.0130	0.0944	0.0000	1,129.9193	1,129.9193	0.0646	0.0000	1,131.5344
Worker	0.3941	0.2575	2.8802	7.9200e-003	0.8358	5.8400e-003	0.8416	0.2223	5.3800e-003	0.2277	0.0000	715.2978	715.2978	0.0188	0.0000	715.7672
Total	0.5455	5.1836	4.1968	0.0197	1.1173	0.0195	1.1368	0.3037	0.0184	0.3221	0.0000	1,845.2171	1,845.2171	0.0834	0.0000	1,847.3016

3.2 Building Construction - 2022

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	0.1945	1.7802	1.8654	3.0700e-003		0.0922	0.0922		0.0868	0.0868	0.0000	264.1668	264.1668	0.0633	0.0000	265.7490
Total	0.1945	1.7802	1.8654	3.0700e-003		0.0922	0.0922		0.0868	0.0868	0.0000	264.1668	264.1668	0.0633	0.0000	265.7490

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3.2 Building Construction - 2022

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	0.1228	4.0859	1.0605	0.0102	0.2459	0.0104	0.2563	0.0711	9.9800e-003	0.0810	0.0000	978.3796	978.3796	0.0548	0.0000	979.7503
Worker	0.3217	0.2023	2.3120	6.6700e-003	0.7301	4.9700e-003	0.7351	0.1942	4.5800e-003	0.1988	0.0000	602.4764	602.4764	0.0147	0.0000	602.8449
Total	0.4445	4.2881	3.3725	0.0168	0.9760	0.0154	0.9914	0.2652	0.0146	0.2798	0.0000	1,580.8560	1,580.8560	0.0696	0.0000	1,582.5951

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	0.1945	1.7802	1.8654	3.0700e-003		0.0922	0.0922		0.0868	0.0868	0.0000	264.1665	264.1665	0.0633	0.0000	265.7486
Total	0.1945	1.7802	1.8654	3.0700e-003		0.0922	0.0922		0.0868	0.0868	0.0000	264.1665	264.1665	0.0633	0.0000	265.7486

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3.2 Building Construction - 2022

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	0.1228	4.0859	1.0605	0.0102	0.2459	0.0104	0.2563	0.0711	9.9800e-003	0.0810	0.0000	978.3796	978.3796	0.0548	0.0000	979.7503
Worker	0.3217	0.2023	2.3120	6.6700e-003	0.7301	4.9700e-003	0.7351	0.1942	4.5800e-003	0.1988	0.0000	602.4764	602.4764	0.0147	0.0000	602.8449
Total	0.4445	4.2881	3.3725	0.0168	0.9760	0.0154	0.9914	0.2652	0.0146	0.2798	0.0000	1,580.8560	1,580.8560	0.0696	0.0000	1,582.5951

3.3 Paving - 2022

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	0.0177	0.1780	0.2333	3.6000e-004		9.0900e-003	9.0900e-003		8.3600e-003	8.3600e-003	0.0000	32.0441	32.0441	0.0104	0.0000	32.3032
Paving	0.0185					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0361	0.1780	0.2333	3.6000e-004		9.0900e-003	9.0900e-003		8.3600e-003	8.3600e-003	0.0000	32.0441	32.0441	0.0104	0.0000	32.3032

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3.3 Paving - 2022

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	7.8000e-004	4.9000e-004	5.5800e-003	2.0000e-005	1.7600e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.4546	1.4546	4.0000e-005	0.0000	1.4554
Total	7.8000e-004	4.9000e-004	5.5800e-003	2.0000e-005	1.7600e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.4546	1.4546	4.0000e-005	0.0000	1.4554

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	0.0177	0.1780	0.2333	3.6000e-004		9.0900e-003	9.0900e-003		8.3600e-003	8.3600e-003	0.0000	32.0441	32.0441	0.0104	0.0000	32.3032
Paving	0.0185					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0361	0.1780	0.2333	3.6000e-004		9.0900e-003	9.0900e-003		8.3600e-003	8.3600e-003	0.0000	32.0441	32.0441	0.0104	0.0000	32.3032

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3.3 Paving - 2022

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	7.8000e-004	4.9000e-004	5.5800e-003	2.0000e-005	1.7600e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.4546	1.4546	4.0000e-005	0.0000	1.4554
Total	7.8000e-004	4.9000e-004	5.5800e-003	2.0000e-005	1.7600e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.4546	1.4546	4.0000e-005	0.0000	1.4554

3.3 Paving - 2023

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	1.0300e-003	0.0102	0.0146	2.0000e-005		5.1000e-004	5.1000e-004		4.7000e-004	4.7000e-004	0.0000	2.0027	2.0027	6.5000e-004	0.0000	2.0189
Paving	1.1500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.1800e-003	0.0102	0.0146	2.0000e-005		5.1000e-004	5.1000e-004		4.7000e-004	4.7000e-004	0.0000	2.0027	2.0027	6.5000e-004	0.0000	2.0189

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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	5.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0875	0.0875	0.0000	0.0000	0.0876
Total	5.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0875	0.0875	0.0000	0.0000	0.0876

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	1.0300e-003	0.0102	0.0146	2.0000e-005		5.1000e-004	5.1000e-004		4.7000e-004	4.7000e-004	0.0000	2.0027	2.0027	6.5000e-004	0.0000	2.0189
Paving	1.1500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.1800e-003	0.0102	0.0146	2.0000e-005		5.1000e-004	5.1000e-004		4.7000e-004	4.7000e-004	0.0000	2.0027	2.0027	6.5000e-004	0.0000	2.0189

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3.3 Paving - 2023

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	5.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0875	0.0875	0.0000	0.0000	0.0876
Total	5.0000e-005	3.0000e-005	3.2000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0875	0.0875	0.0000	0.0000	0.0876

3.4 Architectural Coating - 2023

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					
Archit. Coating	3.6320					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2600e-003	0.0222	0.0308	5.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	4.3405	4.3405	2.6000e-004	0.0000	4.3470
Total	3.6352	0.0222	0.0308	5.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	4.3405	4.3405	2.6000e-004	0.0000	4.3470

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3.4 Architectural Coating - 2023

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	8.9600e-003	5.4100e-003	0.0632	1.9000e-004	0.0217	1.4000e-004	0.0219	5.7800e-003	1.3000e-004	5.9100e-003	0.0000	17.2542	17.2542	3.9000e-004	0.0000	17.2640
Total	8.9600e-003	5.4100e-003	0.0632	1.9000e-004	0.0217	1.4000e-004	0.0219	5.7800e-003	1.3000e-004	5.9100e-003	0.0000	17.2542	17.2542	3.9000e-004	0.0000	17.2640

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					
Archit. Coating	3.6320					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2600e-003	0.0222	0.0308	5.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	4.3405	4.3405	2.6000e-004	0.0000	4.3470
Total	3.6352	0.0222	0.0308	5.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	4.3405	4.3405	2.6000e-004	0.0000	4.3470

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3.4 Architectural Coating - 2023

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	8.9600e-003	5.4100e-003	0.0632	1.9000e-004	0.0217	1.4000e-004	0.0219	5.7800e-003	1.3000e-004	5.9100e-003	0.0000	17.2542	17.2542	3.9000e-004	0.0000	17.2640
Total	8.9600e-003	5.4100e-003	0.0632	1.9000e-004	0.0217	1.4000e-004	0.0219	5.7800e-003	1.3000e-004	5.9100e-003	0.0000	17.2542	17.2542	3.9000e-004	0.0000	17.2640

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	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					
Mitigated	1.3793	5.7559	14.8348	0.0455	3.9046	0.0406	3.9452	1.0468	0.0380	1.0848	0.0000	4,185.5379	4,185.5379	0.2049	0.0000	4,190.6594
Unmitigated	1.3793	5.7559	14.8348	0.0455	3.9046	0.0406	3.9452	1.0468	0.0380	1.0848	0.0000	4,185.5379	4,185.5379	0.2049	0.0000	4,190.6594

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	6,673.33	1,491.16	634.85	10,470,861	10,470,861
Parking Lot	0.00	0.00	0.00		
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	6,673.33	1,491.16	634.85	10,470,861	10,470,861

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	10.00	5.00	6.50	33.00	48.00	19.00	77	19	4
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Unenclosed Parking with	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Parking Lot	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Unenclosed Parking with Elevator	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,356.7147	3,356.7147	0.1649	0.0341	3,371.0045
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,356.7147	3,356.7147	0.1649	0.0341	3,371.0045
NaturalGas Mitigated	0.0521	0.4740	0.3982	2.8400e-003		0.0360	0.0360		0.0360	0.0360	0.0000	516.0504	516.0504	9.8900e-003	9.4600e-003	519.1171
NaturalGas Unmitigated	0.0521	0.4740	0.3982	2.8400e-003		0.0360	0.0360		0.0360	0.0360	0.0000	516.0504	516.0504	9.8900e-003	9.4600e-003	519.1171

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	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
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	9.67042e+006	0.0521	0.4740	0.3982	2.8400e-003		0.0360	0.0360		0.0360	0.0360	0.0000	516.0504	516.0504	9.8900e-003	9.4600e-003	519.1171
Parking Lot	0	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
Unenclosed Parking with Elevator	0	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
Total		0.0521	0.4740	0.3982	2.8400e-003		0.0360	0.0360		0.0360	0.0360	0.0000	516.0504	516.0504	9.8900e-003	9.4600e-003	519.1171

Mitigated

	NaturalGas Use	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
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	9.67042e+006	0.0521	0.4740	0.3982	2.8400e-003		0.0360	0.0360		0.0360	0.0360	0.0000	516.0504	516.0504	9.8900e-003	9.4600e-003	519.1171
Parking Lot	0	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
Unenclosed Parking with Elevator	0	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
Total		0.0521	0.4740	0.3982	2.8400e-003		0.0360	0.0360		0.0360	0.0360	0.0000	516.0504	516.0504	9.8900e-003	9.4600e-003	519.1171

Natomas Quad B Office Project (Future Phase) - Sacramento County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	1.06596e+007	2,854.2178	0.1402	0.0290	2,866.3685
Parking Lot	233100	62.4149	3.0700e-003	6.3000e-004	62.6806
Unenclosed Parking with Elevator	1.64357e+006	440.0820	0.0216	4.4700e-003	441.9554
Total		3,356.7147	0.1649	0.0341	3,371.0045

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	1.06596e+007	2,854.2178	0.1402	0.0290	2,866.3685
Parking Lot	233100	62.4149	3.0700e-003	6.3000e-004	62.6806
Unenclosed Parking with Elevator	1.64357e+006	440.0820	0.0216	4.4700e-003	441.9554
Total		3,356.7147	0.1649	0.0341	3,371.0045

Natomas Quad B Office Project (Future Phase) - Sacramento County, Annual

6.0 Area Detail

6.1 Mitigation Measures Area

	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					
Mitigated	3.3494	5.3000e-004	0.0578	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	0.1122	0.1122	3.0000e-004	0.0000	0.1196
Unmitigated	3.3494	5.3000e-004	0.0578	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	0.1122	0.1122	3.0000e-004	0.0000	0.1196

Natomas Quad B Office Project (Future Phase) - Sacramento County, Annual

6.2 Area by SubCategory

Unmitigated

	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
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3632					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.9809					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.3700e-003	5.3000e-004	0.0578	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	0.1122	0.1122	3.0000e-004	0.0000	0.1196
Total	3.3494	5.3000e-004	0.0578	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	0.1122	0.1122	3.0000e-004	0.0000	0.1196

Mitigated

	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
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3632					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.9809					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.3700e-003	5.3000e-004	0.0578	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	0.1122	0.1122	3.0000e-004	0.0000	0.1196
Total	3.3494	5.3000e-004	0.0578	0.0000		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	0.1122	0.1122	3.0000e-004	0.0000	0.1196

7.0 Water Detail

Natomas Quad B Office Project (Future Phase) - Sacramento County, Annual

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	296.8248	0.1721	0.1035	331.9676
Unmitigated	296.8248	0.1721	0.1035	331.9676

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	131.203 / 80.4148	296.8248	0.1721	0.1035	331.9676
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		296.8248	0.1721	0.1035	331.9676

Natomas Quad B Office Project (Future Phase) - Sacramento County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	131.203 / 80.4148	296.8248	0.1721	0.1035	331.9676
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		296.8248	0.1721	0.1035	331.9676

8.0 Waste Detail

8.1 Mitigation Measures Waste

Natomas Quad B Office Project (Future Phase) - Sacramento County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	139.3594	8.2359	0.0000	345.2570
Unmitigated	139.3594	8.2359	0.0000	345.2570

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	686.53	139.3594	8.2359	0.0000	345.2570
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		139.3594	8.2359	0.0000	345.2570

Natomas Quad B Office Project (Future Phase) - Sacramento County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	686.53	139.3594	8.2359	0.0000	345.2570
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		139.3594	8.2359	0.0000	345.2570

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

Natomas Quad B Office Project (Future Phase) - Sacramento County, Annual

11.0 Vegetation

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

Natomas Quad B Office Project (Future Phase)
Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	738.20	1000sqft	16.95	738,200.00	0
Parking Lot	1,665.00	Space	14.98	666,000.00	0
Unenclosed Parking with Elevator	2,118.00	Space	19.06	847,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2022
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MW hr)	590.31	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

Project Characteristics -

Land Use - Building C, D, and E, with add'l surface parking and parking structure.

Construction Phase - Based on estimated future phase project-specific construction schedule.

Trips and VMT -

Grading -

Vehicle Trips - Trip rate adjusted based on project-specific trip rate.

Construction Off-road Equipment Mitigation -

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	75.00	34.00
tblConstructionPhase	NumDays	1,110.00	505.00
tblConstructionPhase	NumDays	75.00	34.00
tblConstructionPhase	PhaseEndDate	5/5/2025	2/20/2023
tblConstructionPhase	PhaseEndDate	10/7/2024	11/16/2022
tblConstructionPhase	PhaseEndDate	1/20/2025	1/3/2023
tblConstructionPhase	PhaseStartDate	1/21/2025	1/4/2023
tblConstructionPhase	PhaseStartDate	7/7/2020	12/10/2020
tblConstructionPhase	PhaseStartDate	10/8/2024	11/17/2022
tblVehicleTrips	ST_TR	2.46	2.02
tblVehicleTrips	SU_TR	1.05	0.86
tblVehicleTrips	WD_TR	11.03	9.04

2.0 Emissions Summary

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

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					
2020	7.2714	61.6991	56.2095	0.1883	8.8540	1.3744	10.2283	2.3986	1.2949	3.6935	0.0000	19,201.38 12	19,201.38 12	1.3724	0.0000	19,235.69 07
2021	6.5361	56.2837	52.1254	0.1851	8.8537	1.1050	9.9587	2.3985	1.0398	3.4382	0.0000	18,885.59 58	18,885.59 58	1.3212	0.0000	18,918.62 57
2022	6.0265	52.4606	49.1067	0.1819	8.8534	0.9417	9.7951	2.3984	0.8865	3.2849	0.0000	18,562.70 68	18,562.70 68	1.2839	0.0000	18,594.80 51
2023	214.4452	10.2166	14.9646	0.0239	1.3236	0.5109	1.4029	0.3511	0.4701	0.5003	0.0000	2,314.265 4	2,314.265 4	0.7165	0.0000	2,332.176 4
Maximum	214.4452	61.6991	56.2095	0.1883	8.8540	1.3744	10.2283	2.3986	1.2949	3.6935	0.0000	19,201.38 12	19,201.38 12	1.3724	0.0000	19,235.69 07

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

2.2 Overall Operational

Unmitigated Operational

	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					
Area	18.3666	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547
Energy	0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993
Mobile	12.7399	40.1509	119.0934	0.3561	29.2305	0.2919	29.5224	7.8141	0.2730	8.0870		36,061.8468	36,061.8468	1.6686		36,103.5625
Total	31.3922	42.7526	121.7376	0.3717	29.2305	0.4909	29.7214	7.8141	0.4720	8.2861		39,179.8129	39,179.8129	1.7310	0.0571	39,240.1165

Mitigated Operational

	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					
Area	18.3666	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547
Energy	0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993
Mobile	12.7399	40.1509	119.0934	0.3561	29.2305	0.2919	29.5224	7.8141	0.2730	8.0870		36,061.8468	36,061.8468	1.6686		36,103.5625
Total	31.3922	42.7526	121.7376	0.3717	29.2305	0.4909	29.7214	7.8141	0.4720	8.2861		39,179.8129	39,179.8129	1.7310	0.0571	39,240.1165

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

	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
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	Building Construction	Building Construction	12/10/2020	11/16/2022	5	505	
2	Paving	Paving	11/17/2022	1/3/2023	5	34	
3	Architectural Coating	Architectural Coating	1/4/2023	2/20/2023	5	34	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 34.04

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,107,300; Non-Residential Outdoor: 369,100; Striped Parking Area: 90,792 (Architectural Coating – sqft)

OffRoad Equipment

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Building Construction	9	872.00	369.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	174.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

3.2 Building Construction - 2020

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.063 1	2,553.063 1	0.6229		2,568.634 5
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.063 1	2,553.063 1	0.6229		2,568.634 5

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	1.3915	40.5177	10.8900	0.0919	2.2207	0.2112	2.4319	0.6390	0.2021	0.8411		9,728.885 2	9,728.885 2	0.5513		9,742.667 3
Worker	3.7601	1.9954	28.4709	0.0695	6.6333	0.0461	6.6794	1.7595	0.0425	1.8021		6,919.433 0	6,919.433 0	0.1982		6,924.388 9
Total	5.1516	42.5131	39.3610	0.1614	8.8540	0.2573	9.1113	2.3986	0.2446	2.6431		16,648.31 82	16,648.31 82	0.7495		16,667.05 62

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

3.2 Building Construction - 2020

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.063 1	2,553.063 1	0.6229		2,568.634 5
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.063 1	2,553.063 1	0.6229		2,568.634 5

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	1.3915	40.5177	10.8900	0.0919	2.2207	0.2112	2.4319	0.6390	0.2021	0.8411		9,728.885 2	9,728.885 2	0.5513		9,742.667 3
Worker	3.7601	1.9954	28.4709	0.0695	6.6333	0.0461	6.6794	1.7595	0.0425	1.8021		6,919.433 0	6,919.433 0	0.1982		6,924.388 9
Total	5.1516	42.5131	39.3610	0.1614	8.8540	0.2573	9.1113	2.3986	0.2446	2.6431		16,648.31 82	16,648.31 82	0.7495		16,667.05 62

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

3.2 Building Construction - 2021

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

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	1.1403	37.0625	9.4639	0.0911	2.2204	0.1017	2.3220	0.6389	0.0972	0.7362		9,648.5347	9,648.5347	0.5273		9,661.7180
Worker	3.4949	1.7890	26.0862	0.0671	6.6333	0.0448	6.6781	1.7595	0.0413	1.8008		6,683.6972	6,683.6972	0.1779		6,688.1435
Total	4.6352	38.8516	35.5502	0.1582	8.8537	0.1464	9.0001	2.3985	0.1385	2.5370		16,332.2319	16,332.2319	0.7052		16,349.8614

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

3.2 Building Construction - 2021

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643

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	1.1403	37.0625	9.4639	0.0911	2.2204	0.1017	2.3220	0.6389	0.0972	0.7362		9,648.5347	9,648.5347	0.5273		9,661.7180
Worker	3.4949	1.7890	26.0862	0.0671	6.6333	0.0448	6.6781	1.7595	0.0413	1.8008		6,683.6972	6,683.6972	0.1779		6,688.1435
Total	4.6352	38.8516	35.5502	0.1582	8.8537	0.1464	9.0001	2.3985	0.1385	2.5370		16,332.2319	16,332.2319	0.7052		16,349.8614

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

3.2 Building Construction - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

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	1.0581	35.2359	8.7198	0.0902	2.2201	0.0890	2.3091	0.6388	0.0852	0.7240		9,564.3697	9,564.3697	0.5121		9,577.1727
Worker	3.2622	1.6090	24.0235	0.0647	6.6333	0.0436	6.6769	1.7595	0.0402	1.7997		6,444.0036	6,444.0036	0.1599		6,448.0002
Total	4.3202	36.8450	32.7433	0.1549	8.8534	0.1326	8.9860	2.3984	0.1253	2.5237		16,008.3733	16,008.3733	0.6720		16,025.1729

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

3.2 Building Construction - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

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	1.0581	35.2359	8.7198	0.0902	2.2201	0.0890	2.3091	0.6388	0.0852	0.7240		9,564.3697	9,564.3697	0.5121		9,577.1727
Worker	3.2622	1.6090	24.0235	0.0647	6.6333	0.0436	6.6769	1.7595	0.0402	1.7997		6,444.0036	6,444.0036	0.1599		6,448.0002
Total	4.3202	36.8450	32.7433	0.1549	8.8534	0.1326	8.9860	2.3984	0.1253	2.5237		16,008.3733	16,008.3733	0.6720		16,025.1729

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

3.3 Paving - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.1543					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.2572	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104

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	0.0561	0.0277	0.4133	1.1100e-003	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		110.8487	110.8487	2.7500e-003		110.9174
Total	0.0561	0.0277	0.4133	1.1100e-003	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		110.8487	110.8487	2.7500e-003		110.9174

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

3.3 Paving - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.1543					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.2572	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104

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	0.0561	0.0277	0.4133	1.1100e-003	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		110.8487	110.8487	2.7500e-003		110.9174
Total	0.0561	0.0277	0.4133	1.1100e-003	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		110.8487	110.8487	2.7500e-003		110.9174

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

3.3 Paving - 2023

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	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	1.1543					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.1871	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336

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	0.0525	0.0249	0.3804	1.0700e-003	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		106.6812	106.6812	2.4700e-003		106.7429
Total	0.0525	0.0249	0.3804	1.0700e-003	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		106.6812	106.6812	2.4700e-003		106.7429

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

3.3 Paving - 2023

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	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	1.1543					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.1871	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336

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	0.0525	0.0249	0.3804	1.0700e-003	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		106.6812	106.6812	2.4700e-003		106.7429
Total	0.0525	0.0249	0.3804	1.0700e-003	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		106.6812	106.6812	2.4700e-003		106.7429

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

3.4 Architectural Coating - 2023

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					
Archit. Coating	213.6451					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	213.8368	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

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	0.6084	0.2890	4.4124	0.0124	1.3236	8.4900e-003	1.3321	0.3511	7.8200e-003	0.3589		1,237.5023	1,237.5023	0.0286		1,238.2172
Total	0.6084	0.2890	4.4124	0.0124	1.3236	8.4900e-003	1.3321	0.3511	7.8200e-003	0.3589		1,237.5023	1,237.5023	0.0286		1,238.2172

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

3.4 Architectural Coating - 2023

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					
Archit. Coating	213.6451					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	213.8368	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

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	0.6084	0.2890	4.4124	0.0124	1.3236	8.4900e-003	1.3321	0.3511	7.8200e-003	0.3589		1,237.5023	1,237.5023	0.0286		1,238.2172
Total	0.6084	0.2890	4.4124	0.0124	1.3236	8.4900e-003	1.3321	0.3511	7.8200e-003	0.3589		1,237.5023	1,237.5023	0.0286		1,238.2172

4.0 Operational Detail - Mobile

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

4.1 Mitigation Measures Mobile

	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					
Mitigated	12.7399	40.1509	119.0934	0.3561	29.2305	0.2919	29.5224	7.8141	0.2730	8.0870		36,061.8468	36,061.8468	1.6686		36,103.5625
Unmitigated	12.7399	40.1509	119.0934	0.3561	29.2305	0.2919	29.5224	7.8141	0.2730	8.0870		36,061.8468	36,061.8468	1.6686		36,103.5625

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	6,673.33	1,491.16	634.85	10,470,861	10,470,861
Parking Lot	0.00	0.00	0.00		
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	6,673.33	1,491.16	634.85	10,470,861	10,470,861

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	10.00	5.00	6.50	33.00	48.00	19.00	77	19	4
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Unenclosed Parking with	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Parking Lot	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Unenclosed Parking with Elevator	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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					
NaturalGas Mitigated	0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993
NaturalGas Unmitigated	0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	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
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	26494.3	0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993
Parking Lot	0	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
Unenclosed Parking with Elevator	0	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
Total		0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993

Mitigated

	NaturalGas Use	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
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	26.4943	0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993
Parking Lot	0	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
Unenclosed Parking with Elevator	0	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
Total		0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993

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6.0 Area Detail

6.1 Mitigation Measures Area

	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					
Mitigated	18.3666	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547
Unmitigated	18.3666	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

6.2 Area by SubCategory

Unmitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.9901					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	16.3335					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0430	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547
Total	18.3666	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547

Mitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.9901					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	16.3335					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0430	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547
Total	18.3666	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547

7.0 Water Detail

Natomas Quad B Office Project (Future Phase) - Sacramento County, Summer

7.1 Mitigation Measures Water**8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

Natomas Quad B Office Project (Future Phase)
Sacramento County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	738.20	1000sqft	16.95	738,200.00	0
Parking Lot	1,665.00	Space	14.98	666,000.00	0
Unenclosed Parking with Elevator	2,118.00	Space	19.06	847,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2022
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MW hr)	590.31	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

Project Characteristics -

Land Use - Building C, D, and E, with add'l surface parking and parking structure.

Construction Phase - Based on estimated future phase project-specific construction schedule.

Trips and VMT -

Grading -

Vehicle Trips - Trip rate adjusted based on project-specific trip rate.

Construction Off-road Equipment Mitigation -

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	75.00	34.00
tblConstructionPhase	NumDays	1,110.00	505.00
tblConstructionPhase	NumDays	75.00	34.00
tblConstructionPhase	PhaseEndDate	5/5/2025	2/20/2023
tblConstructionPhase	PhaseEndDate	10/7/2024	11/16/2022
tblConstructionPhase	PhaseEndDate	1/20/2025	1/3/2023
tblConstructionPhase	PhaseStartDate	1/21/2025	1/4/2023
tblConstructionPhase	PhaseStartDate	7/7/2020	12/10/2020
tblConstructionPhase	PhaseStartDate	10/8/2024	11/17/2022
tblVehicleTrips	ST_TR	2.46	2.02
tblVehicleTrips	SU_TR	1.05	0.86
tblVehicleTrips	WD_TR	11.03	9.04

2.0 Emissions Summary

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

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					
2020	7.0455	62.9967	53.7537	0.1775	8.8540	1.3815	10.2354	2.3986	1.3017	3.7002	0.0000	18,109.99 47	18,109.99 47	1.3942	0.0000	18,144.84 93
2021	6.3273	57.3138	49.8015	0.1746	8.8537	1.1114	9.9650	2.3985	1.0458	3.4443	0.0000	17,823.70 74	17,823.70 74	1.3435	0.0000	17,857.29 54
2022	5.8371	53.3548	46.8896	0.1717	8.8534	0.9475	9.8009	2.3984	0.8921	3.2905	0.0000	17,530.97 57	17,530.97 57	1.3071	0.0000	17,563.65 34
2023	214.3996	10.2224	14.9058	0.0237	1.3236	0.5109	1.4029	0.3511	0.4701	0.5003	0.0000	2,301.288 7	2,301.288 7	0.7161	0.0000	2,319.192 1
Maximum	214.3996	62.9967	53.7537	0.1775	8.8540	1.3815	10.2354	2.3986	1.3017	3.7002	0.0000	18,109.99 47	18,109.99 47	1.3942	0.0000	18,144.84 93

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

2.2 Overall Operational

Unmitigated Operational

	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					
Area	18.3666	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547
Energy	0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993
Mobile	9.3929	42.6733	112.2366	0.3216	29.2305	0.2967	29.5272	7.8141	0.2776	8.0917		32,594.6318	32,594.6318	1.6707		32,636.3981
Total	28.0452	45.2750	114.8808	0.3372	29.2305	0.4958	29.7263	7.8141	0.4767	8.2907		35,712.5979	35,712.5979	1.7330	0.0571	35,772.9521

Mitigated Operational

	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					
Area	18.3666	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547
Energy	0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993
Mobile	9.3929	42.6733	112.2366	0.3216	29.2305	0.2967	29.5272	7.8141	0.2776	8.0917		32,594.6318	32,594.6318	1.6707		32,636.3981
Total	28.0452	45.2750	114.8808	0.3372	29.2305	0.4958	29.7263	7.8141	0.4767	8.2907		35,712.5979	35,712.5979	1.7330	0.0571	35,772.9521

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

	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
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	Building Construction	Building Construction	12/10/2020	11/16/2022	5	505	
2	Paving	Paving	11/17/2022	1/3/2023	5	34	
3	Architectural Coating	Architectural Coating	1/4/2023	2/20/2023	5	34	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 34.04

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,107,300; Non-Residential Outdoor: 369,100; Striped Parking Area: 90,792 (Architectural Coating – sqft)

OffRoad Equipment

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Building Construction	9	872.00	369.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	174.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

3.2 Building Construction - 2020

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.063 1	2,553.063 1	0.6229		2,568.634 5
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.063 1	2,553.063 1	0.6229		2,568.634 5

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	1.4657	41.3453	12.5269	0.0896	2.2207	0.2183	2.4390	0.6390	0.2088	0.8479		9,480.063 8	9,480.063 8	0.5966		9,494.978 9
Worker	3.4599	2.4654	24.3783	0.0611	6.6333	0.0461	6.6794	1.7595	0.0425	1.8021		6,076.867 9	6,076.867 9	0.1747		6,081.236 0
Total	4.9257	43.8107	36.9052	0.1506	8.8540	0.2644	9.1184	2.3986	0.2513	2.6499		15,556.93 17	15,556.93 17	0.7713		15,576.21 49

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

3.2 Building Construction - 2020

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.063 1	2,553.063 1	0.6229		2,568.634 5
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.063 1	2,553.063 1	0.6229		2,568.634 5

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	1.4657	41.3453	12.5269	0.0896	2.2207	0.2183	2.4390	0.6390	0.2088	0.8479		9,480.063 8	9,480.063 8	0.5966		9,494.978 9
Worker	3.4599	2.4654	24.3783	0.0611	6.6333	0.0461	6.6794	1.7595	0.0425	1.8021		6,076.867 9	6,076.867 9	0.1747		6,081.236 0
Total	4.9257	43.8107	36.9052	0.1506	8.8540	0.2644	9.1184	2.3986	0.2513	2.6499		15,556.93 17	15,556.93 17	0.7713		15,576.21 49

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

3.2 Building Construction - 2021

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

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	1.2080	37.6721	10.9761	0.0888	2.2204	0.1080	2.3283	0.6389	0.1033	0.7422		9,400.3512	9,400.3512	0.5711		9,414.6281
Worker	3.2184	2.2096	22.2502	0.0590	6.6333	0.0448	6.6781	1.7595	0.0413	1.8008		5,869.9922	5,869.9922	0.1564		5,873.9030
Total	4.4264	39.8817	33.2263	0.1477	8.8537	0.1527	9.0064	2.3985	0.1445	2.5430		15,270.3435	15,270.3435	0.7275		15,288.5311

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

3.2 Building Construction - 2021

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643

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	1.2080	37.6721	10.9761	0.0888	2.2204	0.1080	2.3283	0.6389	0.1033	0.7422		9,400.3512	9,400.3512	0.5711		9,414.6281
Worker	3.2184	2.2096	22.2502	0.0590	6.6333	0.0448	6.6781	1.7595	0.0413	1.8008		5,869.9922	5,869.9922	0.1564		5,873.9030
Total	4.4264	39.8817	33.2263	0.1477	8.8537	0.1527	9.0064	2.3985	0.1445	2.5430		15,270.3435	15,270.3435	0.7275		15,288.5311

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

3.2 Building Construction - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

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	1.1211	35.7527	10.1227	0.0879	2.2201	0.0949	2.3150	0.6388	0.0907	0.7296		9,316.8252	9,316.8252	0.5549		9,330.6968
Worker	3.0098	1.9865	20.4036	0.0568	6.6333	0.0436	6.6769	1.7595	0.0402	1.7997		5,659.8169	5,659.8169	0.1403		5,663.3243
Total	4.1309	37.7392	30.5262	0.1447	8.8534	0.1385	8.9919	2.3984	0.1309	2.5293		14,976.6421	14,976.6421	0.6952		14,994.0212

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

3.2 Building Construction - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

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	1.1211	35.7527	10.1227	0.0879	2.2201	0.0949	2.3150	0.6388	0.0907	0.7296		9,316.8252	9,316.8252	0.5549		9,330.6968
Worker	3.0098	1.9865	20.4036	0.0568	6.6333	0.0436	6.6769	1.7595	0.0402	1.7997		5,659.8169	5,659.8169	0.1403		5,663.3243
Total	4.1309	37.7392	30.5262	0.1447	8.8534	0.1385	8.9919	2.3984	0.1309	2.5293		14,976.6421	14,976.6421	0.6952		14,994.0212

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

3.3 Paving - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.1543					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.2572	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104

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	0.0518	0.0342	0.3510	9.8000e-004	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		97.3592	97.3592	2.4100e-003		97.4196
Total	0.0518	0.0342	0.3510	9.8000e-004	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		97.3592	97.3592	2.4100e-003		97.4196

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

3.3 Paving - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	1.1543					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.2572	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104

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	0.0518	0.0342	0.3510	9.8000e-004	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		97.3592	97.3592	2.4100e-003		97.4196
Total	0.0518	0.0342	0.3510	9.8000e-004	0.1141	7.5000e-004	0.1149	0.0303	6.9000e-004	0.0310		97.3592	97.3592	2.4100e-003		97.4196

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

3.3 Paving - 2023

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	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	1.1543					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.1871	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336

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	0.0485	0.0307	0.3216	9.4000e-004	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		93.7046	93.7046	2.1600e-003		93.7585
Total	0.0485	0.0307	0.3216	9.4000e-004	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		93.7046	93.7046	2.1600e-003		93.7585

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

3.3 Paving - 2023

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	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	1.1543					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	2.1871	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336

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	0.0485	0.0307	0.3216	9.4000e-004	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		93.7046	93.7046	2.1600e-003		93.7585
Total	0.0485	0.0307	0.3216	9.4000e-004	0.1141	7.3000e-004	0.1148	0.0303	6.7000e-004	0.0309		93.7046	93.7046	2.1600e-003		93.7585

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

3.4 Architectural Coating - 2023

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					
Archit. Coating	213.6451					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	213.8368	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

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	0.5628	0.3566	3.7303	0.0109	1.3236	8.4900e-003	1.3321	0.3511	7.8200e-003	0.3589		1,086.9730	1,086.9730	0.0250		1,087.5988
Total	0.5628	0.3566	3.7303	0.0109	1.3236	8.4900e-003	1.3321	0.3511	7.8200e-003	0.3589		1,086.9730	1,086.9730	0.0250		1,087.5988

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

3.4 Architectural Coating - 2023

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					
Archit. Coating	213.6451					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	213.8368	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

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	0.5628	0.3566	3.7303	0.0109	1.3236	8.4900e-003	1.3321	0.3511	7.8200e-003	0.3589		1,086.9730	1,086.9730	0.0250		1,087.5988
Total	0.5628	0.3566	3.7303	0.0109	1.3236	8.4900e-003	1.3321	0.3511	7.8200e-003	0.3589		1,086.9730	1,086.9730	0.0250		1,087.5988

4.0 Operational Detail - Mobile

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

4.1 Mitigation Measures Mobile

	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					
Mitigated	9.3929	42.6733	112.2366	0.3216	29.2305	0.2967	29.5272	7.8141	0.2776	8.0917		32,594.63 18	32,594.63 18	1.6707		32,636.39 81
Unmitigated	9.3929	42.6733	112.2366	0.3216	29.2305	0.2967	29.5272	7.8141	0.2776	8.0917		32,594.63 18	32,594.63 18	1.6707		32,636.39 81

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	6,673.33	1,491.16	634.85	10,470,861	10,470,861
Parking Lot	0.00	0.00	0.00		
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	6,673.33	1,491.16	634.85	10,470,861	10,470,861

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	10.00	5.00	6.50	33.00	48.00	19.00	77	19	4
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Unenclosed Parking with	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Parking Lot	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865
Unenclosed Parking with Elevator	0.559527	0.038733	0.206173	0.118029	0.019040	0.005245	0.018552	0.023249	0.002031	0.002054	0.005884	0.000619	0.000865

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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					
NaturalGas Mitigated	0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993
NaturalGas Unmitigated	0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	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
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	26494.3	0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993
Parking Lot	0	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
Unenclosed Parking with Elevator	0	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
Total		0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993

Mitigated

	NaturalGas Use	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
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	26.4943	0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993
Parking Lot	0	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
Unenclosed Parking with Elevator	0	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
Total		0.2857	2.5975	2.1819	0.0156		0.1974	0.1974		0.1974	0.1974		3,116.9766	3,116.9766	0.0597	0.0571	3,135.4993

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

6.0 Area Detail

6.1 Mitigation Measures Area

	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					
Mitigated	18.3666	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547
Unmitigated	18.3666	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

6.2 Area by SubCategory

Unmitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.9901					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	16.3335					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0430	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547
Total	18.3666	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547

Mitigated

	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
SubCategory	lb/day										lb/day					
Architectural Coating	1.9901					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	16.3335					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0430	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547
Total	18.3666	4.2200e-003	0.4623	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003		0.9895	0.9895	2.6100e-003		1.0547

7.0 Water Detail

Natomas Quad B Office Project (Future Phase) - Sacramento County, Winter

7.1 Mitigation Measures Water**8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Attachment 2
**Transportation Analysis;
Natomas Crossing Quad B**



Transportation Analysis
Natomas Crossing Quad B
Prepared for
City of Sacramento

April 24, 2018



8950 Cal Center Drive, Suite 340
Sacramento, California 95628
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INTRODUCTION

This focused transportation analysis addresses transportation and circulation conditions associated with a proposed office building complex (Natomas Crossing Quad B) in the North Natomas area of the City of Sacramento. The analysis focuses on the project's relationship to the City street system, including nearby intersections, the proposed access points, and on-site circulation. The analysis includes consideration of motorized vehicle traffic impacts on roadway capacity. Quantitative transportation analyses have been conducted for the following scenarios:

- Existing
- Existing Plus Project (Buildout)

PROJECT DESCRIPTION

As illustrated in Figure 1, the project is in the North Natomas area of Sacramento, north of Arena Boulevard and west of East Commerce Way. In earlier studies of the Natomas Crossing development, the project site was known as "Quad B". The site consists of about 66.8 net acres and is bounded on the west by I-5, on the south by Arena Boulevard, on the east by East Commerce Way, and on the north by the future Snowy Egret Drive.

Figure 2 illustrates the proposed site plan. At buildout, the project will consist of 1,250,000 square feet of office space.

Access is proposed via three driveways to East Commerce Way:

- North driveway – located opposite the Bella Rose residential condominium complex main driveway.
- Center driveway – located opposite the "Main Entrance Road" to the former sports arena site.
- South driveway – located opposite the KSP Arena Corporate Center office complex main driveway.

The north and south driveways will accommodate most employee motor vehicle traffic. All employee traffic will pass through security entering and exiting the parking areas. The center driveway will serve visitor parking, as well as employee drop-off / pick-up.

ENVIRONMENTAL SETTING

ROADWAY SYSTEM

Figure 1 illustrates the roadway system near the project site. The roadway component of the transportation system near the proposed project is described below.

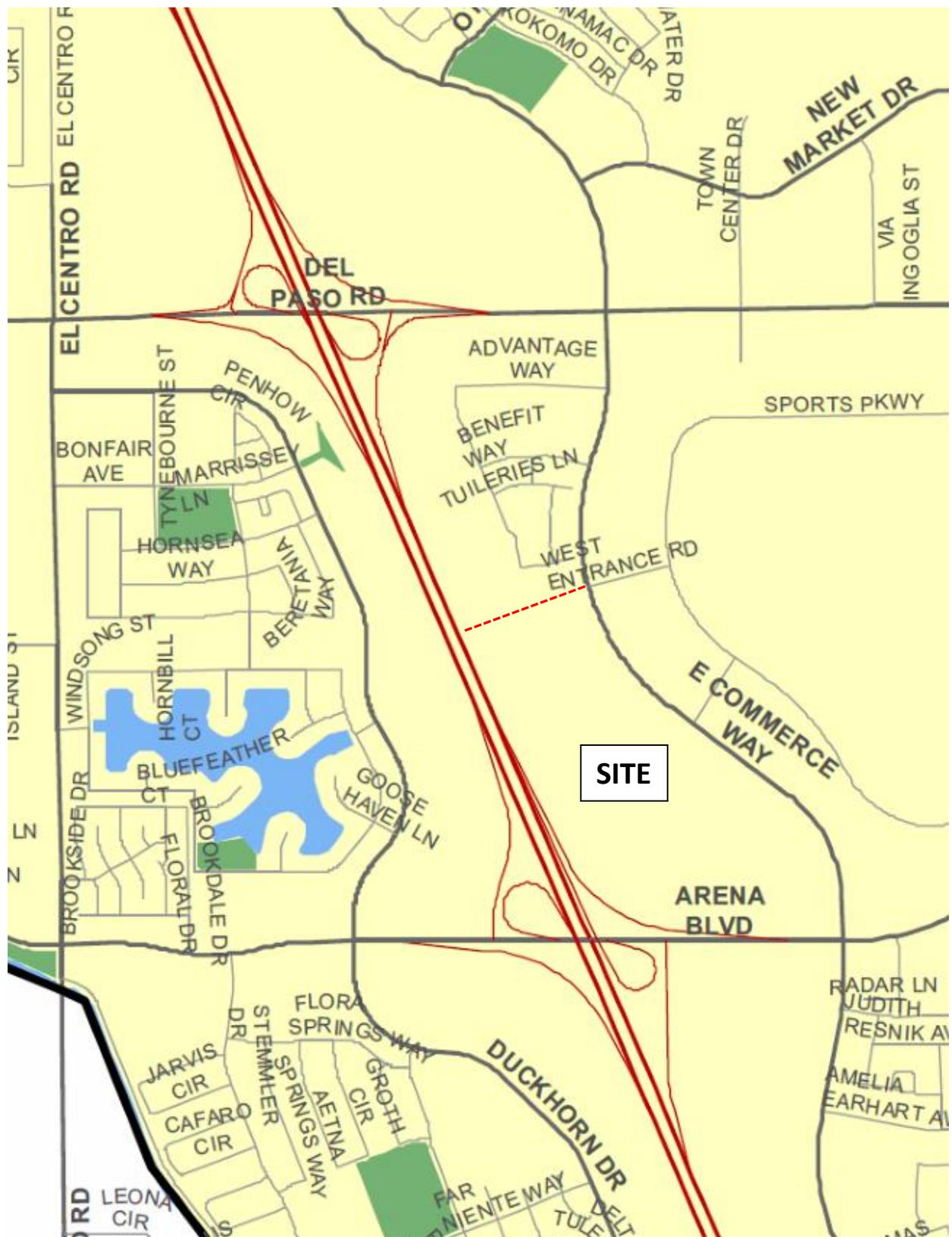


Figure 1
Project Location

- Interstate 5 (I-5) is located immediately west of the site. It will provide the primary regional access to the project. To the south, it provides access to I-80, and continues into Downtown Sacramento. To the north, it provides access to SR 70 / 99, and provides access to Sacramento International Airport. The site is served by the Arena Boulevard and Del Paso Road interchanges with I-5.
- Arena Boulevard is an east-west arterial roadway, extending from El Centro Road to the west to Gateway Park Boulevard to the east. It accommodates four to eight through lanes. In the project vicinity, it has six to eight lanes. Arena Boulevard has a full interchange with I-5. West of El Centro Road, it continues as Natomas Central Drive. East of Gateway Park Boulevard, it continues as North Market Boulevard.
- East Commerce Way is a north-south arterial roadway which parallels I-5 to the east and forms the eastern boundary of the site. To the north, it extends to Elkhorn Boulevard. It currently terminates south of Natomas Crossing Drive but is planned to extend to San Juan Road. East Commerce Way is planned to accommodate two to six through lanes. It currently has six lanes along the site frontage.
- Del Paso Road is an east-west arterial roadway beginning at Power Line Road west of I-5 and continuing easterly to Northgate Boulevard where it becomes Main Avenue. Del Paso Road is primarily a six-lane roadway between I-5 and Blackrock Drive. Del Paso Road has a full interchange with I-5.
- Snowy Egret Drive is a planned two-lane east-west minor collector / local roadway. It is planned to extend from El Centro Road to East Commerce Way, crossing I-5. West of El Centro Road, it will become Manera Rica Drive. East of East Commerce Way, it becomes the West Entrance Road to the former arena site. The roadway is currently unconstructed adjacent to the project site.

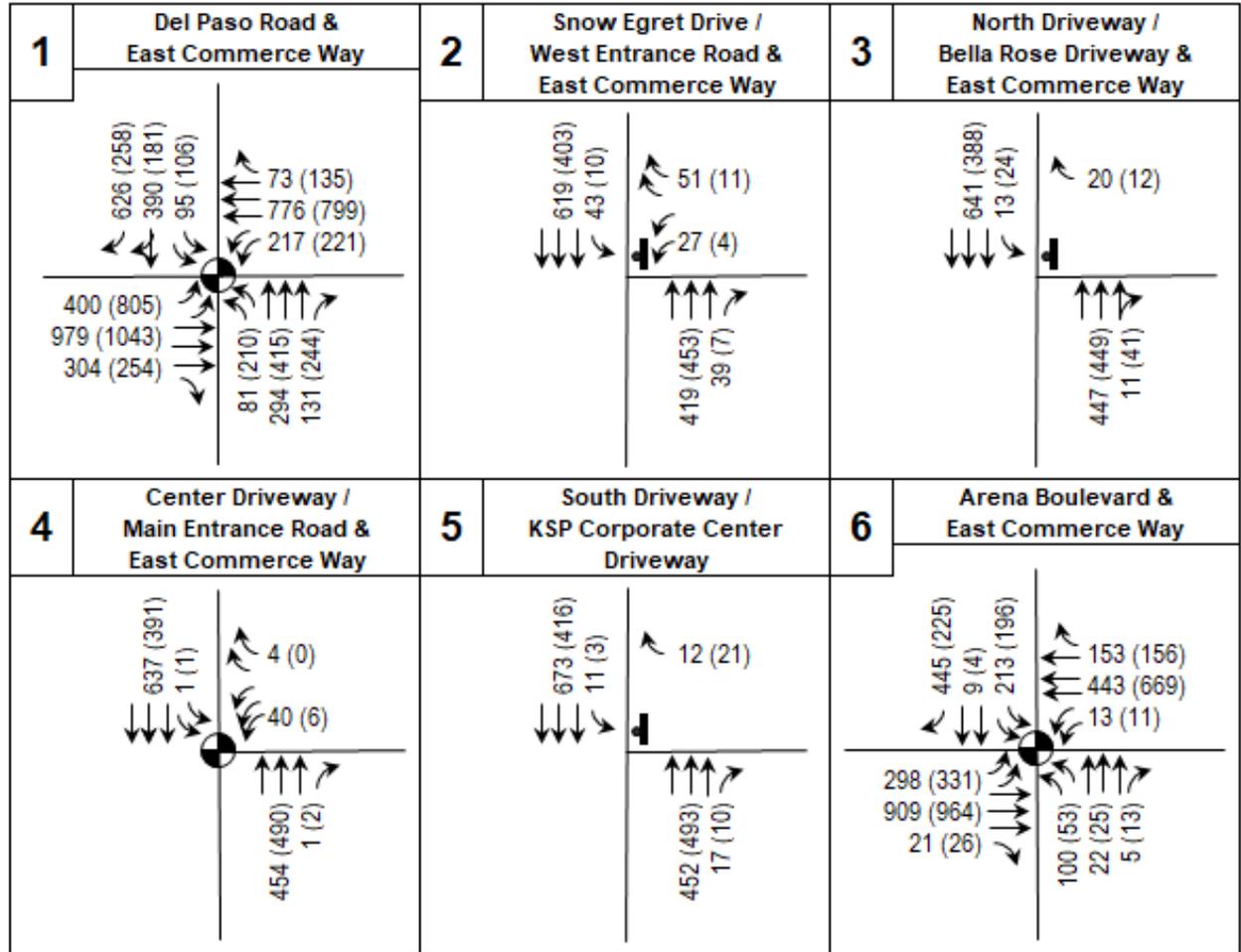
STUDY AREA

The following intersections are included in the focused study area:

1. Del Paso Road and East Commerce Way
2. Snowy Egret Drive / West Entrance Road and East Commerce Way
3. North Driveway / Bella Rose Driveway and East Commerce Way
4. Center Driveway / Main Entrance Road and East Commerce Way
5. South Driveway / KSP Arena Corporate Center Driveway and East Commerce Way
6. Arena Boulevard and East Commerce Way

EXISTING INTERSECTION GEOMETRY

Existing intersection geometry (number of approach lanes and traffic control) is illustrated in Figure 3.



KEY

31 (27) = AM (PM) peak hour traffic volume

- = Signalized intersection
- = Intersection approach lane
- = Stop sign control
- = Roundabout

E St. & N St. = East West street / North South street



Figure 3
Existing Peak Hour Traffic Volumes and Geometry



EXISTING TRAFFIC VOLUMES

Peak period intersection turning movement counts were conducted for the a.m. weekday peak period (7:00 to 9:00 a.m.) and the p.m. weekday peak period (4:00 to 6:00 p.m.) at the study area intersections on the following dates:

1. Del Paso Road and East Commerce Way – September 27, 2017
2. Snowy Egret Drive / West Entrance Road and East Commerce Way – March 6, 2018
3. North Driveway / Bella Rose Driveway and East Commerce Way – March 6, 2018
4. Center Driveway / Main Entrance Road and East Commerce Way – March 6, 2018
5. South Driveway / KSP Arena Corporate Center Driveway and East Commerce Way – March 6, 2018
6. Arena Boulevard and East Commerce Way – March 9, 2017

Balanced peak hour volumes are illustrated in Figure 3.

LEVEL OF SERVICE ANALYSIS AND METHODOLOGY

Field reconnaissance was undertaken to ascertain the traffic control characteristics of each of the study area intersections and roadway segments. Determination of roadway operating conditions is based upon comparison of known or projected traffic volumes during peak hours to roadway capacity. In an urban setting, roadway capacity is generally governed by intersection characteristics, and intersection delay is used to determine “levels of service.” Levels of service (LOS) describe roadway operating conditions. LOS is a qualitative measure of the effect of several factors, including speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, delay, and operating costs. LOS are designated A through F from best to worst, which cover the entire range of traffic operations that might occur. LOS A through E generally represent traffic volumes at less than roadway capacity, while LOS F represents over capacity and/or forced flow conditions.

Based upon the City’s level of service policy, LOS D is allowed at the study area intersections.

Intersection Analysis

Intersection analyses were conducted using a methodology outlined in the Transportation Research Board’s Special Report 209, Highway Capacity Manual 2010 (HCM 2010) (TRB 2010). The methodology utilized is known as “operational analysis.” This procedure calculates an average control delay per vehicle at an intersection and assigns a level of service designation based upon the delay.

Table 1 presents the level of service criteria for intersections in accordance with the HCM 2010 methodology. At some signalized intersections, traffic signal characteristics cannot be adequately analyzed by the HCM 2010 methodology, due to methodological or software constraints. In these cases, the prior methodology, HCM 2000, was utilized (TRB 2000).

TABLE 1 INTERSECTION LEVEL OF SERVICE CRITERIA		
Level of Service (LOS)	Total Delay Per Vehicle (seconds)	
	Signalized	Unsignalized
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Source: Highway Capacity Manual 2010, Transportation Research Board.

RESULTS OF EXISTING CONDITION ANALYSIS

Table 2 summarizes the existing a.m. and p.m. peak hour operating conditions at the study area intersections. The study area intersections meet the City’s LOS D goal.

PROJECT TRAVEL CHARACTERISTICS

TRIP GENERATION

Vehicular trip generation estimates of the project are based upon information published by the Institute of Transportation Engineers (ITE) in *Trip Generation, Tenth Edition*. Table 3 summarizes the project vehicular trip generation estimates based upon the ITE data. The project is estimated to generate 11,295 daily trips, 1,533 a.m. peak hour trips, and 1,440 p.m. peak hour trips.

Table 4 presents trip generation estimates from the April 2009 Natomas Crossing Draft Environmental Impact Report, which analyzed Quad B, Quad C, and Quad D. Two land use options were fully analyzed in the Natomas Crossing DEIR.

Compared to the Proposed Natomas Crossing Project, the land use changes to Quad B would:

- Decrease daily traffic by 11 percent.
- Increase a.m. peak hour traffic by 19 percent
- Decrease p.m. peak hour traffic by 7 percent

Compared to the Existing Zoning Alternative, the land use changes to Quad B would:

- Increase daily traffic by 1 percent.
- Increase a.m. peak hour traffic by 8 percent
- Increase p.m. peak hour traffic by 1 percent

**TABLE 2
EXISTING INTERSECTION OPERATING CONDITIONS**

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	Delay (Seconds)	LOS	Delay (Seconds)	LOS
1. Del Paso Road and East Commerce Way (signalized)	48.5	D	44.4	D
2. Snowy Egret Drive and East Commerce Way (unsignalized)	1.3	A	0.3	A
- Northbound U-turn	11.1	B	9.8	A
- Southbound Left	10.2	B	10.1	B
- Westbound Left	15.2	C	12.9	B
- Westbound Right	10.8	B	10.5	B
3. North Driveway / Bella Rose Driveway and East Commerce Way (unsignalized)	0.3	A	0.4	A
- Southbound Left	10.2	B	10.3	B
- Westbound Right	10.6	B	10.7	B
4. Center Driveway / Main Entrance Road and East Commerce Way (signalized)	5.7	A	4.3	A
5. South Driveway / KSP Arena Corporate Center Driveway and East Commerce Way (unsignalized)	0.2	A	0.3	A
- Southbound Left	10.1	B	10.3	B
- Westbound Right	10.5	B	10.8	B
6. Arena Boulevard and East Commerce Way (signalized)	26.0	C	23.0	C
<i>Note: For unsignalized intersections, the impact threshold is based upon intersection average. Source: DKS Associates, 2018.</i>				

TRIP DISTRIBUTION

The distribution of trips associated with the proposed project was derived from the regional SACSIM travel model, observations of travel patterns near the site, and knowledge of the proposed access locations associated with the site. Trip distribution varies by time of day and direction of travel. Figure 4 illustrates the trip distribution.

**TABLE 3
MOTOR VEHICULAR TRIP GENERATION BASED ON ITE DATA
PROPOSED OFFICE PROJECT (QUAD B)**

Land Use	ITE Land Use Code	Independent Variable	Vehicle Trips Generated (Trip-Ends)						
			Week-day	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Office	710	1,250,000 square feet	11,295	1,349	184	1,533	259	1,181	1,440

Source: DKS Associates, 2018, ITE Trip Generation, Tenth Edition, 2017.

**TABLE 4
MOTOR VEHICULAR TRIP GENERATION FROM NATOMAS CROSSING DRAFT
ENVIRONMENTAL IMPACT REPORT**

Site Area	Vehicle Trips Generated (Trip-Ends)						
	Week-day	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Proposed Natomas Crossing Project							
Quad B	18,112	603	274	877	793	1,004	1,797
Quad C	12,604	409	105	514	537	760	1,297
Quad D	32,073	1,463	545	2,008	623	1,356	1,979
New External Trips	62,788	2,475	924	3,399	1,953	3,120	5,074
Existing Zoning Alternative							
Quad B	10,937	1,127	164	1,291	310	1,085	1,394
Quad C	8,839	752	85	836	280	813	1,092
Quad D	4,930	642	87	729	117	573	690
New External Trips	24,705	2,521	335	2,856	707	2,470	3,176

Note: Trip generation based on earlier versions of ITE data.

Source: Natomas Crossing Draft Environmental Impact Report, Raney Planning & Management, Inc., April 2009.

It was assumed that 10 percent of the project traffic would be oriented to the center driveway (visitors, drop-off / pick-up), and that the remaining employee traffic would enter / exit the north or south driveway based upon origin / destination and preferred parking area. As the majority of project traffic is expected to utilize Arena Boulevard, the south driveway is anticipated to accommodate the majority of project traffic.

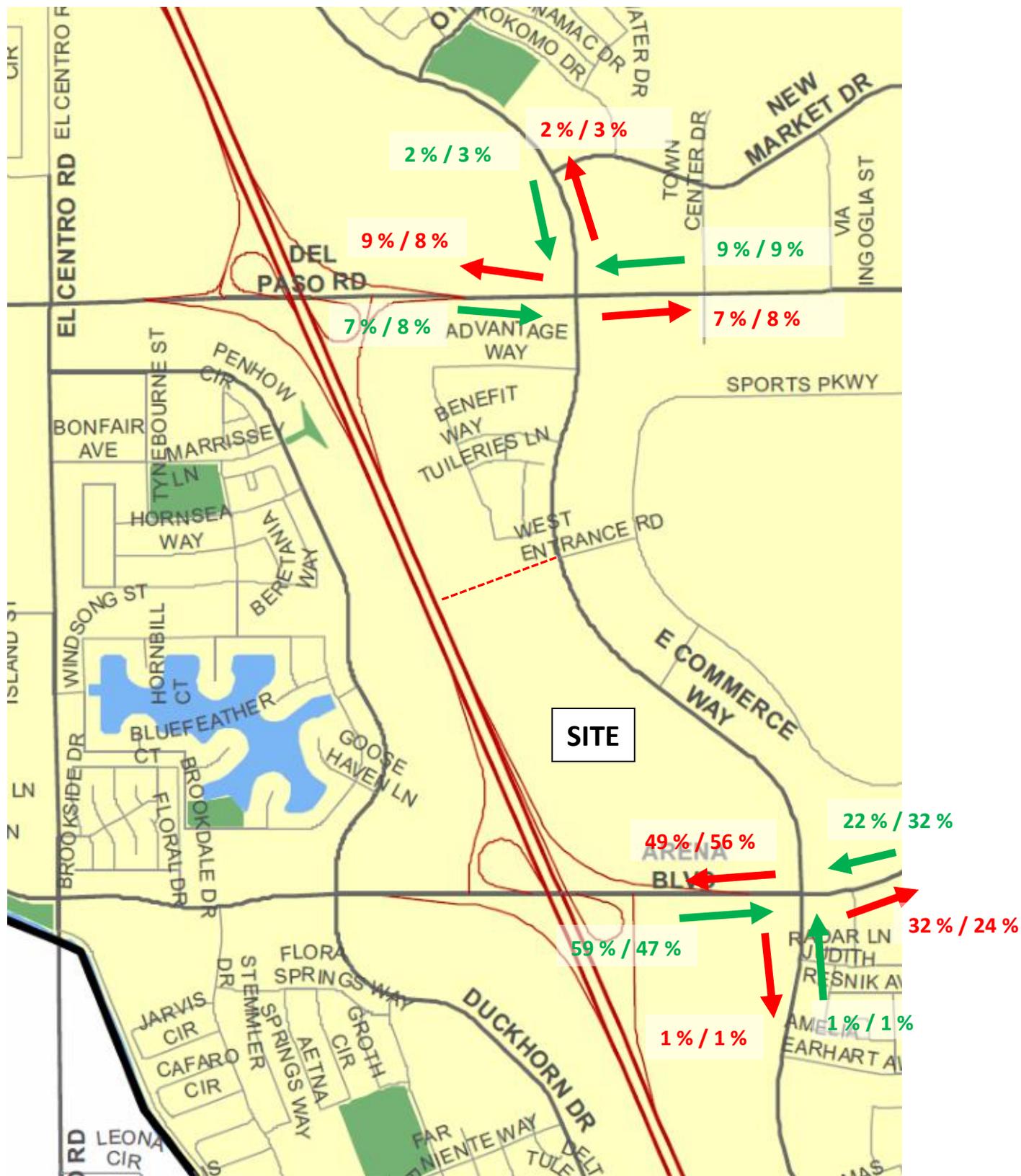


Figure 4
Trip Distribution



Entering Traffic - AM % / PM % 
 Exiting Traffic - AM % / PM % 

CITY OF SACRAMENTO THRESHOLDS OF SIGNIFICANCE

As the project is in an area with an LOS D goal, and as the study area intersections currently operate at LOS D or better, an impact would occur if LOS with the project degrades to LOS E or F.

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

Figure 5 illustrates peak hour traffic volumes and intersection geometry associated with the existing plus project scenario. The following assumptions were made regarding the three project driveways:

- Traffic signals will operate at all three driveway intersections.
- All movements will be permitted at the driveway intersections, including movements currently prohibited by the median at intersections 3 and 5.
- Based upon the increased traffic volumes associated with the project, the southbound channelized right turn lane at intersection 6 was assumed be signal controlled to improve pedestrian crossing at this location. A southbound right-turn overlap phase was also included at this location.

INTERSECTION OPERATING CONDITIONS

Table 5 summarizes the results of the existing plus project peak hour intersection analysis.

The study area intersections are anticipated to operate at LOS D or better.

SITE CIRCULATION AND ACCESS REVIEW AND RECOMMENDATIONS

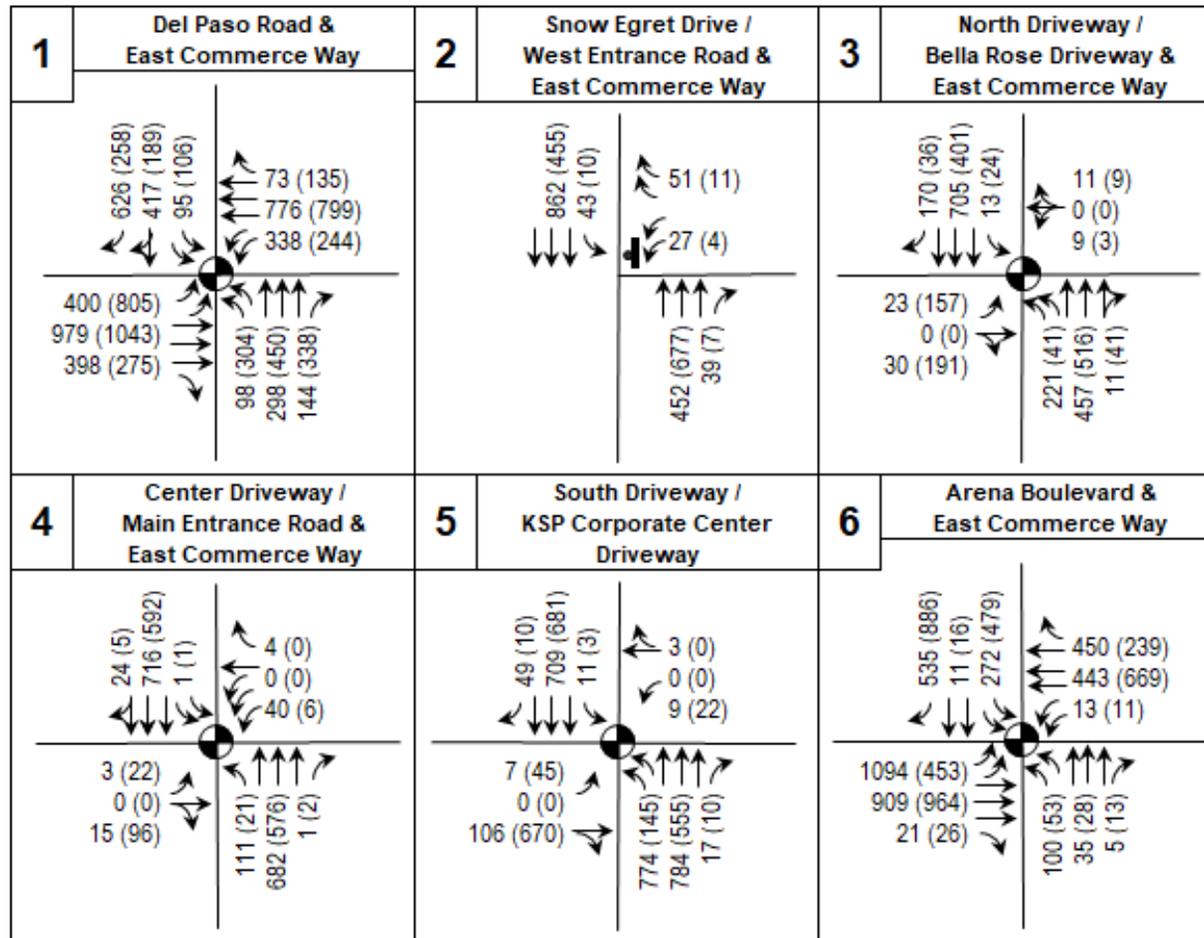
STUDY AREA INTERSECTIONS

Refer to Figure 5 for intersection geometry.

Intersection 3 – North Driveway / Bella Rose Driveway and East Commerce Way

- Signalize intersection. Permit all movements.
- Operate with protected left-turn movements north-south, and split phase east-west.
- Construct northbound left turn lane 175 feet long (minimum)¹.

¹ All storage lane dimensions are per lane, and do not include required taper lengths.



KEY

31 (27) = AM (PM) peak hour traffic volume

⊙ = Signalized intersection

↔ = Intersection approach lane

⊥ = Stop sign control

○ = Roundabout

E St. & N St. = East West street / North South street



Figure 5
Existing Plus Project Peak Hour Traffic Volumes and Geometry

**TABLE 5
EXISTING PLUS PROJECT INTERSECTION OPERATING CONDITIONS**

Intersection	Existing				Existing Plus Project			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS
1. Del Paso Road and East Commerce Way	48.5	D	44.4	D	55.0	D	46.3	D
2. Snowy Egret Drive and East Commerce Way	1.3	A	0.3	A	1.0	A	0.2	A
- Northbound U-turn	11.1	B	9.8	A	0.0	A	0.0	A
- Southbound Left	10.2	B	10.1	B	10.4	B	11.6	B
- Westbound Left	15.2	C	12.9	B	16.7	C	15.4	C
- Westbound Right	10.8	B	10.5	B	10.9	B	11.5	B
3. North Driveway / Bella Rose Driveway and East Commerce Way	0.3	A	0.4	A	41.4	D	21.5	C
- Southbound Left	10.2	B	10.3	B	-	-	-	-
- Westbound Right	10.6	B	10.7	B	-	-	-	-
4. Center Driveway / Main Entrance Road and East Commerce Way	5.7	A	4.3	A	41.2	D	38.8	D
5. South Driveway / KSP Arena Corporate Center Driveway and East Commerce Way	0.2	A	0.3	A	40.1	D	49.4	D
- Southbound Left	10.1	B	10.3	B	-	-	-	-
- Westbound Right	10.5	B	10.8	B	-	-	-	-
6. Arena Boulevard and East Commerce Way	26.0	C	23.0	C	42.6	D	38.5	D

Note: For unsignalized intersections, the impact threshold is based upon intersection average.
Source: DKS Associates, 2018.

- Maintain southbound left turn lane length (approximately 200 feet).
- Construct southbound right turn lane 200 feet long minimum.
- Provide eastbound left turn lane 175 feet long (minimum).

Intersection 4 – Center Driveway / Main Entrance Road and East Commerce Way

- Signalize intersection. Permit all movements.
- Operate with protected left-turn movements north-south and east-west.
- Maintain existing northbound left turn lane, northbound right turn lane, and southbound left turn lane.

Intersection 5 – South Driveway / Main Entrance Road and East Commerce Way

- Signalize intersection. Permit all movements.
- Operate with protected left-turn movements north-south and east-west.
- Construct northbound double left turn lane 425 feet long (minimum).
- Maintain southbound left turn lane length (approximately 200 feet).
- Construct southbound right turn lane 150 feet long (minimum).

Intersection 6 – Arena Boulevard and East Commerce Way

- Signalize the southbound right turn lane (currently free-flow) to improve pedestrian crossing at this location.
- Provide a right-turn overlap traffic signal phase for the southbound approach.
- This traffic signal modification is consistent with Mitigation Measure 4.2-1 from the Natomas Crossing DEIR:

“East Commerce Way and Arena Boulevard – The project applicant shall add southbound, westbound, and eastbound exclusive right turn signal phases to this intersection.”²

- Lengthen the southbound right turn lane to 500 feet (minimum).
- Lengthen the eastbound double left turn lane to 700 feet (minimum).

² Natomas Crossing Draft Environmental Impact Report, Raney Planning & Management, Inc., April 2009.

ON-SITE DRIVEWAYS AND SECURITY GATEWAYS

The site plan includes security drive-through locations for all inbound employees along the north and south driveways. Due to the uncertainty regarding how these locations would operate, it was assumed that gated entries would be utilized, similar to entry gates at parking garages. The City of Sacramento typically assumes a 7-second average service time for such gates.

Queueing analyses were conducted to review the number of gates necessary to accommodate a.m. peak hour traffic, as well as the stacking distance required in advance of the gates. The number of roadway lanes is determined by the anticipated vehicle volumes and adjacent intersection operations.

North Driveway

Two inbound security gates were assumed at the north driveway. There is a 95-percent probability that three or fewer vehicles will be in the system.

Because of uncertainty regarding the specific details and operation of the security gates, it is recommended that the security gate location is modified to allow a minimum of 300 feet between the gates and the edge of intersection 3.

Center Driveway

A minimum throat length of 80 feet should be provided. The distance is based on left turn lane storage requirement.

South Driveway

Based upon site traffic volumes and operations at intersection 5, it is recommended that this driveway be four lanes wide from the gate area to intersection 5. Two inbound security gates were assumed.

Because of uncertainty regarding the specific details and operation of the security gates, it is recommended that the security gate location is modified to allow a minimum of 500 feet between the gates and the edge of intersection 5.

Beyond the security gates (within site security), it is recommended that the four-lane roadway is extended within the site to provide efficient traffic movement. Otherwise, entering traffic may not efficiently disperse onsite during peak entry periods, and may result in inbound delays. The two inbound and two outbound lanes should extend approximately 300 feet beyond the first turn into the parking lot drive aisle. The number of lanes can be reduced at that point at a major on-site intersection.

Service Vehicle Entry

A service vehicle entry point is proposed between the center and south driveways. This location would have right-in / right-out access only. This minor driveway is expected to operate in an acceptable fashion. It is spaced adequately from both the center and south driveways. The applicant shall provide information on the vehicle types and volumes anticipated at this location and demonstrate that appropriate design vehicle turning movements can be efficiently accommodated.

TRANSPORTATION MANAGEMENT PLAN

It is recommended that the applicant prepare a transportation management plan to address the following issues:

- Mode choice – Include measures to reduce peak-period automobile traffic, including procedures to increase transit, carpool, bicycle, and pedestrian access to the project site.
- Security gates – Provide detail on gate operations, including typical service times. If service times exceed the assumed average 7-seconds utilized in this analysis, provide queuing analysis.
- Parking / entry gate assignment – Evaluate the assignment of parking and / or entry gate location to increase utilization of the north driveway.

CONSTRUCTION TRAFFIC CONTROL PLAN

The applicant will provide a construction traffic control plan per City Code 12.20.030 to the satisfaction of the City Traffic Engineer.



Transportation Analysis Appendices
Natomas Crossing Quad B
Prepared for
City of Sacramento

April 24, 2018



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Sacramento, California 95628
(916) 368-2000

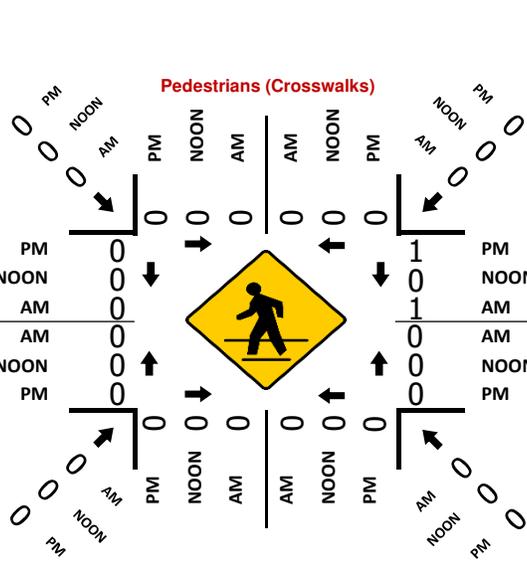
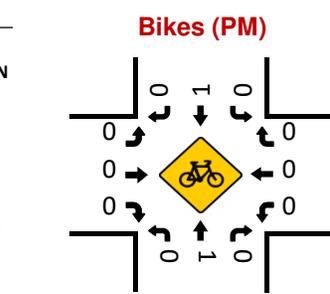
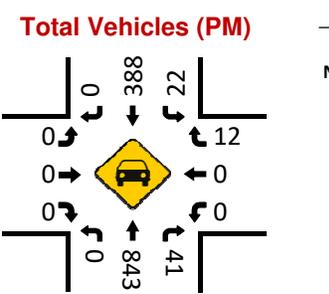
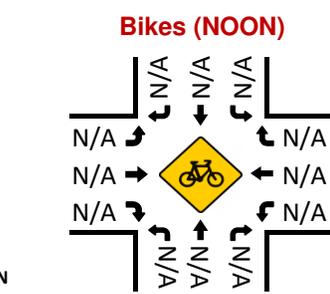
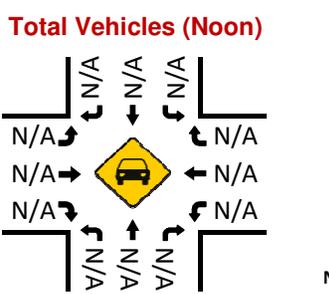
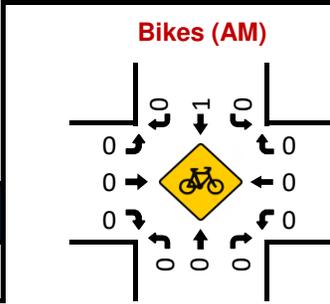
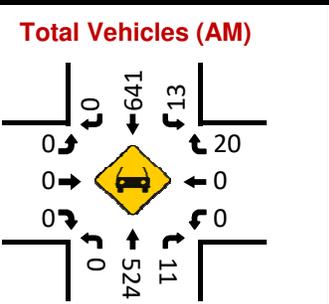
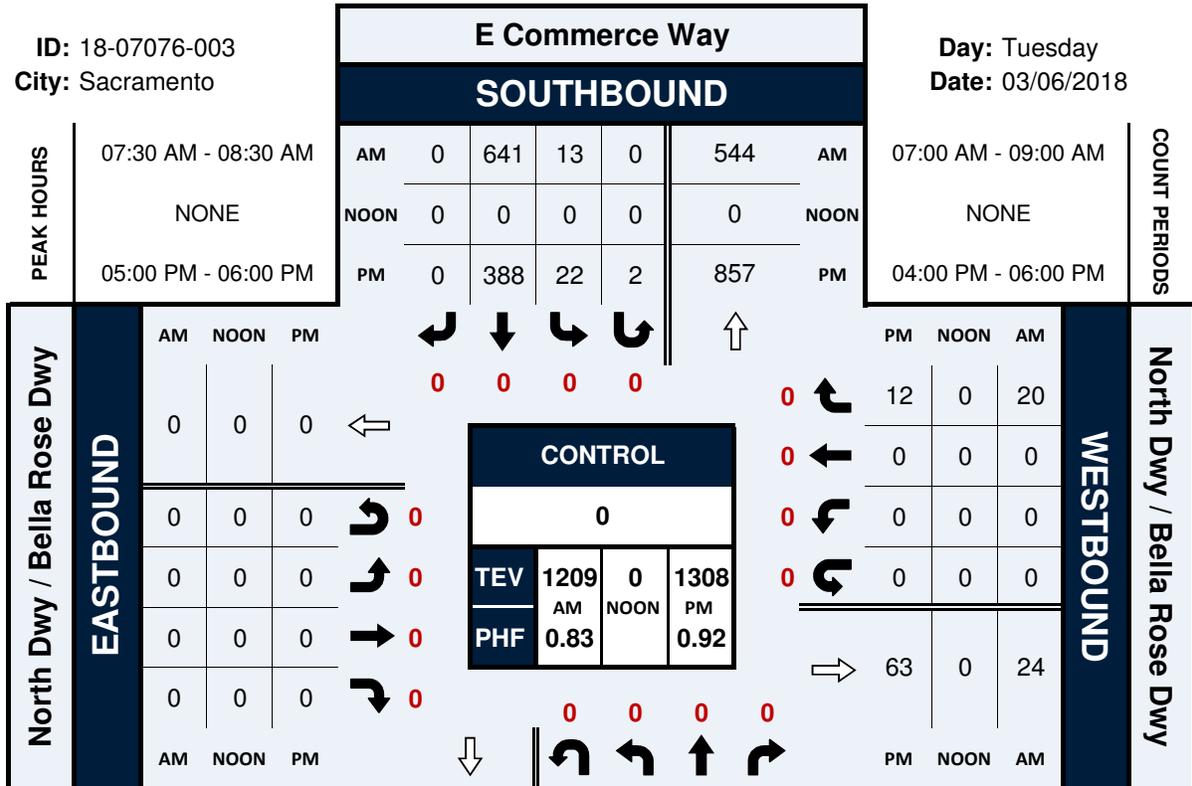
TRAFFIC COUNTS

E Commerce Way & North Dwy / Bella Rose Dwy

Peak Hour Turning Movement Count

ID: 18-07076-003
City: Sacramento

Day: Tuesday
Date: 03/06/2018

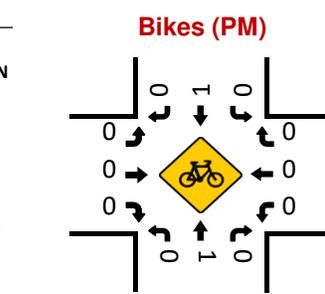
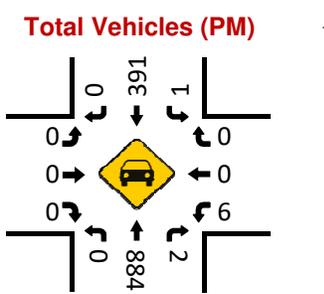
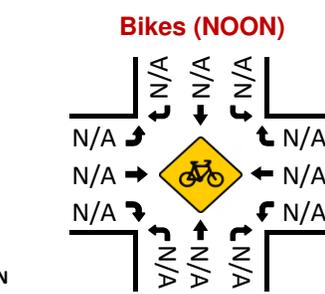
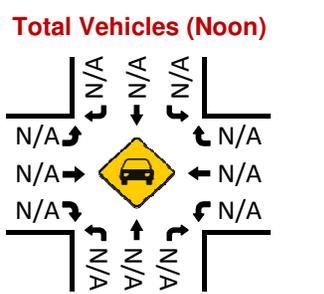
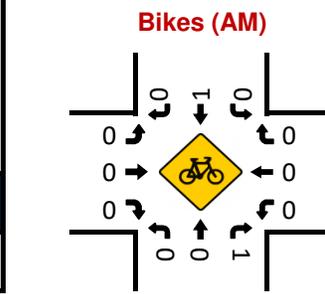
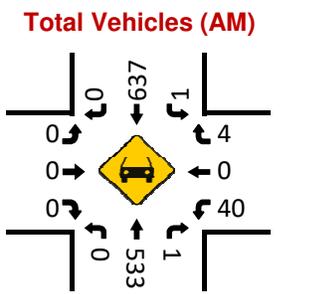
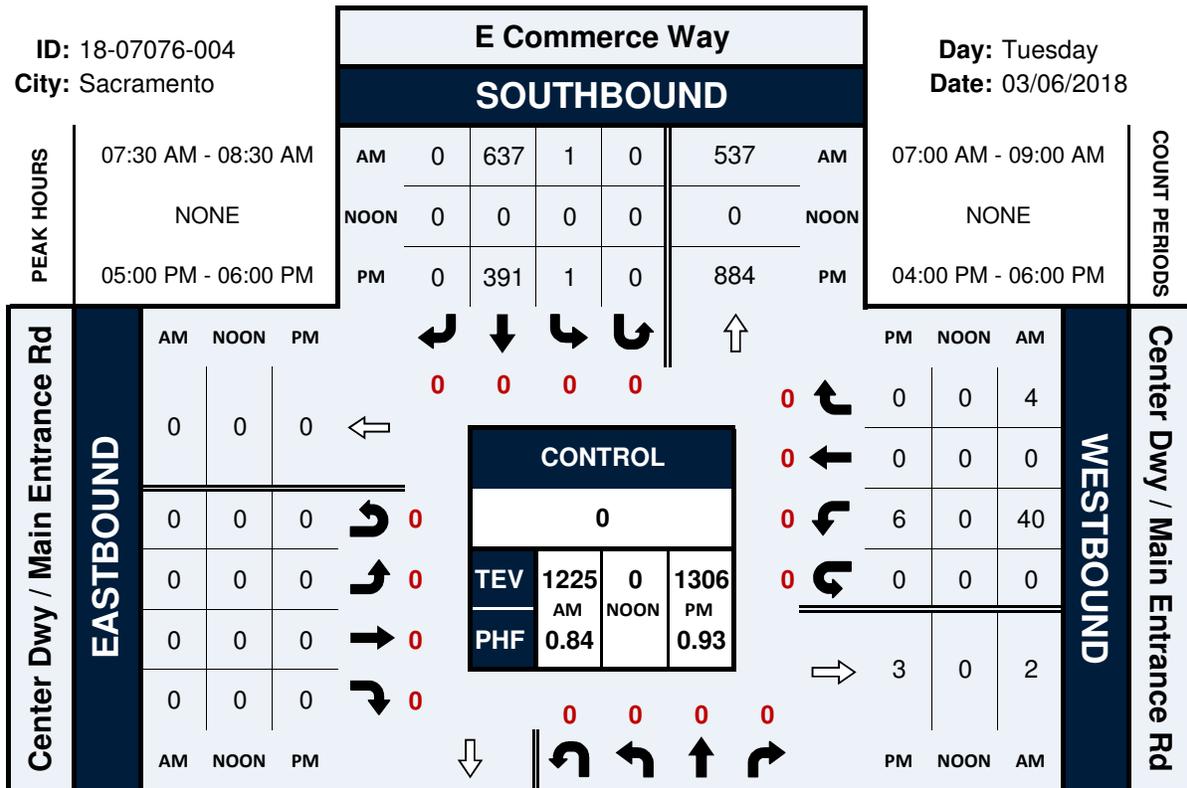


E Commerce Way & Center Dwy / Main Entrance Rd

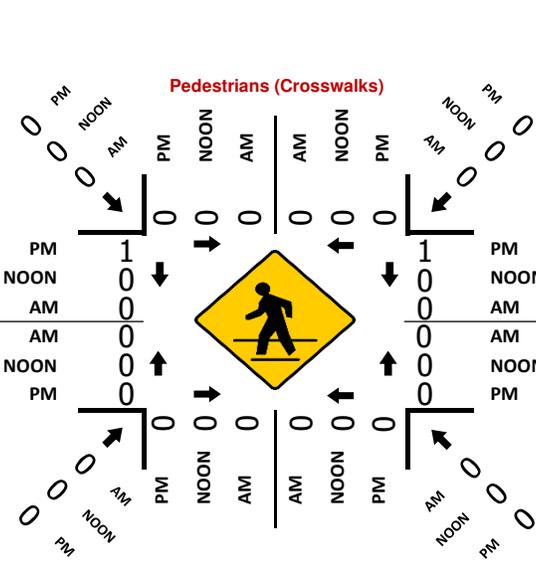
Peak Hour Turning Movement Count

ID: 18-07076-004
City: Sacramento

Day: Tuesday
Date: 03/06/2018



PM	419	22	0	884	2	PM
NOON	0	0	0	0	0	NOON
AM	686	9	0	533	1	AM

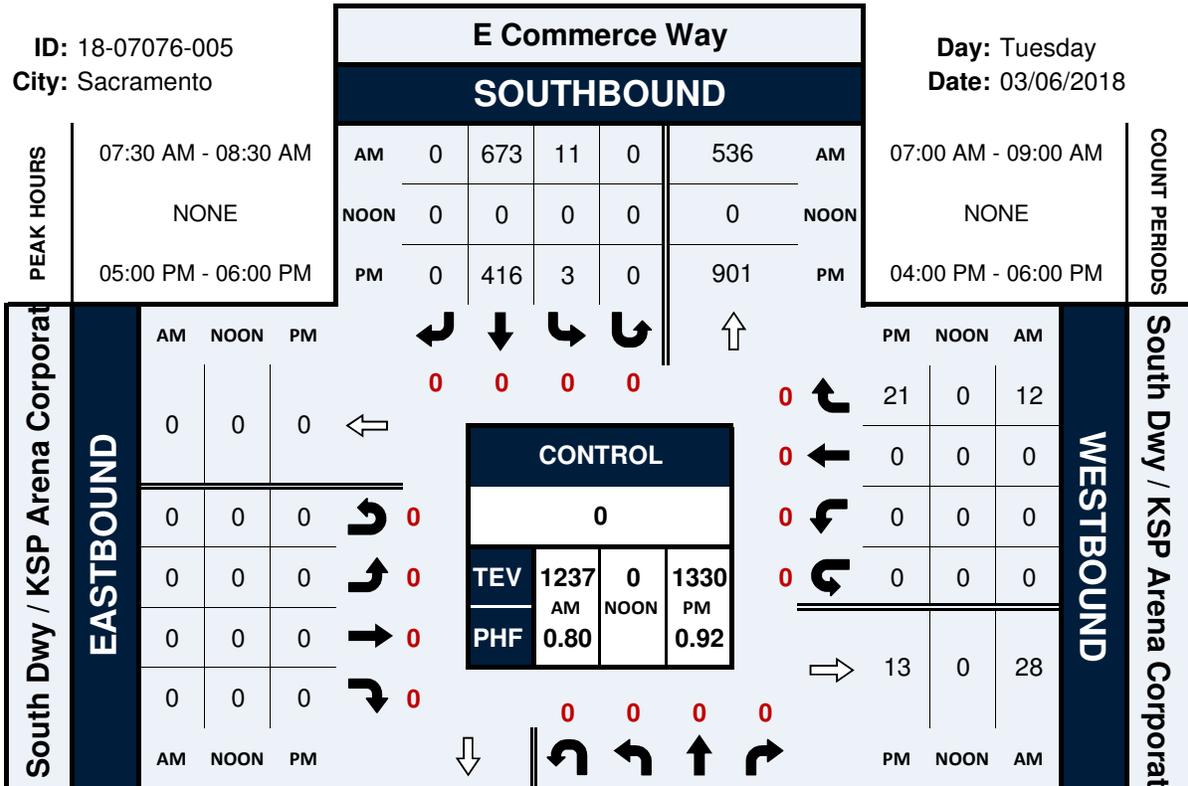


E Commerce Way & South Dwy / KSP Arena Corporate Center Dwy

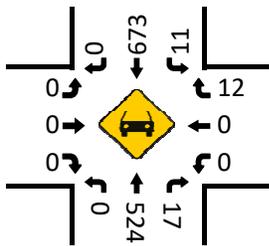
Peak Hour Turning Movement Count

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City: Sacramento

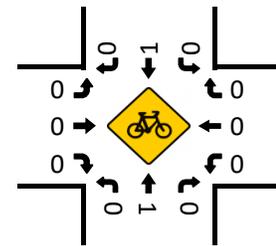
Day: Tuesday
Date: 03/06/2018



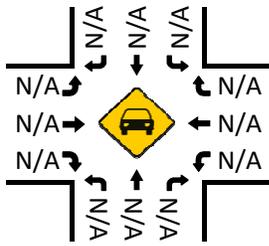
Total Vehicles (AM)



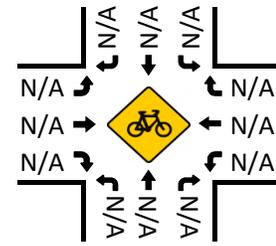
Bikes (AM)



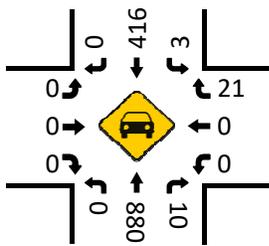
Total Vehicles (Noon)



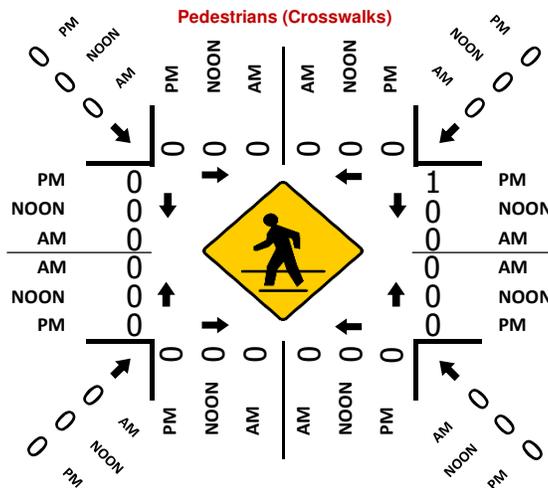
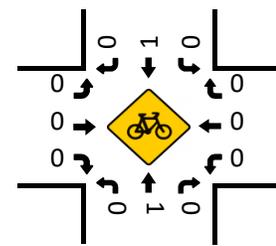
Bikes (NOON)



Total Vehicles (PM)



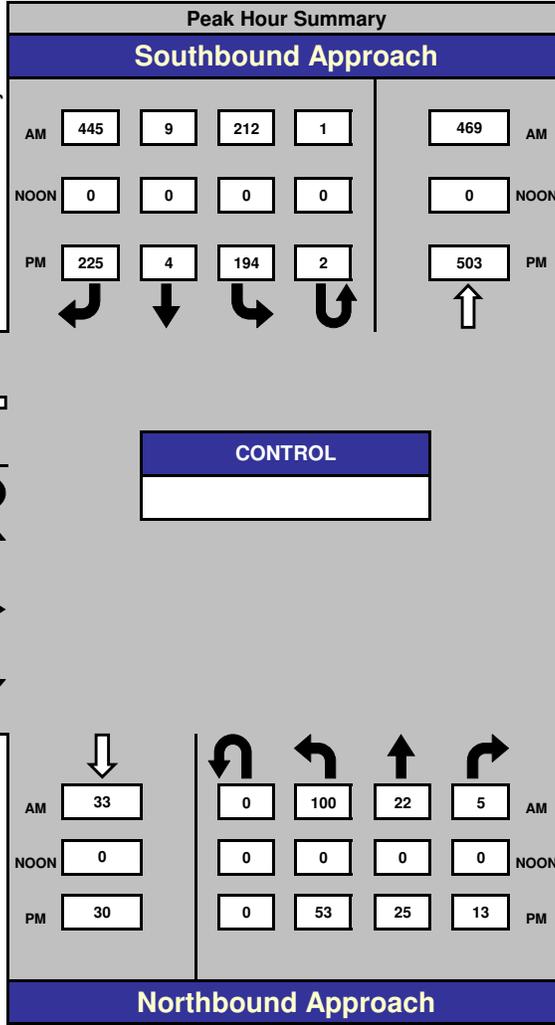
Bikes (PM)



East Commerce Way & Arena Blvd

Date: 3/9/2017
Day: Thursday

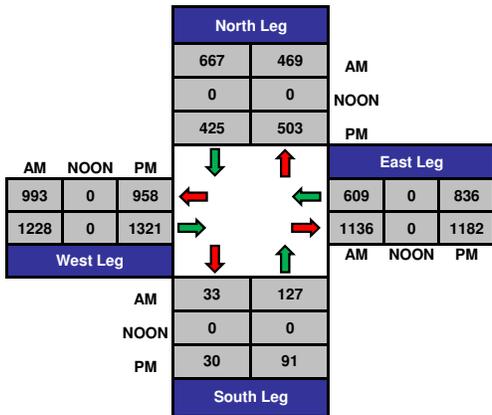
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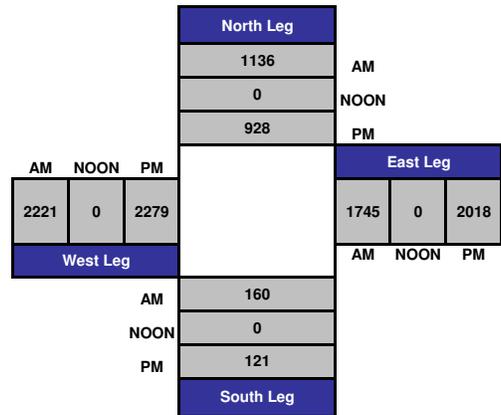
AM Peak Hour	07:30 - 08:30
NOON Peak Hour	
PM Peak Hour	16:45 - 17:45

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



**INTERSECTION ANALYSIS
EXISTING AM PEAK HOUR**

HCM Signalized Intersection Capacity Analysis

1: East Commerce Way & Del Paso Road

04/17/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↔↔	↑↑↑	↗		↔↔	↑↑↑	↗		↔↔	↑↑↑	↗
Traffic Volume (vph)	1	399	979	304	18	199	776	73	4	77	294	131
Future Volume (vph)	1	399	979	304	18	199	776	73	4	77	294	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.91	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	399	979	304	18	199	776	73	4	77	294	131
RTOR Reduction (vph)	0	0	0	209	0	0	0	57	0	0	0	88
Lane Group Flow (vph)	0	400	979	95	0	217	776	16	0	81	294	43
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases				6				2				8
Actuated Green, G (s)		15.4	25.9	25.9		13.1	23.7	23.7		10.0	35.4	35.4
Effective Green, g (s)		15.4	25.9	25.9		13.1	23.7	23.7		10.0	35.4	35.4
Actuated g/C Ratio		0.14	0.24	0.24		0.12	0.22	0.22		0.09	0.33	0.33
Clearance Time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		443	1103	343		376	1010	314		287	1508	469
v/s Ratio Prot		c0.13	c0.21			0.07	0.17			0.03	0.06	
v/s Ratio Perm				0.07				0.01				0.03
v/c Ratio		0.90	0.89	0.28		0.58	0.77	0.05		0.28	0.19	0.09
Uniform Delay, d1		45.3	39.3	33.1		44.5	39.3	33.0		45.4	25.8	24.9
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		21.3	10.6	2.0		2.1	5.6	0.3		0.5	0.3	0.4
Delay (s)		66.6	50.0	35.2		46.7	44.9	33.3		45.9	26.1	25.3
Level of Service		E	D	D		D	D	C		D	C	C
Approach Delay (s)			51.3				44.5				29.0	
Approach LOS			D				D				C	

Intersection Summary

HCM 2000 Control Delay	48.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	107.4	Sum of lost time (s)	22.2
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: East Commerce Way & Del Paso Road

04/17/2018



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	95	390	626
Future Volume (vph)	95	390	626
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	6.0	6.0
Lane Util. Factor	0.97	0.95	0.95
Frt	1.00	0.96	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3090	1526	1354
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3090	1526	1354
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	95	390	626
RTOR Reduction (vph)	0	13	274
Lane Group Flow (vph)	95	527	202
Turn Type	Prot	NA	Perm
Protected Phases	7	4	
Permitted Phases			4
Actuated Green, G (s)	10.8	36.2	36.2
Effective Green, g (s)	10.8	36.2	36.2
Actuated g/C Ratio	0.10	0.34	0.34
Clearance Time (s)	5.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	310	514	456
v/s Ratio Prot	c0.03	c0.35	
v/s Ratio Perm			0.15
v/c Ratio	0.31	1.03	0.44
Uniform Delay, d1	44.8	35.6	27.7
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.6	46.5	3.1
Delay (s)	45.4	82.1	30.8
Level of Service	D	F	C
Approach Delay (s)		57.0	
Approach LOS		E	

Intersection Summary

HCM 2010 TWSC
 2: East Commerce Way & Snowy Egret Drive

04/17/2018

Intersection													
Int Delay, s/veh	1.3												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘		↗	↘	↗	↑↑↑	↗	↘	↑↑↑	
Traffic Vol, veh/h	0	0	0	27	0	51	0	9	419	39	43	619	0
Future Vol, veh/h	0	0	0	27	0	51	0	9	419	39	43	619	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free						
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	None
Storage Length	-	-	-	0	-	0	-	150	-	175	240	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	27	0	51	0	9	419	39	43	619	0

Major/Minor	Minor1	Major1			Major2					
Conflicting Flow All	771	-	210	-	619	0	0	419	0	0
Stage 1	437	-	-	-	-	-	-	-	-	-
Stage 2	334	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.74	-	7.14	5.64	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	-	3.92	2.32	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	404	0	677	-	595	-	-	739	-	0
Stage 1	526	0	-	-	-	-	-	-	-	0
Stage 2	639	0	-	-	-	-	-	-	-	0
Platoon blocked, %										
Mov Cap-1 Maneuver	380	0	677	-	595	-	-	739	-	-
Mov Cap-2 Maneuver	380	0	-	-	-	-	-	-	-	-
Stage 1	526	0	-	-	-	-	-	-	-	-
Stage 2	602	0	-	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0.2	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBU	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	595	-	-	380	677	739	-
HCM Lane V/C Ratio	-	0.015	-	-	0.071	0.075	0.058	-
HCM Control Delay (s)	0	11.1	-	-	15.2	10.8	10.2	-
HCM Lane LOS	A	B	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	0	-	-	0.2	0.2	0.2	-

HCM 2010 TWSC
 3: East Commerce Way & North Access

04/17/2018

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↑↑↑	↗ ↑↑↑		↘ ↑↑↑	↘ ↑↑↑
Traffic Vol, veh/h	0	20	447	11	13	641
Future Vol, veh/h	0	20	447	11	13	641
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	20	447	11	13	641

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	229	0	0	458
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	5.34
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	3.12
Pot Cap-1 Maneuver	0	659	-	-	709
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	-	659	-	-	709
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	659	709
HCM Lane V/C Ratio	-	-	0.03	0.018
HCM Control Delay (s)	-	-	10.6	10.2
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.1	0.1

HCM 2010 Signalized Intersection Summary

4: East Commerce Way & Center Access

04/17/2018

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	  		 		  		 	  			
Traffic Volume (veh/h)	40	0	4	9	454	1	1	637	0	0	0
Future Volume (veh/h)	40	0	4	9	454	1	1	637	0	0	0
Number	5	5	12	3	8	18	7	4	14		
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00		1.00	1.00		1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863	1863	1863	0		
Adj Flow Rate, veh/h	40	40	4	9	454	1	1	637	0		
Adj No. of Lanes	3	3	2	0	3	1	2	3	0		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	0		
Cap, veh/h	661	661	368	132	1726	769	11	2615	0		
Arrive On Green	0.13	0.13	0.13	0.35	0.35	0.35	0.00	0.51	0.00		
Sat Flow, veh/h	5003	5003	2787	28	4881	1583	3442	5253	0		
Grp Volume(v), veh/h	40	40	4	174	289	1	1	637	0		
Grp Sat Flow(s),veh/h/ln	1668	1668	1393	1824	1543	1583	1721	1695	0		
Q Serve(g_s), s	0.2	0.2	0.0	0.0	2.1	0.0	0.0	2.2	0.0		
Cycle Q Clear(g_c), s	0.2	0.2	0.0	2.1	2.1	0.0	0.0	2.2	0.0		
Prop In Lane	1.00	1.00	1.00	0.05		1.00	1.00		0.00		
Lane Grp Cap(c), veh/h	661	661	368	767	1091	769	11	2615	0		
V/C Ratio(X)	0.06	0.06	0.01	0.23	0.26	0.00	0.09	0.24	0.00		
Avail Cap(c_a), veh/h	6077	6077	3385	2070	3401	1955	1327	5622	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	11.8	11.8	11.7	7.2	7.2	4.1	15.5	4.2	0.0		
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	1.2	0.0	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.0	1.1	0.9	0.0	0.0	1.0	0.0		
LnGrp Delay(d),s/veh	11.8	11.8	11.7	7.2	7.2	4.1	16.7	4.2	0.0		
LnGrp LOS	B	B	B	A	A	A	B	A			
Approach Vol, veh/h	44	44			464			638			
Approach Delay, s/veh	11.8	11.8			7.2			4.2			
Approach LOS	B	B			A			A			
Timer	1	2	3	4	5	6	7	8			
Assigned Phs		2		4			7	8			
Phs Duration (G+Y+Rc), s		9.4		21.7			5.0	16.7			
Change Period (Y+Rc), s		* 5.3		* 5.7			* 4.9	5.7			
Max Green Setting (Gmax), s		* 38		* 34			* 12	34.3			
Max Q Clear Time (g_c+I1), s		2.2		4.2			2.0	4.1			
Green Ext Time (p_c), s		0.1		5.6			0.0	5.6			
Intersection Summary											
HCM 2010 Ctrl Delay			5.7								
HCM 2010 LOS			A								
Notes											

HCM 2010 TWSC
5: East Commerce Way & South Access

04/17/2018

Intersection

Int Delay, s/veh 0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗↗	↗	↘	↗↗↗
Traffic Vol, veh/h	0	12	452	17	11	673
Future Vol, veh/h	0	12	452	17	11	673
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	135	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	452	17	11	673

Major/Minor

	Minor1	Major1	Major2
Conflicting Flow All	-	226	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	662	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	662	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach

	WB	NB	SB
HCM Control Delay, s	10.5	0	0.2
HCM LOS	B		

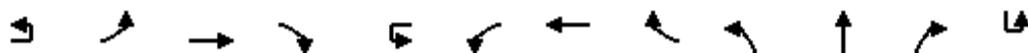
Minor Lane/Major Mvmt

	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	662	713
HCM Lane V/C Ratio	-	-	0.018	0.015
HCM Control Delay (s)	-	-	10.5	10.1
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM Signalized Intersection Capacity Analysis

6: East Commerce Way & Arena Blvd

04/17/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔↔	↔↔↔	↔		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	
Traffic Volume (vph)	5	293	909	21	10	3	443	153	100	22	5	1
Future Volume (vph)	5	293	909	21	10	3	443	153	100	22	5	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00	0.97	0.91	1.00	
Frbp, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3433	5085	1562		3433	5085	1563	3433	5085	1583	
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)		3433	5085	1562		3433	5085	1563	3433	5085	1583	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	293	909	21	10	3	443	153	100	22	5	1
RTOR Reduction (vph)	0	0	0	13	0	0	0	113	0	0	5	0
Lane Group Flow (vph)	0	298	909	8	0	13	443	40	100	22	0	0
Confl. Peds. (#/hr)		1		1		1		1				
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	1	1	6		5	5	2		7	4		3
Permitted Phases				6				2				4
Actuated Green, G (s)		14.3	35.0	35.0		2.0	22.7	22.7	9.9	6.0	6.0	
Effective Green, g (s)		14.3	35.0	35.0		2.0	22.7	22.7	9.9	6.0	6.0	
Actuated g/C Ratio		0.16	0.40	0.40		0.02	0.26	0.26	0.11	0.07	0.07	
Clearance Time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Vehicle Extension (s)		2.0	2.0	2.0		2.0	4.4	4.4	2.0	2.0	2.0	
Lane Grp Cap (vph)		560	2031	624		78	1317	405	387	348	108	
v/s Ratio Prot		c0.09	c0.18			0.00	0.09		0.03	0.00		
v/s Ratio Perm				0.01				0.03			0.00	
v/c Ratio		0.53	0.45	0.01		0.17	0.34	0.10	0.26	0.06	0.00	
Uniform Delay, d1		33.6	19.2	15.9		42.0	26.3	24.7	35.5	38.2	38.0	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.5	0.1	0.0		0.4	0.3	0.2	0.1	0.0	0.0	
Delay (s)		34.1	19.3	15.9		42.4	26.6	24.8	35.6	38.2	38.0	
Level of Service		C	B	B		D	C	C	D	D	D	
Approach Delay (s)			22.8				26.5			36.2		
Approach LOS			C				C			D		
Intersection Summary												
HCM 2000 Control Delay			26.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			87.6				Sum of lost time (s)			22.7		
Intersection Capacity Utilization			78.2%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: East Commerce Way & Arena Blvd

04/17/2018



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	212	9	445
Future Volume (vph)	212	9	445
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	5.9	5.9
Lane Util. Factor	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	212	9	445
RTOR Reduction (vph)	0	0	295
Lane Group Flow (vph)	213	9	150
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Turn Type	Prot	NA	Perm
Protected Phases	3	8	
Permitted Phases			8
Actuated Green, G (s)	21.9	18.1	18.1
Effective Green, g (s)	21.9	18.1	18.1
Actuated g/C Ratio	0.25	0.21	0.21
Clearance Time (s)	5.5	5.9	5.9
Vehicle Extension (s)	2.0	2.0	2.0
Lane Grp Cap (vph)	858	731	327
v/s Ratio Prot	c0.06	0.00	
v/s Ratio Perm			c0.09
v/c Ratio	0.25	0.01	0.46
Uniform Delay, d1	26.3	27.6	30.5
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.4
Delay (s)	26.3	27.6	30.8
Level of Service	C	C	C
Approach Delay (s)		29.3	
Approach LOS		C	
Intersection Summary			

**INTERSECTION ANALYSIS
EXISTING PM PEAK HOUR**

HCM Signalized Intersection Capacity Analysis
 1: East Commerce Way & Del Paso Road

04/17/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↘↘	↑↑↑	↗		↘↘	↑↑↑	↗		↘↘	↑↑↑	↗
Traffic Volume (vph)	1	804	1043	254	26	195	799	135	18	192	415	244
Future Volume (vph)	1	804	1043	254	26	195	799	135	18	192	415	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.91	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	804	1043	254	26	195	799	135	18	192	415	244
RTOR Reduction (vph)	0	0	0	172	0	0	0	110	0	0	0	191
Lane Group Flow (vph)	0	805	1043	82	0	221	799	25	0	210	415	53
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases				6			2					8
Actuated Green, G (s)		27.1	32.8	32.8		13.0	18.8	18.8		13.0	21.9	21.9
Effective Green, g (s)		27.1	32.8	32.8		13.0	18.8	18.8		13.0	21.9	21.9
Actuated g/C Ratio		0.27	0.32	0.32		0.13	0.19	0.19		0.13	0.22	0.22
Clearance Time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		828	1484	462		397	851	264		397	991	308
v/s Ratio Prot		c0.26	0.23			0.07	c0.17			c0.07	0.09	
v/s Ratio Perm				0.06				0.02				0.04
v/c Ratio		0.97	0.70	0.18		0.56	0.94	0.10		0.53	0.42	0.17
Uniform Delay, d1		36.6	29.9	24.5		41.3	40.6	34.1		41.2	34.1	32.2
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		24.5	2.8	0.8		1.7	19.2	0.7		1.3	1.3	1.2
Delay (s)		61.1	32.7	25.3		43.0	59.7	34.8		42.5	35.4	33.4
Level of Service		E	C	C		D	E	C		D	D	C
Approach Delay (s)			42.7				53.6				36.6	
Approach LOS			D				D				D	

Intersection Summary

HCM 2000 Control Delay	44.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	101.1	Sum of lost time (s)	22.2
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: East Commerce Way & Del Paso Road

04/17/2018



Movement	SBL	SBT	SBR
Lane Configurations	TT	T	T
Traffic Volume (vph)	106	181	258
Future Volume (vph)	106	181	258
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	6.0	6.0
Lane Util. Factor	0.97	0.95	0.95
Frt	1.00	0.97	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3090	1539	1354
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3090	1539	1354
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	106	181	258
RTOR Reduction (vph)	0	10	165
Lane Group Flow (vph)	106	223	41
Turn Type	Prot	NA	Perm
Protected Phases	7	4	
Permitted Phases			4
Actuated Green, G (s)	11.2	20.1	20.1
Effective Green, g (s)	11.2	20.1	20.1
Actuated g/C Ratio	0.11	0.20	0.20
Clearance Time (s)	5.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	342	305	269
v/s Ratio Prot	0.03	0.14	
v/s Ratio Perm			0.03
v/c Ratio	0.31	0.73	0.15
Uniform Delay, d1	41.4	38.0	33.5
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.5	14.3	1.2
Delay (s)	41.9	52.2	34.7
Level of Service	D	D	C
Approach Delay (s)		43.6	
Approach LOS		D	

Intersection Summary

HCM 2010 TWSC
2: East Commerce Way & Snowy Egret Drive

04/17/2018

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘		↗	↘	↑↑↑	↗	↘	↑↑↑	
Traffic Vol, veh/h	0	0	0	4	0	11	3	453	7	10	403	0
Future Vol, veh/h	0	0	0	4	0	11	3	453	7	10	403	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	0	-	0	150	-	175	240	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	4	0	11	3	453	7	10	403	0

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	640	- 227 403	0 0 453 0 0
Stage 1	459	- - -	- - - - -
Stage 2	181	- - -	- - - - -
Critical Hdwy	5.74	- 7.14 5.34	- - 5.34 - -
Critical Hdwy Stg 1	6.64	- - -	- - - - -
Critical Hdwy Stg 2	6.04	- - -	- - - - -
Follow-up Hdwy	3.82	- 3.92 3.12	- - 3.12 - -
Pot Cap-1 Maneuver	468	0 661 752	- - 713 - 0
Stage 1	511	0 - -	- - - - 0
Stage 2	765	0 - -	- - - - 0
Platoon blocked, %			- - -
Mov Cap-1 Maneuver	460	0 661 752	- - 713 - -
Mov Cap-2 Maneuver	460	0 - -	- - - - -
Stage 1	509	0 - -	- - - - -
Stage 2	754	0 - -	- - - - -

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0.1	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	752	-	-	460	661	713	-
HCM Lane V/C Ratio	0.004	-	-	0.009	0.017	0.014	-
HCM Control Delay (s)	9.8	-	-	12.9	10.5	10.1	-
HCM Lane LOS	A	-	-	B	B	B	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-

HCM 2010 TWSC
 3: East Commerce Way & North Access

04/17/2018

Intersection							
Int Delay, s/veh	0.4						
Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑ ↑ ↑ ↑			↑ ↑ ↑ ↑	
Traffic Vol, veh/h	0	12	449	41	2	22	388
Future Vol, veh/h	0	12	449	41	2	22	388
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	-	0
Grade, %	0	-	0	-	-	-	0
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	0	12	449	41	2	22	388

Major/Minor	Minor1	Major1	Major2				
Conflicting Flow All	-	245	0	0	358	490	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	5.64	5.34	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	2.32	3.12	-
Pot Cap-1 Maneuver	0	644	-	-	992	685	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %			-	-			-
Mov Cap-1 Maneuver	-	644	-	-	702	702	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	644	702
HCM Lane V/C Ratio	-	-	0.019	0.034
HCM Control Delay (s)	-	-	10.7	10.3
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.1	0.1

HCM 2010 Signalized Intersection Summary

4: East Commerce Way & Center Access

04/17/2018

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	  		 		  		 	  			
Traffic Volume (veh/h)	6	0	0	22	490	2	1	391	0	0	0
Future Volume (veh/h)	6	0	0	22	490	2	1	391	0	0	0
Number	5	5	12	3	8	18	7	4	14		
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00		1.00	1.00		1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	0		
Adj Flow Rate, veh/h	6	6	0	22	490	2	1	391	0		
Adj No. of Lanes	3	3	2	1	3	1	2	3	0		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	0		
Cap, veh/h	106	106	59	656	2029	665	12	2949	0		
Arrive On Green	0.02	0.02	0.00	0.40	0.40	0.40	0.00	0.58	0.00		
Sat Flow, veh/h	5003	5003	2787	989	5085	1583	3442	5253	0		
Grp Volume(v), veh/h	6	6	0	22	490	2	1	391	0		
Grp Sat Flow(s),veh/h/ln	1668	1668	1393	989	1695	1583	1721	1695	0		
Q Serve(g_s), s	0.0	0.0	0.0	0.4	1.8	0.0	0.0	1.0	0.0		
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.4	1.8	0.0	0.0	1.0	0.0		
Prop In Lane	1.00	1.00	1.00	1.00		1.00	1.00		0.00		
Lane Grp Cap(c), veh/h	106	106	59	656	2029	665	12	2949	0		
V/C Ratio(X)	0.06	0.06	0.00	0.03	0.24	0.00	0.08	0.13	0.00		
Avail Cap(c_a), veh/h	6840	6840	3810	1491	6325	2003	1510	9479	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	13.2	13.2	0.0	5.1	5.5	4.6	13.7	2.6	0.0		
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.0	0.0	1.0	0.0	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.1	0.8	0.0	0.0	0.4	0.0		
LnGrp Delay(d),s/veh	13.3	13.3	0.0	5.1	5.5	4.6	14.7	2.6	0.0		
LnGrp LOS	B	B		A	A	A	B	A			
Approach Vol, veh/h	6	6			514			392			
Approach Delay, s/veh	13.3	13.3			5.5			2.7			
Approach LOS	B	B			A			A			
Timer	1	2	3	4	5	6	7	8			
Assigned Phs		2		4			7	8			
Phs Duration (G+Y+Rc), s		5.9		21.7			5.0	16.7			
Change Period (Y+Rc), s		* 5.3		* 5.7			* 4.9	5.7			
Max Green Setting (Gmax), s		* 38		* 51			* 12	34.3			
Max Q Clear Time (g_c+I1), s		2.0		3.0			2.0	3.8			
Green Ext Time (p_c), s		0.0		4.8			0.0	4.6			
Intersection Summary											
HCM 2010 Ctrl Delay			4.3								
HCM 2010 LOS			A								
Notes											

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘	↗	↘ ↘ ↘ ↘	
Traffic Vol, veh/h	0	21	493	10	3	416
Future Vol, veh/h	0	21	493	10	3	416
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	135	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	21	493	10	3	416

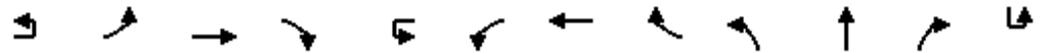
Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	247	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	642	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	642	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	642	682
HCM Lane V/C Ratio	-	-	0.033	0.004
HCM Control Delay (s)	-	-	10.8	10.3
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM Signalized Intersection Capacity Analysis
6: East Commerce Way & Arena Blvd

04/17/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔↔	↔↔↔	↔		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	
Traffic Volume (vph)	11	320	964	26	11	0	669	156	53	25	13	2
Future Volume (vph)	11	320	964	26	11	0	669	156	53	25	13	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00	0.97	0.91	1.00	
Frbp, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3433	5085	1563		3433	5085	1563	3433	5085	1583	
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)		3433	5085	1563		3433	5085	1563	3433	5085	1583	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	320	964	26	11	0	669	156	53	25	13	2
RTOR Reduction (vph)	0	0	0	14	0	0	0	107	0	0	12	0
Lane Group Flow (vph)	0	331	964	12	0	11	669	49	53	25	1	0
Confl. Peds. (#/hr)		1		1		1		1				
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	1	1	6		5	5	2		7	4		3
Permitted Phases				6				2				4
Actuated Green, G (s)		14.4	38.9	38.9		2.2	26.7	26.7	6.8	6.3	6.3	
Effective Green, g (s)		14.4	38.9	38.9		2.2	26.7	26.7	6.8	6.3	6.3	
Actuated g/C Ratio		0.17	0.46	0.46		0.03	0.32	0.32	0.08	0.07	0.07	
Clearance Time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Vehicle Extension (s)		2.0	2.0	2.0		2.0	4.4	4.4	2.0	2.0	2.0	
Lane Grp Cap (vph)		583	2335	717		89	1602	492	275	378	117	
v/s Ratio Prot		c0.10	c0.19			0.00	0.13		0.02	0.00		
v/s Ratio Perm				0.01				0.03			0.00	
v/c Ratio		0.57	0.41	0.02		0.12	0.42	0.10	0.19	0.07	0.01	
Uniform Delay, d1		32.3	15.3	12.5		40.3	22.9	20.5	36.4	36.5	36.3	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.8	0.0	0.0		0.2	0.3	0.1	0.1	0.0	0.0	
Delay (s)		33.1	15.3	12.5		40.5	23.2	20.7	36.5	36.5	36.3	
Level of Service		C	B	B		D	C	C	D	D	D	
Approach Delay (s)			19.7				22.9			36.5		
Approach LOS			B				C			D		
Intersection Summary												
HCM 2000 Control Delay			23.0				HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			84.7				Sum of lost time (s)		22.7			
Intersection Capacity Utilization			69.9%				ICU Level of Service		C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: East Commerce Way & Arena Blvd

04/17/2018



Movement	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↔
Traffic Volume (vph)	194	4	225
Future Volume (vph)	194	4	225
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	5.9	5.9
Lane Util. Factor	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	194	4	225
RTOR Reduction (vph)	0	0	187
Lane Group Flow (vph)	196	4	38
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Turn Type	Prot	NA	Perm
Protected Phases	3	8	
Permitted Phases			8
Actuated Green, G (s)	14.6	14.2	14.2
Effective Green, g (s)	14.6	14.2	14.2
Actuated g/C Ratio	0.17	0.17	0.17
Clearance Time (s)	5.5	5.9	5.9
Vehicle Extension (s)	2.0	2.0	2.0
Lane Grp Cap (vph)	591	593	265
v/s Ratio Prot	c0.06	0.00	
v/s Ratio Perm			c0.02
v/c Ratio	0.33	0.01	0.14
Uniform Delay, d1	30.8	29.4	30.1
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.1
Delay (s)	30.9	29.4	30.1
Level of Service	C	C	C
Approach Delay (s)		30.5	
Approach LOS		C	

Intersection Summary

INTERSECTION ANALYSIS
EXISTING PLUS PROJECT AM PEAK HOUR

EXISTING PLUS PROJECT AM PEAK HOUR

HCM Signalized Intersection Capacity Analysis

1: East Commerce Way & Del Paso Road

04/15/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↔↔	↔↔↔	↔		↔↔	↔↔↔	↔		↔↔	↔↔↔	↔
Traffic Volume (vph)	1	399	979	398	18	320	776	73	4	94	298	144
Future Volume (vph)	1	399	979	398	18	320	776	73	4	94	298	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.91	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	399	979	398	18	320	776	73	4	94	298	144
RTOR Reduction (vph)	0	0	0	239	0	0	0	58	0	0	0	94
Lane Group Flow (vph)	0	400	979	159	0	338	776	15	0	98	298	50
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases				6			2					8
Actuated Green, G (s)		22.0	34.1	34.1		14.8	27.0	27.0		13.0	44.9	44.9
Effective Green, g (s)		22.0	34.1	34.1		14.8	27.0	27.0		13.0	44.9	44.9
Actuated g/C Ratio		0.17	0.26	0.26		0.11	0.21	0.21		0.10	0.35	0.35
Clearance Time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Vehicle Extension (s)		2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		522	1200	373		351	950	295		309	1580	492
v/s Ratio Prot		0.13	c0.21			0.11	c0.17			c0.03	0.07	
v/s Ratio Perm				0.11				0.01				0.03
v/c Ratio		0.77	0.82	0.43		0.96	0.82	0.05		0.32	0.19	0.10
Uniform Delay, d1		51.5	45.0	39.8		57.3	49.1	41.2		54.4	29.8	28.9
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		6.0	6.2	3.5		37.8	7.7	0.3		0.2	0.0	0.0
Delay (s)		57.5	51.2	43.4		95.2	56.9	41.6		54.6	29.8	28.9
Level of Service		E	D	D		F	E	D		D	C	C
Approach Delay (s)			50.9			66.8					34.1	
Approach LOS			D			E					C	

Intersection Summary

HCM 2000 Control Delay	55.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.2
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

EXISTING PLUS PROJECT AM PEAK HOUR

HCM Signalized Intersection Capacity Analysis

1: East Commerce Way & Del Paso Road

04/15/2018



Movement	SBL	SBT	SBR
Lane Configurations	ST	T	T
Traffic Volume (vph)	95	417	626
Future Volume (vph)	95	417	626
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	6.0	6.0
Lane Util. Factor	0.97	0.95	0.95
Frt	1.00	0.96	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3090	1533	1354
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3090	1533	1354
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	95	417	626
RTOR Reduction (vph)	0	9	272
Lane Group Flow (vph)	95	546	216
Turn Type	Prot	NA	Perm
Protected Phases	7	4	
Permitted Phases			4
Actuated Green, G (s)	14.0	45.9	45.9
Effective Green, g (s)	14.0	45.9	45.9
Actuated g/C Ratio	0.11	0.35	0.35
Clearance Time (s)	5.5	6.0	6.0
Vehicle Extension (s)	2.0	2.0	2.0
Lane Grp Cap (vph)	332	541	478
v/s Ratio Prot	0.03	c0.36	
v/s Ratio Perm			0.16
v/c Ratio	0.29	1.01	0.45
Uniform Delay, d1	53.4	42.0	32.4
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.2	41.0	0.2
Delay (s)	53.6	83.0	32.6
Level of Service	D	F	C
Approach Delay (s)		58.9	
Approach LOS		E	
Intersection Summary			

EXISTING PLUS PROJECT AM PEAK HOUR

HCM 2010 TWSC

2: East Commerce Way & Snowy Egret Drive

04/15/2018

Intersection

Int Delay, s/veh	1						
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↘	↑↑↑	↗	↘	↑↑↑
Traffic Vol, veh/h	27	51	0	452	39	43	862
Future Vol, veh/h	27	51	0	452	39	43	862
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	0	150	-	175	240	-
Veh in Median Storage, #	0	-	-	0	-	-	0
Grade, %	0	-	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	27	51	0	452	39	43	862

Major/Minor	Minor1	Major1			Major2	
Conflicting Flow All	883	226	-	0	0	452
Stage 1	452	-	-	-	-	-
Stage 2	431	-	-	-	-	-
Critical Hdwy	5.74	7.14	5.64	-	-	5.34
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	2.32	-	-	3.12
Pot Cap-1 Maneuver	355	662	-	-	-	713
Stage 1	515	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	334	662	-	-	-	713
Mov Cap-2 Maneuver	334	-	-	-	-	-
Stage 1	515	-	-	-	-	-
Stage 2	536	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBU	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	334	662	713
HCM Lane V/C Ratio	-	-	-	0.081	0.077	0.06
HCM Control Delay (s)	0	-	-	16.7	10.9	10.4
HCM Lane LOS	A	-	-	C	B	B
HCM 95th %tile Q(veh)	-	-	-	0.3	0.2	0.2

EXISTING PLUS PROJECT AM PEAK HOUR

HCM 2010 Signalized Intersection Summary

3: East Commerce Way & North Access

04/15/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	0	30	9	0	11	221	457	11	13	705	170
Future Volume (veh/h)	23	0	30	9	0	11	221	457	11	13	705	170
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	23	0	30	9	0	11	221	457	11	13	705	170
Adj No. of Lanes	1	1	0	0	1	0	2	3	0	1	3	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	137	0	122	37	0	45	275	581	14	1098	3345	1042
Arrive On Green	0.08	0.00	0.08	0.05	0.00	0.05	0.08	0.11	0.11	0.62	0.66	0.66
Sat Flow, veh/h	1774	0	1583	749	0	915	3442	5109	123	1774	5085	1583
Grp Volume(v), veh/h	23	0	30	20	0	0	221	303	165	13	705	170
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1664	0	0	1721	1695	1841	1774	1695	1583
Q Serve(g_s), s	1.8	0.0	2.7	1.7	0.0	0.0	9.5	13.0	13.1	0.4	8.3	6.2
Cycle Q Clear(g_c), s	1.8	0.0	2.7	1.7	0.0	0.0	9.5	13.0	13.1	0.4	8.3	6.2
Prop In Lane	1.00		1.00	0.45		0.55	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	137	0	122	82	0	0	275	385	209	1098	3345	1042
V/C Ratio(X)	0.17	0.00	0.25	0.25	0.00	0.00	0.80	0.79	0.79	0.01	0.21	0.16
Avail Cap(c_a), veh/h	439	0	392	410	0	0	484	845	459	1098	3345	1042
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.7	0.0	65.1	68.7	0.0	0.0	67.8	64.7	64.7	11.0	10.2	9.8
Incr Delay (d2), s/veh	0.2	0.0	0.4	0.6	0.0	0.0	2.1	14.7	25.3	0.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	1.2	0.8	0.0	0.0	4.6	6.9	8.2	0.2	3.9	2.8
LnGrp Delay(d),s/veh	64.9	0.0	65.5	69.2	0.0	0.0	69.9	79.4	90.0	11.0	10.3	10.2
LnGrp LOS	E		E	E			E	E	F	B	B	B
Approach Vol, veh/h		53			20			689			888	
Approach Delay, s/veh		65.2			69.2			78.9			10.3	
Approach LOS		E			E			E			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.5	16.9	104.4		12.3	98.5	22.7				
Change Period (Y+Rc), s		* 4.9	* 4.9	5.7		4.9	5.7	* 5.7				
Max Green Setting (Gmax), s		* 37	* 21	34.4		37.0	18.1	* 37				
Max Q Clear Time (g_c+I1), s		4.7	11.5	10.3		3.7	2.4	15.1				
Green Ext Time (p_c), s		0.1	0.3	3.8		0.0	3.4	1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			41.4									
HCM 2010 LOS			D									
Notes												

EXISTING PLUS PROJECT AM PEAK HOUR

HCM 2010 Signalized Intersection Summary

4: East Commerce Way & Center Access

04/15/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	15	40	0	4	111	682	1	1	716	24
Future Volume (veh/h)	3	0	15	40	0	4	111	682	1	1	716	24
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	3	0	15	40	0	4	111	682	1	1	716	24
Adj No. of Lanes	1	1	0	3	1	1	1	3	1	2	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	18	0	127	352	259	220	956	3599	1121	11	845	28
Arrive On Green	0.01	0.00	0.08	0.07	0.00	0.14	0.54	0.71	0.71	0.00	0.22	0.22
Sat Flow, veh/h	1774	0	1583	5003	1863	1583	1774	5085	1583	3442	5054	169
Grp Volume(v), veh/h	3	0	15	40	0	4	111	682	1	1	480	260
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1668	1863	1583	1774	1695	1583	1721	1695	1833
Q Serve(g_s), s	0.3	0.0	1.3	1.1	0.0	0.1	4.6	6.8	0.0	0.0	20.3	20.4
Cycle Q Clear(g_c), s	0.3	0.0	1.3	1.1	0.0	0.1	4.6	6.8	0.0	0.0	20.3	20.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	18	0	127	352	259	220	956	3599	1121	11	567	307
V/C Ratio(X)	0.17	0.00	0.12	0.11	0.00	0.02	0.12	0.19	0.00	0.09	0.85	0.85
Avail Cap(c_a), veh/h	176	0	415	444	472	401	956	3599	1121	301	1121	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.99	0.99	0.99	0.98	0.98	0.98
Uniform Delay (d), s/veh	73.6	0.0	64.1	65.3	0.0	4.7	17.0	7.4	6.4	74.5	56.5	56.5
Incr Delay (d2), s/veh	1.6	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.0	1.2	14.2	24.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.6	0.5	0.0	0.0	2.3	3.2	0.0	0.0	10.7	12.4
LnGrp Delay(d),s/veh	75.2	0.0	64.2	65.4	0.0	4.7	17.0	7.5	6.4	75.7	70.7	80.5
LnGrp LOS	E		E	E		A	B	A	A	E	E	F
Approach Vol, veh/h		18			44			794			741	
Approach Delay, s/veh		66.1			59.9			8.8			74.1	
Approach LOS		E			E			A			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	26.1	86.6	30.7	15.8	16.9	5.4	111.9				
Change Period (Y+Rc), s	* 5.1	* 5.3	* 5.7	* 5.6	* 5.3	* 4.9	* 4.9	5.7				
Max Green Setting (Gmax), s	* 15	* 38	* 27	* 50	* 13	* 39	* 13	63.5				
Max Q Clear Time (g_c+I1), s	2.3	2.1	6.6	22.4	3.1	3.3	2.0	8.8				
Green Ext Time (p_c), s	0.0	0.1	2.7	2.7	0.0	0.0	0.0	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay			41.2									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary
 5: East Commerce Way & South Access

04/17/2018

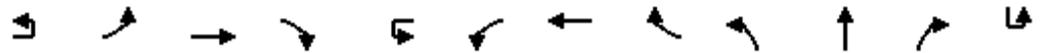
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	106	9	0	3	774	784	17	11	709	49
Future Volume (veh/h)	7	0	106	9	0	3	774	784	17	11	709	49
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	7	0	106	9	0	3	774	784	17	11	709	49
Adj No. of Lanes	1	1	0	1	1	0	2	3	1	1	3	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	39	0	129	30	0	126	2066	939	292	1019	809	252
Arrive On Green	0.02	0.00	0.08	0.02	0.00	0.08	1.00	0.31	0.31	1.00	0.32	0.32
Sat Flow, veh/h	1774	0	1583	1774	0	1583	3442	5085	1583	1774	5085	1583
Grp Volume(v), veh/h	7	0	106	9	0	3	774	784	17	11	709	49
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	1583	1721	1695	1583	1774	1695	1583
Q Serve(g_s), s	0.6	0.0	9.9	0.8	0.0	0.3	0.0	21.5	1.0	0.0	19.8	3.4
Cycle Q Clear(g_c), s	0.6	0.0	9.9	0.8	0.0	0.3	0.0	21.5	1.0	0.0	19.8	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	39	0	129	30	0	126	2066	939	292	1019	809	252
V/C Ratio(X)	0.18	0.00	0.82	0.30	0.00	0.02	0.37	0.83	0.06	0.01	0.88	0.19
Avail Cap(c_a), veh/h	154	0	454	154	0	454	2066	2038	634	1019	973	303
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.54	0.54	0.54	0.98	0.98	0.98
Uniform Delay (d), s/veh	72.0	0.0	67.8	72.9	0.0	63.7	0.0	49.7	33.5	0.0	49.7	44.2
Incr Delay (d2), s/veh	0.8	0.0	4.9	2.1	0.0	0.0	0.0	4.9	0.2	0.0	12.6	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	4.5	0.4	0.0	0.1	0.0	10.5	0.5	0.0	10.1	1.6
LnGrp Delay(d),s/veh	72.8	0.0	72.7	75.0	0.0	63.7	0.0	54.6	33.7	0.0	62.4	45.8
LnGrp LOS	E		E	E		E	A	D	C	A	E	D
Approach Vol, veh/h		113			12			1575			769	
Approach Delay, s/veh		72.7			72.2			27.6			60.4	
Approach LOS		E			E			C			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	17.3	94.9	29.6	7.9	17.6	91.1	33.4				
Change Period (Y+Rc), s	* 4.9	* 5.4	4.9	* 5.7	* 5.4	* 5.4	4.9	* 5.7				
Max Green Setting (Gmax), s	* 13	* 43	44.4	* 29	* 13	* 43	13.0	* 60				
Max Q Clear Time (g_c+I1), s	2.6	2.3	2.0	21.8	2.8	11.9	2.0	23.5				
Green Ext Time (p_c), s	0.0	0.0	1.6	2.1	0.0	0.4	1.4	4.2				
Intersection Summary												
HCM 2010 Ctrl Delay			40.1									
HCM 2010 LOS			D									
Notes												

EXISTING PLUS PROJECT AM PEAK HOUR

HCM Signalized Intersection Capacity Analysis

6: East Commerce Way & Arena Blvd

04/15/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔↔	↔↔↔	↔		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	
Traffic Volume (vph)	5	1089	909	21	10	3	443	450	100	35	5	1
Future Volume (vph)	5	1089	909	21	10	3	443	450	100	35	5	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00	0.97	0.91	1.00	
Frbp, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3433	5085	1562		3433	5085	1562	3433	5085	1583	
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)		3433	5085	1562		3433	5085	1562	3433	5085	1583	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	1089	909	21	10	3	443	450	100	35	5	1
RTOR Reduction (vph)	0	0	0	9	0	0	0	339	0	0	5	0
Lane Group Flow (vph)	0	1094	909	12	0	13	443	111	100	35	0	0
Confl. Peds. (#/hr)		1		1		1		1				
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	1!	1	6		5	5	2		7	4		3
Permitted Phases				6				2				4
Actuated Green, G (s)		57.5	89.0	89.0		5.6	37.1	37.1	22.8	14.4	14.4	
Effective Green, g (s)		57.5	89.0	89.0		5.6	37.1	37.1	22.8	14.4	14.4	
Actuated g/C Ratio		0.38	0.59	0.59		0.04	0.25	0.25	0.15	0.10	0.10	
Clearance Time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Vehicle Extension (s)		2.0	2.0	2.0		2.0	4.4	4.4	2.0	2.0	2.0	
Lane Grp Cap (vph)		1315	3017	926		128	1257	386	521	488	151	
v/s Ratio Prot		c0.32	0.18			0.00	c0.09		c0.03	0.01		
v/s Ratio Perm				0.01				0.07			0.00	
v/c Ratio		0.83	0.30	0.01		0.10	0.35	0.29	0.19	0.07	0.00	
Uniform Delay, d1		41.9	15.1	12.5		69.8	46.5	45.8	55.6	61.7	61.3	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		4.4	0.3	0.0		0.1	0.8	1.9	0.1	0.0	0.0	
Delay (s)		46.3	15.4	12.5		69.9	47.3	47.6	55.6	61.7	61.3	
Level of Service		D	B	B		E	D	D	E	E	E	
Approach Delay (s)			32.1				47.8			57.4		
Approach LOS			C				D			E		

Intersection Summary

HCM 2000 Control Delay	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.7
Intersection Capacity Utilization	120.7%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

EXISTING PLUS PROJECT AM PEAK HOUR

HCM Signalized Intersection Capacity Analysis

6: East Commerce Way & Arena Blvd

04/15/2018



Movement	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↔
Traffic Volume (vph)	271	11	535
Future Volume (vph)	271	11	535
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	5.9	5.4
Lane Util. Factor	0.97	0.95	1.00
Frbp, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	271	11	535
RTOR Reduction (vph)	0	0	72
Lane Group Flow (vph)	272	11	464
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Turn Type	Prot	NA	pm+ov
Protected Phases	3	8	1!
Permitted Phases			8
Actuated Green, G (s)	18.3	10.0	67.5
Effective Green, g (s)	18.3	10.0	67.5
Actuated g/C Ratio	0.12	0.07	0.45
Clearance Time (s)	5.5	5.9	5.4
Vehicle Extension (s)	2.0	2.0	2.0
Lane Grp Cap (vph)	418	235	769
v/s Ratio Prot	c0.08	0.00	c0.23
v/s Ratio Perm			0.06
v/c Ratio	0.65	0.05	0.60
Uniform Delay, d1	62.8	65.5	31.1
Progression Factor	1.29	1.24	1.52
Incremental Delay, d2	2.7	0.0	0.9
Delay (s)	83.9	81.4	48.1
Level of Service	F	F	D
Approach Delay (s)		60.5	
Approach LOS		E	
Intersection Summary			

INTERSECTION ANALYSIS
EXISTING PLUS PROJECT PM PEAK HOUR

HCM Signalized Intersection Capacity Analysis

1: East Commerce Way & Del Paso Road

04/15/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↘↘	↑↑↑	↗		↘↘	↑↑↑	↗		↘↘	↑↑↑	↗
Traffic Volume (vph)	1	804	1043	275	26	218	799	135	18	286	450	338
Future Volume (vph)	1	804	1043	275	26	218	799	135	18	286	450	338
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.91	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	804	1043	275	26	218	799	135	18	286	450	338
RTOR Reduction (vph)	0	0	0	134	0	0	0	106	0	0	0	212
Lane Group Flow (vph)	0	805	1043	141	0	244	799	29	0	304	450	126
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases				6				2				8
Actuated Green, G (s)		31.2	41.7	41.7		14.8	25.4	25.4		16.7	24.6	24.6
Effective Green, g (s)		31.2	41.7	41.7		14.8	25.4	25.4		16.7	24.6	24.6
Actuated g/C Ratio		0.27	0.35	0.35		0.13	0.22	0.22		0.14	0.21	0.21
Clearance Time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Vehicle Extension (s)		2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		819	1622	505		388	988	307		438	957	298
v/s Ratio Prot		c0.26	0.23			0.08	c0.17			c0.10	0.10	
v/s Ratio Perm				0.10				0.02				0.09
v/c Ratio		0.98	0.64	0.28		0.63	0.81	0.09		0.69	0.47	0.42
Uniform Delay, d1		42.9	31.7	27.2		48.8	43.8	36.9		48.0	40.8	40.3
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		27.0	0.7	0.1		2.3	4.7	0.0		3.8	0.1	0.4
Delay (s)		69.9	32.4	27.3		51.1	48.5	36.9		51.8	40.9	40.7
Level of Service		E	C	C		D	D	D		D	D	D
Approach Delay (s)			46.0				47.7				43.9	
Approach LOS			D				D				D	

Intersection Summary

HCM 2000 Control Delay	46.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	117.6	Sum of lost time (s)	22.2
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: East Commerce Way & Del Paso Road

04/15/2018



Movement	SBL	SBT	SBR
Lane Configurations	TT	T	T
Traffic Volume (vph)	106	189	258
Future Volume (vph)	106	189	258
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	6.0	6.0
Lane Util. Factor	0.97	0.95	0.95
Frt	1.00	0.97	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3090	1543	1354
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3090	1543	1354
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	106	189	258
RTOR Reduction (vph)	0	7	170
Lane Group Flow (vph)	106	231	39
Turn Type	Prot	NA	Perm
Protected Phases	7	4	
Permitted Phases			4
Actuated Green, G (s)	14.3	22.2	22.2
Effective Green, g (s)	14.3	22.2	22.2
Actuated g/C Ratio	0.12	0.19	0.19
Clearance Time (s)	5.5	6.0	6.0
Vehicle Extension (s)	2.0	2.0	2.0
Lane Grp Cap (vph)	375	291	255
v/s Ratio Prot	0.03	0.15	
v/s Ratio Perm			0.03
v/c Ratio	0.28	0.79	0.15
Uniform Delay, d1	47.0	45.5	39.9
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.2	12.9	0.1
Delay (s)	47.1	58.4	40.0
Level of Service	D	E	D
Approach Delay (s)		49.3	
Approach LOS		D	

Intersection Summary

HCM 2010 TWSC
2: East Commerce Way & Snowy Egret Drive

04/15/2018

Intersection							
Int Delay, s/veh	0.2						
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↔	↑↑↑	↗	↔	↑↑↑
Traffic Vol, veh/h	4	11	0	677	7	10	455
Future Vol, veh/h	4	11	0	677	7	10	455
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	0	150	-	175	240	-
Veh in Median Storage, #	0	-	-	0	-	-	0
Grade, %	0	-	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	4	11	0	677	7	10	455

Major/Minor	Minor1	Major1			Major2		
Conflicting Flow All	879	339	-	0	0	677	0
Stage 1	677	-	-	-	-	-	-
Stage 2	202	-	-	-	-	-	-
Critical Hdwy	5.74	7.14	5.64	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	2.32	-	-	3.12	-
Pot Cap-1 Maneuver	357	561	-	-	-	559	-
Stage 1	379	-	-	-	-	-	-
Stage 2	746	-	-	-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	351	561	-	-	-	559	-
Mov Cap-2 Maneuver	351	-	-	-	-	-	-
Stage 1	379	-	-	-	-	-	-
Stage 2	733	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBU	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	351	561	559
HCM Lane V/C Ratio	-	-	-	0.011	0.02	0.018
HCM Control Delay (s)	0	-	-	15.4	11.5	11.6
HCM Lane LOS	A	-	-	C	B	B
HCM 95th %tile Q(veh)	-	-	-	0	0.1	0.1

HCM 2010 Signalized Intersection Summary

3: East Commerce Way & North Access

04/15/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	0	191	3	0	9	41	516	41	24	401	36
Future Volume (veh/h)	157	0	191	3	0	9	41	516	41	24	401	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	157	0	191	3	0	9	41	516	41	24	401	36
Adj No. of Lanes	1	1	0	0	1	0	2	3	0	1	3	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	386	0	345	16	0	48	694	889	70	358	1008	314
Arrive On Green	0.22	0.00	0.22	0.04	0.00	0.04	0.20	0.18	0.18	0.20	0.20	0.20
Sat Flow, veh/h	1774	0	1583	407	0	1220	3442	4808	378	1774	5085	1583
Grp Volume(v), veh/h	157	0	191	12	0	0	41	362	195	24	401	36
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1627	0	0	1721	1695	1796	1774	1695	1583
Q Serve(g_s), s	4.5	0.0	6.4	0.4	0.0	0.0	0.6	5.8	5.9	0.7	4.1	1.1
Cycle Q Clear(g_c), s	4.5	0.0	6.4	0.4	0.0	0.0	0.6	5.8	5.9	0.7	4.1	1.1
Prop In Lane	1.00		1.00	0.25		0.75	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	386	0	345	64	0	0	694	627	332	358	1008	314
V/C Ratio(X)	0.41	0.00	0.55	0.19	0.00	0.00	0.06	0.58	0.59	0.07	0.40	0.11
Avail Cap(c_a), veh/h	1106	0	987	1012	0	0	1018	1305	691	525	1957	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	0.0	20.7	27.7	0.0	0.0	19.2	22.1	22.2	19.2	20.8	19.6
Incr Delay (d2), s/veh	0.3	0.0	0.5	0.5	0.0	0.0	0.0	0.3	0.6	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	2.8	0.2	0.0	0.0	0.3	2.7	3.0	0.3	1.9	0.5
LnGrp Delay(d),s/veh	20.2	0.0	21.2	28.2	0.0	0.0	19.2	22.4	22.8	19.2	20.9	19.6
LnGrp LOS	C		C	C			B	C	C	B	C	B
Approach Vol, veh/h		348			12			598			461	
Approach Delay, s/veh		20.8			28.2			22.3			20.7	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		17.9	16.9	17.5		7.2	17.7	16.7				
Change Period (Y+Rc), s		* 4.9	* 4.9	5.7		4.9	5.7	* 5.7				
Max Green Setting (Gmax), s		* 37	* 18	22.9		37.0	17.6	* 23				
Max Q Clear Time (g_c+I1), s		8.4	2.6	6.1		2.4	2.7	7.9				
Green Ext Time (p_c), s		1.0	0.0	1.8		0.0	1.7	2.1				
Intersection Summary												
HCM 2010 Ctrl Delay			21.5									
HCM 2010 LOS			C									
Notes												

HCM 2010 Signalized Intersection Summary

4: East Commerce Way & Center Access

04/15/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	0	96	6	0	0	21	576	2	1	592	5
Future Volume (veh/h)	22	0	96	6	0	0	21	576	2	1	592	5
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	22	0	96	6	0	0	21	576	2	1	592	5
Adj No. of Lanes	1	1	0	3	1	1	1	3	1	2	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	0	141	97	98	83	1050	3734	1163	11	732	6
Arrive On Green	0.05	0.00	0.09	0.02	0.00	0.00	1.00	1.00	1.00	0.00	0.14	0.14
Sat Flow, veh/h	1774	0	1583	5003	1863	1583	1774	5085	1583	3442	5201	44
Grp Volume(v), veh/h	22	0	96	6	0	0	21	576	2	1	386	211
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1668	1863	1583	1774	1695	1583	1721	1695	1855
Q Serve(g_s), s	1.6	0.0	7.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	14.9	14.9
Cycle Q Clear(g_c), s	1.6	0.0	7.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	14.9	14.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	96	0	141	97	98	83	1050	3734	1163	11	477	261
V/C Ratio(X)	0.23	0.00	0.68	0.06	0.00	0.00	0.02	0.15	0.00	0.09	0.81	0.81
Avail Cap(c_a), veh/h	209	0	468	508	524	446	1050	3734	1163	334	1145	627
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.99	0.99	0.99	0.97	0.97	0.97
Uniform Delay (d), s/veh	61.2	0.0	59.7	65.0	0.0	0.0	0.0	0.0	0.0	67.1	56.2	56.2
Incr Delay (d2), s/veh	0.4	0.0	2.2	0.1	0.0	0.0	0.0	0.1	0.0	1.2	13.3	22.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	3.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	7.8	9.3
LnGrp Delay(d),s/veh	61.6	0.0	61.8	65.1	0.0	0.0	0.0	0.1	0.0	68.3	69.6	78.7
LnGrp LOS	E		E	E			A	A	A	E	E	E
Approach Vol, veh/h		118			6			599			598	
Approach Delay, s/veh		61.8			65.1			0.1			72.8	
Approach LOS		E			E			A			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.4	12.4	85.6	24.6	7.9	16.9	5.3	104.8				
Change Period (Y+Rc), s	* 5.1	* 5.3	* 5.7	* 5.6	* 5.3	* 4.9	* 4.9	5.7				
Max Green Setting (Gmax), s	* 16	* 38	* 15	* 46	* 14	* 40	* 13	47.5				
Max Q Clear Time (g_c+I1), s	3.6	0.0	2.0	16.9	2.2	9.9	2.0	2.0				
Green Ext Time (p_c), s	0.0	0.0	1.9	2.1	0.0	0.4	0.0	2.4				
Intersection Summary												
HCM 2010 Ctrl Delay			38.8									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary
 5: East Commerce Way & South Access

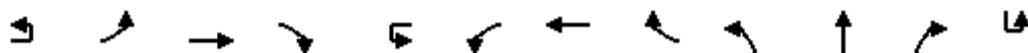
04/17/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	0	670	22	0	0	145	555	10	3	681	10
Future Volume (veh/h)	45	0	670	22	0	0	145	555	10	3	681	10
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	45	0	670	22	0	0	145	555	10	3	681	10
Adj No. of Lanes	1	1	0	1	1	0	2	3	1	1	3	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	899	0	692	59	1	0	330	701	218	410	1418	441
Arrive On Green	0.51	0.00	0.44	0.03	0.00	0.00	0.10	0.14	0.14	0.46	0.56	0.56
Sat Flow, veh/h	1774	0	1583	1774	1863	0	3442	5085	1583	1774	5085	1583
Grp Volume(v), veh/h	45	0	670	22	0	0	145	555	10	3	681	10
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	1863	0	1721	1695	1583	1774	1695	1583
Q Serve(g_s), s	1.7	0.0	55.7	1.6	0.0	0.0	5.4	14.3	0.7	0.1	10.9	0.4
Cycle Q Clear(g_c), s	1.7	0.0	55.7	1.6	0.0	0.0	5.4	14.3	0.7	0.1	10.9	0.4
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	899	0	692	59	1	0	330	701	218	410	1418	441
V/C Ratio(X)	0.05	0.00	0.97	0.37	0.00	0.00	0.44	0.79	0.05	0.01	0.48	0.02
Avail Cap(c_a), veh/h	899	0	722	106	781	0	344	1179	367	410	1418	441
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.87	0.87	0.87	0.99	0.99	0.99
Uniform Delay (d), s/veh	16.8	0.0	37.1	63.9	0.0	0.0	57.6	56.3	50.5	28.0	24.0	21.6
Incr Delay (d2), s/veh	0.0	0.0	24.9	1.4	0.0	0.0	0.3	7.9	0.3	0.0	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	29.2	0.8	0.0	0.0	2.6	7.2	0.3	0.1	5.1	0.2
LnGrp Delay(d),s/veh	16.9	0.0	61.9	65.3	0.0	0.0	57.9	64.2	50.9	28.0	25.1	21.7
LnGrp LOS	B		E	E			E	E	D	C	C	C
Approach Vol, veh/h		715			22			710			694	
Approach Delay, s/veh		59.1			65.3			62.8			25.1	
Approach LOS		E			E			E			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	73.8	0.0	17.8	43.3	9.4	64.4	36.9	24.3				
Change Period (Y+Rc), s	* 5.4	* 5.4	* 4.9	5.7	* 4.9	* 5.4	5.7	* 5.7				
Max Green Setting (Gmax), s	* 13	* 57	* 14	30.9	* 8.1	* 62	13.1	* 31				
Max Q Clear Time (g_c+I1), s	3.7	0.0	7.4	12.9	3.6	57.7	2.1	16.3				
Green Ext Time (p_c), s	2.6	0.0	0.1	3.1	0.0	1.3	2.6	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			49.4									
HCM 2010 LOS			D									
Notes												

HCM Signalized Intersection Capacity Analysis

6: East Commerce Way & Arena Blvd

04/15/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	11	442	964	26	11	0	669	239	53	28	13	2
Future Volume (vph)	11	442	964	26	11	0	669	239	53	28	13	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00	0.97	0.91	1.00	
Frbp, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3433	5085	1562		3433	5085	1563	3433	5085	1583	
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)		3433	5085	1562		3433	5085	1563	3433	5085	1583	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	442	964	26	11	0	669	239	53	28	13	2
RTOR Reduction (vph)	0	0	0	13	0	0	0	186	0	0	12	0
Lane Group Flow (vph)	0	453	964	13	0	11	669	53	53	28	1	0
Confl. Peds. (#/hr)		1		1		1		1				
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	1!	1	6		5	5	2		7	4		3
Permitted Phases				6				2				4
Actuated Green, G (s)		29.2	50.5	50.5		2.0	23.3	23.3	13.2	9.8	9.8	
Effective Green, g (s)		29.2	50.5	50.5		2.0	23.3	23.3	13.2	9.8	9.8	
Actuated g/C Ratio		0.28	0.48	0.48		0.02	0.22	0.22	0.13	0.09	0.09	
Clearance Time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Vehicle Extension (s)		2.0	2.0	2.0		2.0	4.4	4.4	2.0	2.0	2.0	
Lane Grp Cap (vph)		954	2445	751		65	1128	346	431	474	147	
v/s Ratio Prot		0.13	0.19			0.00	c0.13		0.02	0.01		
v/s Ratio Perm				0.01				0.03			0.00	
v/c Ratio		0.47	0.39	0.02		0.17	0.59	0.15	0.12	0.06	0.01	
Uniform Delay, d1		31.5	17.5	14.3		50.7	36.6	32.9	40.8	43.4	43.2	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1	0.0	0.0		0.5	1.1	0.3	0.0	0.0	0.0	
Delay (s)		31.7	17.5	14.3		51.1	37.7	33.2	40.8	43.4	43.2	
Level of Service		C	B	B		D	D	C	D	D	D	
Approach Delay (s)			21.9				36.7			41.9		
Approach LOS			C				D			D		
Intersection Summary												
HCM 2000 Control Delay			38.5				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			105.0				Sum of lost time (s)		22.7			
Intersection Capacity Utilization			110.0%				ICU Level of Service		H			
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: East Commerce Way & Arena Blvd

04/15/2018



Movement	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗
Traffic Volume (vph)	477	16	886
Future Volume (vph)	477	16	886
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	5.9	5.4
Lane Util. Factor	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	477	16	886
RTOR Reduction (vph)	0	0	106
Lane Group Flow (vph)	479	16	780
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Turn Type	Prot	NA	pm+ov
Protected Phases	3	8	1!
Permitted Phases			8
Actuated Green, G (s)	20.0	16.7	45.9
Effective Green, g (s)	20.0	16.7	45.9
Actuated g/C Ratio	0.19	0.16	0.44
Clearance Time (s)	5.5	5.9	5.4
Vehicle Extension (s)	2.0	2.0	2.0
Lane Grp Cap (vph)	653	562	773
v/s Ratio Prot	c0.14	0.00	c0.28
v/s Ratio Perm			0.21
v/c Ratio	0.73	0.03	1.01
Uniform Delay, d1	40.0	37.3	29.6
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	3.7	0.0	34.7
Delay (s)	43.7	37.3	64.2
Level of Service	D	D	E
Approach Delay (s)		56.8	
Approach LOS		E	
Intersection Summary			

ON-SITE QUEUING ANALYSIS

Model 4: Multiple servers with infinite waiting room

		Number in System	Probability	Cumulative
Quad B Office Development		0	44.91%	44.91%
North Access Point		1	34.15%	79.06%
AM Entry		2	12.98%	92.04%
4/16/2018		3	4.93%	96.97%
		4	1.88%	98.85%
		5	0.71%	99.56%
Model 4 (M/M/s Queue):		6	0.27%	99.83%
Multiple servers, Infinite population, Poisson arrival, FCFS, Exponential service time, Unlimited waiting room		7	0.10%	99.94%
Yellow cells need user input values		8	0.04%	99.98%
Inputs		9	0.01%	99.99%
Unit of time	hour	10	0.01%	100.00%
Arrival rate (lambda)	391 customers per hour	11	0.00%	100.00%
Service rate (mu)	514.2857143 customers per hour	12	0.00%	100.00%
Number of identical servers (s)	2 servers	13	0.00%	100.00%
		14	0.00%	100.00%
Outputs		15	0.00%	100.00%
Direct outputs from inputs		16	0.00%	100.00%
Mean time between arrivals	0.003 hour	17	0.00%	100.00%
Mean time per service	0.001944444 hour	18	0.00%	100.00%
Traffic intensity	0.380138889	19	0.00%	100.00%
		20	0.00%	100.00%
Summary measures		21	0.00%	100.00%
Average utilization rate of server	38.0%	22	0.00%	100.00%
Average number of customers waiting in line (Lq)	0.12842 customers	23	0.00%	100.00%
Average number of customers in system (L)	0.88870 customers	24	0.00%	100.00%
Average time waiting in line (Wq)	0.00033 hour	25	0.00%	100.00%
Average time in system (W)	0.00227 hour	26	0.00%	100.00%
Probability of no customers in system (P0)	0.44913 (this is the probability of empty system)	27	0.00%	100.00%
Probability that all servers are busy	20.9% (this is also the "percentage who wait in queue")	28	0.00%	100.00%
Probability that at least one server is idle	79.1% (this is also the "percentage who don't wait in queue")	29	0.00%	100.00%
		30	0.00%	100.00%
Distribution of number of customers in system		31	0.00%	100.00%
n (customers)	P(n in system)	32	0.00%	100.00%
2	0.129803	33	0.00%	100.00%
		34	0.00%	100.00%
Distribution of time in queue		35	0.00%	100.00%
t (time in queue)	P(wait > t)	36	0.00%	100.00%
0.333333333	0.000000	37	0.00%	100.00%
		38	0.00%	100.00%
		39	0.00%	100.00%
		40	0.00%	100.00%
		41	0.00%	100.00%
		42	0.00%	100.00%
		43	0.00%	100.00%
		44	0.00%	100.00%
		45	0.00%	100.00%
		46	0.00%	100.00%
		47	0.00%	100.00%
		48	0.00%	100.00%
		49	0.00%	100.00%
		50	0.00%	100.00%

Model 4: Multiple servers with infinite waiting room

Quad B Office Development			Number in System	Probability	Cumulative
South Access Point			0	11.10%	11.10%
AM Entry			1	17.77%	28.87%
4/16/2018			2	14.22%	43.09%
			3	11.37%	54.46%
			4	9.10%	63.56%
			5	7.28%	70.84%
Model 4 (M/M/s Queue):			6	5.83%	76.67%
Multiple servers, Infinite population, Poisson arrival, FCFS, Exponential service time, Unlimited waiting room			7	4.66%	81.33%
Yellow cells need user input values			8	3.73%	85.06%
Inputs			9	2.98%	88.05%
Unit of time	hour		10	2.39%	90.44%
Arrival rate (lambda)	823 customers per hour		11	1.91%	92.35%
Service rate (mu)	514.2857143 customers per hour		12	1.53%	93.88%
Number of identical servers (s)	2 servers		13	1.22%	95.10%
			14	0.98%	96.08%
Outputs			15	0.78%	96.86%
Direct outputs from inputs			16	0.63%	97.49%
Mean time between arrivals	0.001 hour		17	0.50%	97.99%
Mean time per service	0.001944444 hour		18	0.40%	98.39%
Traffic intensity	0.800138889		19	0.32%	98.71%
			20	0.26%	98.97%
Summary measures			21	0.21%	99.18%
Average utilization rate of server	80.0%		22	0.16%	99.34%
Average number of customers waiting in line (Lq)	2.84768 customers		23	0.13%	99.47%
Average number of customers in system (L)	4.44796 customers		24	0.11%	99.58%
Average time waiting in line (Wq)	0.00346 hour		25	0.08%	99.66%
Average time in system (W)	0.00540 hour		26	0.07%	99.73%
Probability of no customers in system (P0)	0.11103 (this is the probability of empty system)		27	0.05%	99.78%
Probability that all servers are busy	71.1% (this is also the "percentage who wait in queue")		28	0.04%	99.83%
Probability that at least one server is idle	28.9% (this is also the "percentage who don't wait in queue")		29	0.03%	99.86%
			30	0.03%	99.89%
Distribution of number of customers in system			31	0.02%	99.91%
n (customers)	P(n in system)		32	0.02%	99.93%
2	0.142162		33	0.01%	99.94%
			34	0.01%	99.95%
Distribution of time in queue			35	0.01%	99.96%
t (time in queue)	P(wait > t)		36	0.01%	99.97%
0.333333333	0.000000		37	0.01%	99.98%
			38	0.00%	99.98%
			39	0.00%	99.99%
			40	0.00%	99.99%
			41	0.00%	99.99%
			42	0.00%	99.99%
			43	0.00%	99.99%
			44	0.00%	100.00%
			45	0.00%	100.00%
			46	0.00%	100.00%
			47	0.00%	100.00%
			48	0.00%	100.00%
			49	0.00%	100.00%
			50	0.00%	100.00%

MEMORANDUM

TO: Aelita Milatzo, Judith Matsui-Drury
FROM: Vic Maslanka
DATE: 25 April 2018
SUBJECT: Natomas Crossing Quad B
Synchro and SimTraffic Results

P 17042-007

This memorandum summarizes the delay and queuing estimates from the traffic analysis for the Natomas Crossing Quad B project.

The following intersections were analyzed:

1. Del Paso Road and East Commerce Way
2. Snowy Egret Drive / West Entrance Road and East Commerce Way
3. North Driveway / Bella Rose Driveway and East Commerce Way
4. Center Driveway / Main Entrance Road and East Commerce Way
5. South Driveway / KSP Arena Corporate Center Driveway and East Commerce Way
6. Arena Boulevard and East Commerce Way

The following scenarios were initially evaluated:

- Existing a.m. peak hour – Synchro
- Existing p.m. peak hour – Synchro
- Existing Plus Project a.m. peak hour – Synchro and SimTraffic
- Existing Plus Project p.m. peak hour – Synchro and SimTraffic

Based upon the results of the SimTraffic analysis, for the Existing Plus Project scenario during the a.m. peak hour, operational difficulties were identified at intersection 6. Specifically, the eastbound left turn movement was unable to effectively clear, leading to long queues. The following alternate intersection improvement was evaluated with SimTraffic:

- Option 1 – Lengthened eastbound double left turn lane and longer cycle length

Table 1 presents the delay (level of service) results. Table 2 presents the queuing results, including the assumed turn lane lengths for analysis.

Following Tables 1 and 2, the technical appendices include the Synchro and SimTraffic output.

**Table 1
Delay and Level of Service Results**

Intersection	Synchro Results								SimTraffic Results					
	Existing				Existing Plus Project				Existing Plus Project					
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		A.M. Peak Hour With Improved Double Left		P.M. Peak Hour	
	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS	Delay (Seconds)	LOS
1 Del Paso Road and East Commerce Way	48.5	D	44.4	D	55.0	D	46.3	D	47.8	D	50.1	D	61.2	E
2 Snowy Egret Drive and East Commerce Way	1.3	A	0.3	A	1.0	A	0.2	A	2.5	A	2.6	A	1.9	A
- Northbound U-turn	11.1	B	9.8	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
- Southbound Left	10.2	B	10.1	B	10.4	B	11.6	B	7.1	A	7.4	A	7.1	A
- Westbound Left	15.2	C	12.9	B	16.7	C	15.4	C	25.8	D	31.8	D	16.9	C
- Westbound Right	10.8	B	10.5	B	10.9	B	11.5	B	3.9	A	4.2	A	5.8	A
3 North Access and East Commerce Way	0.3	A	0.4	A	41.4	D	21.5	C	18.9	B	17.1	B	13.9	B
- Southbound Left	10.2	B	10.3	B										
- Westbound Right	10.6	B	10.7	B										
4 Center Access and East Commerce Way	5.7	A	4.3	A	41.2	D	38.8	D	17.1	B	15.6	B	14.4	B
5 South Access and East Commerce Way	0.2	A	0.3	A	40.1	D	49.4	D	40.4	D	35.2	D	39.1	D
- Southbound Left	10.1	B	10.3	B										
- Westbound Right	10.5	B	10.8	B										
6 Arena Boulevard and East Commerce Way	26.0	C	23.0	C	42.6	D	38.5	D	107.2	F	43.1	D	37.9	D

Source: DKS Associates, April 20, 2018

Table 2

Queuing Analysis Results

Intersection	Approach	Existing Storage	Queue Statistics (Feet)															
			Synchro Results						SimTraffic Results									
			Existing AM Peak Hour		Existing PM Peak Hour		Assumed Storage	Existing Plus Project AM Peak Hour		Existing Plus Project PM Peak Hour		Existing Plus Project AM Peak Hour		Existing Plus Project PM Peak Hour		Assumed Storage	Existing Plus Project AM Peak Hour With Improved Double Left	
50th %	95th %	50th %	95th %	50th %	95th %	50th %		95th %	50th %	95th %	50th %	95th %	50th %	95th %				
1 Del Paso Road and East Commerce Way	EB Left	250	145	235	260	384	250	167	246	313	584	195	282	324	329	250	193	280
	EB Through	1405	247	329	210	260	1405	283	326	235	359	235	317	987	1402	1405	227	308
	EB Right	165	16	96	0	54	165	49	156	34	125	118	218	101	225	165	119	209
	WB Left	230	76	115	69	107	230	148	244	92	157	180	270	137	228	230	216	309
	WB Through	830	191	241	184	263	830	230	266	209	302	205	290	212	292	830	245	489
	WB Right	140	0	0	0	7	140	0	0	0	40	21	75	36	99	140	20	66
	NB Left	225	27	51	65	102	225	40	69	114	187	52	93	132	199	225	54	97
	NB Through	1030	55	79	88	121	1030	64	93	109	152	72	133	103	162	1030	78	144
	NB Right	145	0	43	0	67	145	0	41	44	147	50	104	108	186	145	50	108
	SB Left	280	31	57	31	57	280	38	67	38	78	224	472	80	167	280	236	483
SB Through	795	430	656	142	266	795	511	789	174	298	540	558	243	362	795	539	562	
SB Right	195	32	147	0	64	195	40	174	0	70	269	276	165	297	195	269	275	
2 Snowy Egret Drive and East Commerce Way	WB Left	230	-	5	-	0	230	-	8	-	0	18	45	3	18	230	23	55
	WB Right	230	-	5	-	3	230	-	5	-	3	22	41	8	27	230	23	45
	NB U-Turn	140	-	0	-	0	140	-	0	-	0	0	0	0	0	140	0	6
	SB Left	240	-	5	-	0	240	-	5	-	3	13	40	5	23	240	13	42
3 North Access and East Commerce Way	EB Left						150	21	43	19	166	19	52	66	119	150	22	56
	EB Through / Right						200	0	0	0	0	15	38	47	91	200	17	43
	WB	80	-	3	-	3	80	0	0	0	0	18	50	10	34	80	18	47
	NB Left						170	0	158	2	35	102	167	28	64	170	110	193
	NB Through / Right						525	5	209	27	200	49	147	97	195	525	19	96
	SB Left	210	-	3	-	3	200	12	31	3	48	8	32	18	46	200	13	52
	SB Through						535	113	267	19	147	131	272	81	146	535	151	324
SB Right						125	18	104	0	0	56	159	17	54	125	69	189	
4 Center Access and East Commerce Way	EB Left						60	3	14	18	47	2	16	22	54	60	3	18
	EB Through / Right						60	0	0	0	0	12	36	42	81	60	11	36
	WB Left	190	1	9	0	3	190	13	24	1	6	27	68	4	20	190	26	62
	WB Through						190	0	0	0	0	0	0	0	0	190	0	0
	WB Right	190	0	0	0	0	190	0	0	0	0	3	17	0	0	190	3	18
	NB Left	230	0	0	0	18	230	113	44	17	51	94	173	22	60	230	118	202
	NB Through	880	0	70	0	69	880	58	15	35	18	37	126	30	87	880	35	115
	NB Right	145	0	0	0	0	145	0	0	0	0	0	4	0	3	145	0	5
	SB Left	240	0	1	0	2	235	0	2	0	3	0	3	0	3	235	0	4
SB Through / Right	550	0	48	0	28	550	54	171	88	168	115	260	99	250	550	90	254	
5 South Access and East Commerce Way	EB Left						300	6	23	26	73	8	31	63	226	300	9	34
	EB Through / Right						300	0	0	229	337	42	75	313	479	300	49	93
	WB Left						135	9	28	19	48	7	28	20	52	135	9	31
	WB Through / Right	135	-	3	-	3	135	0	0	0	0	2	12	0	0	135	2	11
	NB Left						170	253	190	62	98	239	258	79	129	300	284	417
	NB Through						975	99	329	81	190	561	976	116	197	975	342	809
	NB Right						140	0	0	0	0	10	66	5	24	140	6	48
	SB Left	200	-	0	-	0	200	11	37	2	12	8	29	3	17	200	11	35
	SB Through						865	23	281	135	51	173	434	355	722	865	207	543
SB Right						125	0	23	0	0	30	125	14	88	125	29	127	

Table 2
Queuing Analysis Results

		Queue Statistics (Feet)																
Intersection	Approach	Existing Storage	Synchro Results									SimTraffic Results						
			Existing AM Peak Hour		Existing PM Peak Hour		Assumed Storage	Existing Plus Project AM Peak Hour		Existing Plus Project PM Peak Hour		Existing Plus Project AM Peak Hour		Existing Plus Project PM Peak Hour		Assumed Storage	Existing Plus Project AM Peak Hour With Improved Double Left	
			50th %	95th %	50th %	95th %		50th %	95th %		50th %	95th %						
6 Arena Boulevard and East Commerce Way	EB Left	360	65	148	83	146	360	510	761	133	259	433	447	144	223	760	418	609
	EB Through	1150	101	236	112	213	1150	112	270	127	308	2107	2990	110	184	1150	138	425
	EB Right	230	0	0	0	0	230	0	0	0	0	2	11	5	21	230	3	13
	WB Left	220	2	13	2	11	220	6	18	3	14	10	33	8	27	220	11	37
	WB Through	955	67	118	109	150	955	124	174	138	228	115	262	174	253	955	180	485
	WB Right	150	0	47	0	42	150	0	102	0	66	151	244	40	82	150	176	271
	NB Left	290	21	60	12	34	290	40	80	10	42	74	134	37	79	290	77	138
	NB Through	1135	3	12	4	14	1135	11	20	5	15	30	69	19	50	1135	32	73
	NB Right	200	0	0	0	0	200	0	0	0	0	2	14	8	27	200	3	15
	SB Left	200	31	113	46	94	200	110	208	150	335	128	205	168	257	200	126	253
SB Through	1190	2	10	1	6	935	5	17	4	15	47	230	526	1006	935	82	321	
SB Right	160	31	157	0	67	160	479	610	757	979	129	253	227	272	160	149	286	

Source: DKS Associates, April 20, 2018

TECHNICAL APPENDICES

SYNCHRO HCM OUTPUT

INTERSECTION ANALYSIS
EXISTING AM PEAK HOUR

HCM Signalized Intersection Capacity Analysis

1: East Commerce Way & Del Paso Road

04/17/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↔↔	↑↑↑	↗		↔↔	↑↑↑	↗		↔↔	↑↑↑	↗
Traffic Volume (vph)	1	399	979	304	18	199	776	73	4	77	294	131
Future Volume (vph)	1	399	979	304	18	199	776	73	4	77	294	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.91	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	399	979	304	18	199	776	73	4	77	294	131
RTOR Reduction (vph)	0	0	0	209	0	0	0	57	0	0	0	88
Lane Group Flow (vph)	0	400	979	95	0	217	776	16	0	81	294	43
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases				6				2				8
Actuated Green, G (s)		15.4	25.9	25.9		13.1	23.7	23.7		10.0	35.4	35.4
Effective Green, g (s)		15.4	25.9	25.9		13.1	23.7	23.7		10.0	35.4	35.4
Actuated g/C Ratio		0.14	0.24	0.24		0.12	0.22	0.22		0.09	0.33	0.33
Clearance Time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		443	1103	343		376	1010	314		287	1508	469
v/s Ratio Prot		c0.13	c0.21			0.07	0.17			0.03	0.06	
v/s Ratio Perm				0.07				0.01				0.03
v/c Ratio		0.90	0.89	0.28		0.58	0.77	0.05		0.28	0.19	0.09
Uniform Delay, d1		45.3	39.3	33.1		44.5	39.3	33.0		45.4	25.8	24.9
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		21.3	10.6	2.0		2.1	5.6	0.3		0.5	0.3	0.4
Delay (s)		66.6	50.0	35.2		46.7	44.9	33.3		45.9	26.1	25.3
Level of Service		E	D	D		D	D	C		D	C	C
Approach Delay (s)			51.3				44.5				29.0	
Approach LOS			D				D				C	

Intersection Summary

HCM 2000 Control Delay	48.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	107.4	Sum of lost time (s)	22.2
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: East Commerce Way & Del Paso Road

04/17/2018



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	95	390	626
Future Volume (vph)	95	390	626
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	6.0	6.0
Lane Util. Factor	0.97	0.95	0.95
Frt	1.00	0.96	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3090	1526	1354
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3090	1526	1354
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	95	390	626
RTOR Reduction (vph)	0	13	274
Lane Group Flow (vph)	95	527	202
Turn Type	Prot	NA	Perm
Protected Phases	7	4	
Permitted Phases			4
Actuated Green, G (s)	10.8	36.2	36.2
Effective Green, g (s)	10.8	36.2	36.2
Actuated g/C Ratio	0.10	0.34	0.34
Clearance Time (s)	5.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	310	514	456
v/s Ratio Prot	c0.03	c0.35	
v/s Ratio Perm			0.15
v/c Ratio	0.31	1.03	0.44
Uniform Delay, d1	44.8	35.6	27.7
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.6	46.5	3.1
Delay (s)	45.4	82.1	30.8
Level of Service	D	F	C
Approach Delay (s)		57.0	
Approach LOS		E	

Intersection Summary

HCM 2010 TWSC
 2: East Commerce Way & Snowy Egret Drive

04/17/2018

Intersection													
Int Delay, s/veh	1.3												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘		↗	↘	↗	↑↑↑	↗	↘	↑↑↑	
Traffic Vol, veh/h	0	0	0	27	0	51	0	9	419	39	43	619	0
Future Vol, veh/h	0	0	0	27	0	51	0	9	419	39	43	619	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free						
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	None
Storage Length	-	-	-	0	-	0	-	150	-	175	240	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	27	0	51	0	9	419	39	43	619	0

Major/Minor	Minor1	Major1			Major2					
Conflicting Flow All	771	-	210	-	619	0	0	419	0	0
Stage 1	437	-	-	-	-	-	-	-	-	-
Stage 2	334	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.74	-	7.14	5.64	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	-	3.92	2.32	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	404	0	677	-	595	-	-	739	-	0
Stage 1	526	0	-	-	-	-	-	-	-	0
Stage 2	639	0	-	-	-	-	-	-	-	0
Platoon blocked, %										
Mov Cap-1 Maneuver	380	0	677	-	595	-	-	739	-	-
Mov Cap-2 Maneuver	380	0	-	-	-	-	-	-	-	-
Stage 1	526	0	-	-	-	-	-	-	-	-
Stage 2	602	0	-	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0.2	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBU	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	595	-	-	380	677	739	-
HCM Lane V/C Ratio	-	0.015	-	-	0.071	0.075	0.058	-
HCM Control Delay (s)	0	11.1	-	-	15.2	10.8	10.2	-
HCM Lane LOS	A	B	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	0	-	-	0.2	0.2	0.2	-

HCM 2010 TWSC
 3: East Commerce Way & North Access

04/17/2018

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↖ ↗ ↘	↖ ↗ ↘		↖ ↗ ↘	↖ ↗ ↘
Traffic Vol, veh/h	0	20	447	11	13	641
Future Vol, veh/h	0	20	447	11	13	641
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	20	447	11	13	641

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	229	0	0	458
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	5.34
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	3.12
Pot Cap-1 Maneuver	0	659	-	-	709
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	-	659	-	-	709
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	659	709
HCM Lane V/C Ratio	-	-	0.03	0.018
HCM Control Delay (s)	-	-	10.6	10.2
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.1	0.1

HCM 2010 Signalized Intersection Summary

4: East Commerce Way & Center Access

04/17/2018

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	  		 		  		 	  			
Traffic Volume (veh/h)	40	0	4	9	454	1	1	637	0	0	0
Future Volume (veh/h)	40	0	4	9	454	1	1	637	0	0	0
Number	5	5	12	3	8	18	7	4	14		
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00		1.00	1.00		1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863	1863	1863	0		
Adj Flow Rate, veh/h	40	40	4	9	454	1	1	637	0		
Adj No. of Lanes	3	3	2	0	3	1	2	3	0		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	0		
Cap, veh/h	661	661	368	132	1726	769	11	2615	0		
Arrive On Green	0.13	0.13	0.13	0.35	0.35	0.35	0.00	0.51	0.00		
Sat Flow, veh/h	5003	5003	2787	28	4881	1583	3442	5253	0		
Grp Volume(v), veh/h	40	40	4	174	289	1	1	637	0		
Grp Sat Flow(s),veh/h/ln	1668	1668	1393	1824	1543	1583	1721	1695	0		
Q Serve(g_s), s	0.2	0.2	0.0	0.0	2.1	0.0	0.0	2.2	0.0		
Cycle Q Clear(g_c), s	0.2	0.2	0.0	2.1	2.1	0.0	0.0	2.2	0.0		
Prop In Lane	1.00	1.00	1.00	0.05		1.00	1.00		0.00		
Lane Grp Cap(c), veh/h	661	661	368	767	1091	769	11	2615	0		
V/C Ratio(X)	0.06	0.06	0.01	0.23	0.26	0.00	0.09	0.24	0.00		
Avail Cap(c_a), veh/h	6077	6077	3385	2070	3401	1955	1327	5622	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	11.8	11.8	11.7	7.2	7.2	4.1	15.5	4.2	0.0		
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	1.2	0.0	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.0	1.1	0.9	0.0	0.0	1.0	0.0		
LnGrp Delay(d),s/veh	11.8	11.8	11.7	7.2	7.2	4.1	16.7	4.2	0.0		
LnGrp LOS	B	B	B	A	A	A	B	A			
Approach Vol, veh/h	44	44			464			638			
Approach Delay, s/veh	11.8	11.8			7.2			4.2			
Approach LOS	B	B			A			A			
Timer	1	2	3	4	5	6	7	8			
Assigned Phs		2		4			7	8			
Phs Duration (G+Y+Rc), s		9.4		21.7			5.0	16.7			
Change Period (Y+Rc), s		* 5.3		* 5.7			* 4.9	5.7			
Max Green Setting (Gmax), s		* 38		* 34			* 12	34.3			
Max Q Clear Time (g_c+I1), s		2.2		4.2			2.0	4.1			
Green Ext Time (p_c), s		0.1		5.6			0.0	5.6			
Intersection Summary											
HCM 2010 Ctrl Delay			5.7								
HCM 2010 LOS			A								
Notes											

HCM 2010 TWSC
5: East Commerce Way & South Access

04/17/2018

Intersection

Int Delay, s/veh 0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↑↑↑	↗ ↑↑↑	↗	↘ ↑↑↑	↘ ↑↑↑
Traffic Vol, veh/h	0	12	452	17	11	673
Future Vol, veh/h	0	12	452	17	11	673
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	135	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	452	17	11	673

Major/Minor

	Minor1	Major1	Major2		
Conflicting Flow All	-	226	0	0	452
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	5.34
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	3.12
Pot Cap-1 Maneuver	0	662	-	-	713
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	-	662	-	-	713
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach

	WB	NB	SB
HCM Control Delay, s	10.5	0	0.2
HCM LOS	B		

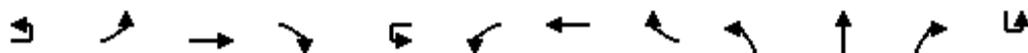
Minor Lane/Major Mvmt

	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	662	713
HCM Lane V/C Ratio	-	-	0.018	0.015
HCM Control Delay (s)	-	-	10.5	10.1
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM Signalized Intersection Capacity Analysis

6: East Commerce Way & Arena Blvd

04/17/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑↑↑	↗	
Traffic Volume (vph)	5	293	909	21	10	3	443	153	100	22	5	1
Future Volume (vph)	5	293	909	21	10	3	443	153	100	22	5	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00	0.97	0.91	1.00	
Frbp, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3433	5085	1562		3433	5085	1563	3433	5085	1583	
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)		3433	5085	1562		3433	5085	1563	3433	5085	1583	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	293	909	21	10	3	443	153	100	22	5	1
RTOR Reduction (vph)	0	0	0	13	0	0	0	113	0	0	5	0
Lane Group Flow (vph)	0	298	909	8	0	13	443	40	100	22	0	0
Confl. Peds. (#/hr)		1		1		1		1				
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	1	1	6		5	5	2		7	4		3
Permitted Phases				6				2				4
Actuated Green, G (s)		14.3	35.0	35.0		2.0	22.7	22.7	9.9	6.0	6.0	
Effective Green, g (s)		14.3	35.0	35.0		2.0	22.7	22.7	9.9	6.0	6.0	
Actuated g/C Ratio		0.16	0.40	0.40		0.02	0.26	0.26	0.11	0.07	0.07	
Clearance Time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Vehicle Extension (s)		2.0	2.0	2.0		2.0	4.4	4.4	2.0	2.0	2.0	
Lane Grp Cap (vph)		560	2031	624		78	1317	405	387	348	108	
v/s Ratio Prot		c0.09	c0.18			0.00	0.09		0.03	0.00		
v/s Ratio Perm				0.01				0.03			0.00	
v/c Ratio		0.53	0.45	0.01		0.17	0.34	0.10	0.26	0.06	0.00	
Uniform Delay, d1		33.6	19.2	15.9		42.0	26.3	24.7	35.5	38.2	38.0	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.5	0.1	0.0		0.4	0.3	0.2	0.1	0.0	0.0	
Delay (s)		34.1	19.3	15.9		42.4	26.6	24.8	35.6	38.2	38.0	
Level of Service		C	B	B		D	C	C	D	D	D	
Approach Delay (s)			22.8				26.5			36.2		
Approach LOS			C				C			D		
Intersection Summary												
HCM 2000 Control Delay			26.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			87.6				Sum of lost time (s)			22.7		
Intersection Capacity Utilization			78.2%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: East Commerce Way & Arena Blvd

04/17/2018



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	212	9	445
Future Volume (vph)	212	9	445
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	5.9	5.9
Lane Util. Factor	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	212	9	445
RTOR Reduction (vph)	0	0	295
Lane Group Flow (vph)	213	9	150
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Turn Type	Prot	NA	Perm
Protected Phases	3	8	
Permitted Phases			8
Actuated Green, G (s)	21.9	18.1	18.1
Effective Green, g (s)	21.9	18.1	18.1
Actuated g/C Ratio	0.25	0.21	0.21
Clearance Time (s)	5.5	5.9	5.9
Vehicle Extension (s)	2.0	2.0	2.0
Lane Grp Cap (vph)	858	731	327
v/s Ratio Prot	c0.06	0.00	
v/s Ratio Perm			c0.09
v/c Ratio	0.25	0.01	0.46
Uniform Delay, d1	26.3	27.6	30.5
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.4
Delay (s)	26.3	27.6	30.8
Level of Service	C	C	C
Approach Delay (s)		29.3	
Approach LOS		C	
Intersection Summary			

**INTERSECTION ANALYSIS
EXISTING PM PEAK HOUR**

HCM Signalized Intersection Capacity Analysis
 1: East Commerce Way & Del Paso Road

04/17/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↔↔	↔↔↔	↔		↔↔	↔↔↔	↔		↔↔	↔↔↔	↔
Traffic Volume (vph)	1	804	1043	254	26	195	799	135	18	192	415	244
Future Volume (vph)	1	804	1043	254	26	195	799	135	18	192	415	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.91	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	804	1043	254	26	195	799	135	18	192	415	244
RTOR Reduction (vph)	0	0	0	172	0	0	0	110	0	0	0	191
Lane Group Flow (vph)	0	805	1043	82	0	221	799	25	0	210	415	53
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases				6				2				8
Actuated Green, G (s)		27.1	32.8	32.8		13.0	18.8	18.8		13.0	21.9	21.9
Effective Green, g (s)		27.1	32.8	32.8		13.0	18.8	18.8		13.0	21.9	21.9
Actuated g/C Ratio		0.27	0.32	0.32		0.13	0.19	0.19		0.13	0.22	0.22
Clearance Time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		828	1484	462		397	851	264		397	991	308
v/s Ratio Prot		c0.26	0.23			0.07	c0.17			c0.07	0.09	
v/s Ratio Perm				0.06				0.02				0.04
v/c Ratio		0.97	0.70	0.18		0.56	0.94	0.10		0.53	0.42	0.17
Uniform Delay, d1		36.6	29.9	24.5		41.3	40.6	34.1		41.2	34.1	32.2
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		24.5	2.8	0.8		1.7	19.2	0.7		1.3	1.3	1.2
Delay (s)		61.1	32.7	25.3		43.0	59.7	34.8		42.5	35.4	33.4
Level of Service		E	C	C		D	E	C		D	D	C
Approach Delay (s)			42.7				53.6				36.6	
Approach LOS			D				D				D	

Intersection Summary

HCM 2000 Control Delay	44.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	101.1	Sum of lost time (s)	22.2
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: East Commerce Way & Del Paso Road

04/17/2018



Movement	SBL	SBT	SBR
Lane Configurations	TT	T	T
Traffic Volume (vph)	106	181	258
Future Volume (vph)	106	181	258
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	6.0	6.0
Lane Util. Factor	0.97	0.95	0.95
Frt	1.00	0.97	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3090	1539	1354
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3090	1539	1354
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	106	181	258
RTOR Reduction (vph)	0	10	165
Lane Group Flow (vph)	106	223	41
Turn Type	Prot	NA	Perm
Protected Phases	7	4	
Permitted Phases			4
Actuated Green, G (s)	11.2	20.1	20.1
Effective Green, g (s)	11.2	20.1	20.1
Actuated g/C Ratio	0.11	0.20	0.20
Clearance Time (s)	5.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0
Lane Grp Cap (vph)	342	305	269
v/s Ratio Prot	0.03	0.14	
v/s Ratio Perm			0.03
v/c Ratio	0.31	0.73	0.15
Uniform Delay, d1	41.4	38.0	33.5
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.5	14.3	1.2
Delay (s)	41.9	52.2	34.7
Level of Service	D	D	C
Approach Delay (s)		43.6	
Approach LOS		D	

Intersection Summary

HCM 2010 TWSC
2: East Commerce Way & Snowy Egret Drive

04/17/2018

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘		↗	↘	↑↑↑	↗	↘	↑↑↑	
Traffic Vol, veh/h	0	0	0	4	0	11	3	453	7	10	403	0
Future Vol, veh/h	0	0	0	4	0	11	3	453	7	10	403	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	0	-	0	150	-	175	240	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	4	0	11	3	453	7	10	403	0

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	640	- 227 403	0 0 453 0 0
Stage 1	459	- - -	- - - - -
Stage 2	181	- - -	- - - - -
Critical Hdwy	5.74	- 7.14 5.34	- - 5.34 - -
Critical Hdwy Stg 1	6.64	- - -	- - - - -
Critical Hdwy Stg 2	6.04	- - -	- - - - -
Follow-up Hdwy	3.82	- 3.92 3.12	- - 3.12 - -
Pot Cap-1 Maneuver	468	0 661 752	- - 713 - 0
Stage 1	511	0 - -	- - - - 0
Stage 2	765	0 - -	- - - - 0
Platoon blocked, %			- - -
Mov Cap-1 Maneuver	460	0 661 752	- - 713 - -
Mov Cap-2 Maneuver	460	0 - -	- - - - -
Stage 1	509	0 - -	- - - - -
Stage 2	754	0 - -	- - - - -

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0.1	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	752	-	-	460	661	713	-
HCM Lane V/C Ratio	0.004	-	-	0.009	0.017	0.014	-
HCM Control Delay (s)	9.8	-	-	12.9	10.5	10.1	-
HCM Lane LOS	A	-	-	B	B	B	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-

HCM 2010 TWSC
 3: East Commerce Way & North Access

04/17/2018

Intersection							
Int Delay, s/veh	0.4						
Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations			↑ ↑ ↑ ↑			↑ ↑ ↑ ↑	
Traffic Vol, veh/h	0	12	449	41	2	22	388
Future Vol, veh/h	0	12	449	41	2	22	388
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	-	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	-	0
Grade, %	0	-	0	-	-	-	0
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	0	12	449	41	2	22	388

Major/Minor	Minor1	Major1	Major2				
Conflicting Flow All	-	245	0	0	358	490	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	5.64	5.34	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	2.32	3.12	-
Pot Cap-1 Maneuver	0	644	-	-	992	685	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %			-	-			-
Mov Cap-1 Maneuver	-	644	-	-	702	702	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	644	702
HCM Lane V/C Ratio	-	-	0.019	0.034
HCM Control Delay (s)	-	-	10.7	10.3
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.1	0.1

HCM 2010 Signalized Intersection Summary
4: East Commerce Way & Center Access

04/17/2018

											
Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations	  		 		  		 	  			
Traffic Volume (veh/h)	6	0	0	22	490	2	1	391	0	0	0
Future Volume (veh/h)	6	0	0	22	490	2	1	391	0	0	0
Number	5	5	12	3	8	18	7	4	14		
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00		1.00	1.00		1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	0		
Adj Flow Rate, veh/h	6	6	0	22	490	2	1	391	0		
Adj No. of Lanes	3	3	2	1	3	1	2	3	0		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	0		
Cap, veh/h	106	106	59	656	2029	665	12	2949	0		
Arrive On Green	0.02	0.02	0.00	0.40	0.40	0.40	0.00	0.58	0.00		
Sat Flow, veh/h	5003	5003	2787	989	5085	1583	3442	5253	0		
Grp Volume(v), veh/h	6	6	0	22	490	2	1	391	0		
Grp Sat Flow(s),veh/h/ln	1668	1668	1393	989	1695	1583	1721	1695	0		
Q Serve(g_s), s	0.0	0.0	0.0	0.4	1.8	0.0	0.0	1.0	0.0		
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.4	1.8	0.0	0.0	1.0	0.0		
Prop In Lane	1.00	1.00	1.00	1.00		1.00	1.00		0.00		
Lane Grp Cap(c), veh/h	106	106	59	656	2029	665	12	2949	0		
V/C Ratio(X)	0.06	0.06	0.00	0.03	0.24	0.00	0.08	0.13	0.00		
Avail Cap(c_a), veh/h	6840	6840	3810	1491	6325	2003	1510	9479	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	13.2	13.2	0.0	5.1	5.5	4.6	13.7	2.6	0.0		
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.0	0.0	1.0	0.0	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.1	0.8	0.0	0.0	0.4	0.0		
LnGrp Delay(d),s/veh	13.3	13.3	0.0	5.1	5.5	4.6	14.7	2.6	0.0		
LnGrp LOS	B	B		A	A	A	B	A			
Approach Vol, veh/h	6	6			514			392			
Approach Delay, s/veh	13.3	13.3			5.5			2.7			
Approach LOS	B	B			A			A			
Timer	1	2	3	4	5	6	7	8			
Assigned Phs		2		4			7	8			
Phs Duration (G+Y+Rc), s		5.9		21.7			5.0	16.7			
Change Period (Y+Rc), s		* 5.3		* 5.7			* 4.9	5.7			
Max Green Setting (Gmax), s		* 38		* 51			* 12	34.3			
Max Q Clear Time (g_c+I1), s		2.0		3.0			2.0	3.8			
Green Ext Time (p_c), s		0.0		4.8			0.0	4.6			
Intersection Summary											
HCM 2010 Ctrl Delay				4.3							
HCM 2010 LOS				A							
Notes											

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘	↗	↘ ↘ ↘ ↘	
Traffic Vol, veh/h	0	21	493	10	3	416
Future Vol, veh/h	0	21	493	10	3	416
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	135	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	21	493	10	3	416

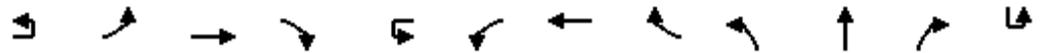
Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	247	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	642	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	642	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	642	682
HCM Lane V/C Ratio	-	-	0.033	0.004
HCM Control Delay (s)	-	-	10.8	10.3
HCM Lane LOS	-	-	B	B
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM Signalized Intersection Capacity Analysis
6: East Commerce Way & Arena Blvd

04/17/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔↔	↔↔↔	↔		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	
Traffic Volume (vph)	11	320	964	26	11	0	669	156	53	25	13	2
Future Volume (vph)	11	320	964	26	11	0	669	156	53	25	13	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00	0.97	0.91	1.00	
Frbp, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3433	5085	1563		3433	5085	1563	3433	5085	1583	
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)		3433	5085	1563		3433	5085	1563	3433	5085	1583	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	320	964	26	11	0	669	156	53	25	13	2
RTOR Reduction (vph)	0	0	0	14	0	0	0	107	0	0	12	0
Lane Group Flow (vph)	0	331	964	12	0	11	669	49	53	25	1	0
Confl. Peds. (#/hr)		1		1		1		1				
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	1	1	6		5	5	2		7	4		3
Permitted Phases				6				2				4
Actuated Green, G (s)		14.4	38.9	38.9		2.2	26.7	26.7	6.8	6.3	6.3	
Effective Green, g (s)		14.4	38.9	38.9		2.2	26.7	26.7	6.8	6.3	6.3	
Actuated g/C Ratio		0.17	0.46	0.46		0.03	0.32	0.32	0.08	0.07	0.07	
Clearance Time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Vehicle Extension (s)		2.0	2.0	2.0		2.0	4.4	4.4	2.0	2.0	2.0	
Lane Grp Cap (vph)		583	2335	717		89	1602	492	275	378	117	
v/s Ratio Prot		c0.10	c0.19			0.00	0.13		0.02	0.00		
v/s Ratio Perm				0.01				0.03			0.00	
v/c Ratio		0.57	0.41	0.02		0.12	0.42	0.10	0.19	0.07	0.01	
Uniform Delay, d1		32.3	15.3	12.5		40.3	22.9	20.5	36.4	36.5	36.3	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.8	0.0	0.0		0.2	0.3	0.1	0.1	0.0	0.0	
Delay (s)		33.1	15.3	12.5		40.5	23.2	20.7	36.5	36.5	36.3	
Level of Service		C	B	B		D	C	C	D	D	D	
Approach Delay (s)			19.7				22.9			36.5		
Approach LOS			B				C			D		
Intersection Summary												
HCM 2000 Control Delay			23.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			84.7				Sum of lost time (s)			22.7		
Intersection Capacity Utilization			69.9%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: East Commerce Way & Arena Blvd

04/17/2018



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	194	4	225
Future Volume (vph)	194	4	225
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	5.9	5.9
Lane Util. Factor	0.97	0.95	1.00
Frbp, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	194	4	225
RTOR Reduction (vph)	0	0	187
Lane Group Flow (vph)	196	4	38
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Turn Type	Prot	NA	Perm
Protected Phases	3	8	
Permitted Phases			8
Actuated Green, G (s)	14.6	14.2	14.2
Effective Green, g (s)	14.6	14.2	14.2
Actuated g/C Ratio	0.17	0.17	0.17
Clearance Time (s)	5.5	5.9	5.9
Vehicle Extension (s)	2.0	2.0	2.0
Lane Grp Cap (vph)	591	593	265
v/s Ratio Prot	c0.06	0.00	
v/s Ratio Perm			c0.02
v/c Ratio	0.33	0.01	0.14
Uniform Delay, d1	30.8	29.4	30.1
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.1
Delay (s)	30.9	29.4	30.1
Level of Service	C	C	C
Approach Delay (s)		30.5	
Approach LOS		C	

Intersection Summary

INTERSECTION ANALYSIS
EXISTING PLUS PROJECT AM PEAK HOUR

EXISTING PLUS PROJECT AM PEAK HOUR

HCM Signalized Intersection Capacity Analysis

1: East Commerce Way & Del Paso Road

04/15/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↔↔	↔↔↔	↔		↔↔	↔↔↔	↔		↔↔	↔↔↔	↔
Traffic Volume (vph)	1	399	979	398	18	320	776	73	4	94	298	144
Future Volume (vph)	1	399	979	398	18	320	776	73	4	94	298	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.91	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	399	979	398	18	320	776	73	4	94	298	144
RTOR Reduction (vph)	0	0	0	239	0	0	0	58	0	0	0	94
Lane Group Flow (vph)	0	400	979	159	0	338	776	15	0	98	298	50
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases				6			2					8
Actuated Green, G (s)		22.0	34.1	34.1		14.8	27.0	27.0		13.0	44.9	44.9
Effective Green, g (s)		22.0	34.1	34.1		14.8	27.0	27.0		13.0	44.9	44.9
Actuated g/C Ratio		0.17	0.26	0.26		0.11	0.21	0.21		0.10	0.35	0.35
Clearance Time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Vehicle Extension (s)		2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		522	1200	373		351	950	295		309	1580	492
v/s Ratio Prot		0.13	c0.21			0.11	c0.17			c0.03	0.07	
v/s Ratio Perm				0.11				0.01				0.03
v/c Ratio		0.77	0.82	0.43		0.96	0.82	0.05		0.32	0.19	0.10
Uniform Delay, d1		51.5	45.0	39.8		57.3	49.1	41.2		54.4	29.8	28.9
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		6.0	6.2	3.5		37.8	7.7	0.3		0.2	0.0	0.0
Delay (s)		57.5	51.2	43.4		95.2	56.9	41.6		54.6	29.8	28.9
Level of Service		E	D	D		F	E	D		D	C	C
Approach Delay (s)			50.9			66.8					34.1	
Approach LOS			D			E					C	

Intersection Summary		
HCM 2000 Control Delay	55.0	HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio	0.86	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 22.2
Intersection Capacity Utilization	98.7%	ICU Level of Service F
Analysis Period (min)	15	

c Critical Lane Group

EXISTING PLUS PROJECT AM PEAK HOUR

HCM Signalized Intersection Capacity Analysis

1: East Commerce Way & Del Paso Road

04/15/2018



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	95	417	626
Future Volume (vph)	95	417	626
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	6.0	6.0
Lane Util. Factor	0.97	0.95	0.95
Frt	1.00	0.96	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3090	1533	1354
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3090	1533	1354
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	95	417	626
RTOR Reduction (vph)	0	9	272
Lane Group Flow (vph)	95	546	216
Turn Type	Prot	NA	Perm
Protected Phases	7	4	
Permitted Phases			4
Actuated Green, G (s)	14.0	45.9	45.9
Effective Green, g (s)	14.0	45.9	45.9
Actuated g/C Ratio	0.11	0.35	0.35
Clearance Time (s)	5.5	6.0	6.0
Vehicle Extension (s)	2.0	2.0	2.0
Lane Grp Cap (vph)	332	541	478
v/s Ratio Prot	0.03	c0.36	
v/s Ratio Perm			0.16
v/c Ratio	0.29	1.01	0.45
Uniform Delay, d1	53.4	42.0	32.4
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.2	41.0	0.2
Delay (s)	53.6	83.0	32.6
Level of Service	D	F	C
Approach Delay (s)		58.9	
Approach LOS		E	
Intersection Summary			

EXISTING PLUS PROJECT AM PEAK HOUR

HCM 2010 TWSC

2: East Commerce Way & Snowy Egret Drive

04/15/2018

Intersection

Int Delay, s/veh	1						
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↘	↑↑↑	↗	↘	↑↑↑
Traffic Vol, veh/h	27	51	0	452	39	43	862
Future Vol, veh/h	27	51	0	452	39	43	862
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	0	150	-	175	240	-
Veh in Median Storage, #	0	-	-	0	-	-	0
Grade, %	0	-	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	27	51	0	452	39	43	862

Major/Minor	Minor1	Major1			Major2	
Conflicting Flow All	883	226	-	0	0	452
Stage 1	452	-	-	-	-	-
Stage 2	431	-	-	-	-	-
Critical Hdwy	5.74	7.14	5.64	-	-	5.34
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	2.32	-	-	3.12
Pot Cap-1 Maneuver	355	662	-	-	-	713
Stage 1	515	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	334	662	-	-	-	713
Mov Cap-2 Maneuver	334	-	-	-	-	-
Stage 1	515	-	-	-	-	-
Stage 2	536	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBU	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	334	662	713
HCM Lane V/C Ratio	-	-	-	0.081	0.077	0.06
HCM Control Delay (s)	0	-	-	16.7	10.9	10.4
HCM Lane LOS	A	-	-	C	B	B
HCM 95th %tile Q(veh)	-	-	-	0.3	0.2	0.2

EXISTING PLUS PROJECT AM PEAK HOUR

HCM 2010 Signalized Intersection Summary

3: East Commerce Way & North Access

04/15/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	0	30	9	0	11	221	457	11	13	705	170
Future Volume (veh/h)	23	0	30	9	0	11	221	457	11	13	705	170
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	23	0	30	9	0	11	221	457	11	13	705	170
Adj No. of Lanes	1	1	0	0	1	0	2	3	0	1	3	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	137	0	122	37	0	45	275	581	14	1098	3345	1042
Arrive On Green	0.08	0.00	0.08	0.05	0.00	0.05	0.08	0.11	0.11	0.62	0.66	0.66
Sat Flow, veh/h	1774	0	1583	749	0	915	3442	5109	123	1774	5085	1583
Grp Volume(v), veh/h	23	0	30	20	0	0	221	303	165	13	705	170
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1664	0	0	1721	1695	1841	1774	1695	1583
Q Serve(g_s), s	1.8	0.0	2.7	1.7	0.0	0.0	9.5	13.0	13.1	0.4	8.3	6.2
Cycle Q Clear(g_c), s	1.8	0.0	2.7	1.7	0.0	0.0	9.5	13.0	13.1	0.4	8.3	6.2
Prop In Lane	1.00		1.00	0.45		0.55	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	137	0	122	82	0	0	275	385	209	1098	3345	1042
V/C Ratio(X)	0.17	0.00	0.25	0.25	0.00	0.00	0.80	0.79	0.79	0.01	0.21	0.16
Avail Cap(c_a), veh/h	439	0	392	410	0	0	484	845	459	1098	3345	1042
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.7	0.0	65.1	68.7	0.0	0.0	67.8	64.7	64.7	11.0	10.2	9.8
Incr Delay (d2), s/veh	0.2	0.0	0.4	0.6	0.0	0.0	2.1	14.7	25.3	0.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	1.2	0.8	0.0	0.0	4.6	6.9	8.2	0.2	3.9	2.8
LnGrp Delay(d),s/veh	64.9	0.0	65.5	69.2	0.0	0.0	69.9	79.4	90.0	11.0	10.3	10.2
LnGrp LOS	E		E	E			E	E	F	B	B	B
Approach Vol, veh/h		53			20			689			888	
Approach Delay, s/veh		65.2			69.2			78.9			10.3	
Approach LOS		E			E			E			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.5	16.9	104.4		12.3	98.5	22.7				
Change Period (Y+Rc), s		* 4.9	* 4.9	5.7		4.9	5.7	* 5.7				
Max Green Setting (Gmax), s		* 37	* 21	34.4		37.0	18.1	* 37				
Max Q Clear Time (g_c+I1), s		4.7	11.5	10.3		3.7	2.4	15.1				
Green Ext Time (p_c), s		0.1	0.3	3.8		0.0	3.4	1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			41.4									
HCM 2010 LOS			D									
Notes												

EXISTING PLUS PROJECT AM PEAK HOUR

HCM 2010 Signalized Intersection Summary

4: East Commerce Way & Center Access

04/15/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				  				  		 	  	
Traffic Volume (veh/h)	3	0	15	40	0	4	111	682	1	1	716	24
Future Volume (veh/h)	3	0	15	40	0	4	111	682	1	1	716	24
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	3	0	15	40	0	4	111	682	1	1	716	24
Adj No. of Lanes	1	1	0	3	1	1	1	3	1	2	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	18	0	127	352	259	220	956	3599	1121	11	845	28
Arrive On Green	0.01	0.00	0.08	0.07	0.00	0.14	0.54	0.71	0.71	0.00	0.22	0.22
Sat Flow, veh/h	1774	0	1583	5003	1863	1583	1774	5085	1583	3442	5054	169
Grp Volume(v), veh/h	3	0	15	40	0	4	111	682	1	1	480	260
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1668	1863	1583	1774	1695	1583	1721	1695	1833
Q Serve(g_s), s	0.3	0.0	1.3	1.1	0.0	0.1	4.6	6.8	0.0	0.0	20.3	20.4
Cycle Q Clear(g_c), s	0.3	0.0	1.3	1.1	0.0	0.1	4.6	6.8	0.0	0.0	20.3	20.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	18	0	127	352	259	220	956	3599	1121	11	567	307
V/C Ratio(X)	0.17	0.00	0.12	0.11	0.00	0.02	0.12	0.19	0.00	0.09	0.85	0.85
Avail Cap(c_a), veh/h	176	0	415	444	472	401	956	3599	1121	301	1121	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.99	0.99	0.99	0.98	0.98	0.98
Uniform Delay (d), s/veh	73.6	0.0	64.1	65.3	0.0	4.7	17.0	7.4	6.4	74.5	56.5	56.5
Incr Delay (d2), s/veh	1.6	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.0	1.2	14.2	24.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.6	0.5	0.0	0.0	2.3	3.2	0.0	0.0	10.7	12.4
LnGrp Delay(d),s/veh	75.2	0.0	64.2	65.4	0.0	4.7	17.0	7.5	6.4	75.7	70.7	80.5
LnGrp LOS	E		E	E		A	B	A	A	E	E	F
Approach Vol, veh/h		18			44			794			741	
Approach Delay, s/veh		66.1			59.9			8.8			74.1	
Approach LOS		E			E			A			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	26.1	86.6	30.7	15.8	16.9	5.4	111.9				
Change Period (Y+Rc), s	* 5.1	* 5.3	* 5.7	* 5.6	* 5.3	* 4.9	* 4.9	5.7				
Max Green Setting (Gmax), s	* 15	* 38	* 27	* 50	* 13	* 39	* 13	63.5				
Max Q Clear Time (g_c+I1), s	2.3	2.1	6.6	22.4	3.1	3.3	2.0	8.8				
Green Ext Time (p_c), s	0.0	0.1	2.7	2.7	0.0	0.0	0.0	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay			41.2									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary
5: East Commerce Way & South Access

04/17/2018

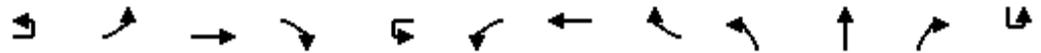
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	106	9	0	3	774	784	17	11	709	49
Future Volume (veh/h)	7	0	106	9	0	3	774	784	17	11	709	49
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	7	0	106	9	0	3	774	784	17	11	709	49
Adj No. of Lanes	1	1	0	1	1	0	2	3	1	1	3	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	39	0	129	30	0	126	2066	939	292	1019	809	252
Arrive On Green	0.02	0.00	0.08	0.02	0.00	0.08	1.00	0.31	0.31	1.00	0.32	0.32
Sat Flow, veh/h	1774	0	1583	1774	0	1583	3442	5085	1583	1774	5085	1583
Grp Volume(v), veh/h	7	0	106	9	0	3	774	784	17	11	709	49
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	1583	1721	1695	1583	1774	1695	1583
Q Serve(g_s), s	0.6	0.0	9.9	0.8	0.0	0.3	0.0	21.5	1.0	0.0	19.8	3.4
Cycle Q Clear(g_c), s	0.6	0.0	9.9	0.8	0.0	0.3	0.0	21.5	1.0	0.0	19.8	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	39	0	129	30	0	126	2066	939	292	1019	809	252
V/C Ratio(X)	0.18	0.00	0.82	0.30	0.00	0.02	0.37	0.83	0.06	0.01	0.88	0.19
Avail Cap(c_a), veh/h	154	0	454	154	0	454	2066	2038	634	1019	973	303
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.54	0.54	0.54	0.98	0.98	0.98
Uniform Delay (d), s/veh	72.0	0.0	67.8	72.9	0.0	63.7	0.0	49.7	33.5	0.0	49.7	44.2
Incr Delay (d2), s/veh	0.8	0.0	4.9	2.1	0.0	0.0	0.0	4.9	0.2	0.0	12.6	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	4.5	0.4	0.0	0.1	0.0	10.5	0.5	0.0	10.1	1.6
LnGrp Delay(d),s/veh	72.8	0.0	72.7	75.0	0.0	63.7	0.0	54.6	33.7	0.0	62.4	45.8
LnGrp LOS	E		E	E		E	A	D	C	A	E	D
Approach Vol, veh/h		113			12			1575			769	
Approach Delay, s/veh		72.7			72.2			27.6			60.4	
Approach LOS		E			E			C			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	17.3	94.9	29.6	7.9	17.6	91.1	33.4				
Change Period (Y+Rc), s	* 4.9	* 5.4	4.9	* 5.7	* 5.4	* 5.4	4.9	* 5.7				
Max Green Setting (Gmax), s	* 13	* 43	44.4	* 29	* 13	* 43	13.0	* 60				
Max Q Clear Time (g_c+I1), s	2.6	2.3	2.0	21.8	2.8	11.9	2.0	23.5				
Green Ext Time (p_c), s	0.0	0.0	1.6	2.1	0.0	0.4	1.4	4.2				
Intersection Summary												
HCM 2010 Ctrl Delay			40.1									
HCM 2010 LOS			D									
Notes												

EXISTING PLUS PROJECT AM PEAK HOUR

HCM Signalized Intersection Capacity Analysis

6: East Commerce Way & Arena Blvd

04/15/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑↑↑	↗	
Traffic Volume (vph)	5	1089	909	21	10	3	443	450	100	35	5	1
Future Volume (vph)	5	1089	909	21	10	3	443	450	100	35	5	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00	0.97	0.91	1.00	
Frbp, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3433	5085	1562		3433	5085	1562	3433	5085	1583	
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)		3433	5085	1562		3433	5085	1562	3433	5085	1583	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	1089	909	21	10	3	443	450	100	35	5	1
RTOR Reduction (vph)	0	0	0	9	0	0	0	339	0	0	5	0
Lane Group Flow (vph)	0	1094	909	12	0	13	443	111	100	35	0	0
Confl. Peds. (#/hr)		1		1		1		1				
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	1!	1	6		5	5	2		7	4		3
Permitted Phases				6				2				4
Actuated Green, G (s)		57.5	89.0	89.0		5.6	37.1	37.1	22.8	14.4	14.4	
Effective Green, g (s)		57.5	89.0	89.0		5.6	37.1	37.1	22.8	14.4	14.4	
Actuated g/C Ratio		0.38	0.59	0.59		0.04	0.25	0.25	0.15	0.10	0.10	
Clearance Time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Vehicle Extension (s)		2.0	2.0	2.0		2.0	4.4	4.4	2.0	2.0	2.0	
Lane Grp Cap (vph)		1315	3017	926		128	1257	386	521	488	151	
v/s Ratio Prot		c0.32	0.18			0.00	c0.09		c0.03	0.01		
v/s Ratio Perm				0.01				0.07			0.00	
v/c Ratio		0.83	0.30	0.01		0.10	0.35	0.29	0.19	0.07	0.00	
Uniform Delay, d1		41.9	15.1	12.5		69.8	46.5	45.8	55.6	61.7	61.3	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		4.4	0.3	0.0		0.1	0.8	1.9	0.1	0.0	0.0	
Delay (s)		46.3	15.4	12.5		69.9	47.3	47.6	55.6	61.7	61.3	
Level of Service		D	B	B		E	D	D	E	E	E	
Approach Delay (s)			32.1				47.8			57.4		
Approach LOS			C				D			E		

Intersection Summary

HCM 2000 Control Delay	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.7
Intersection Capacity Utilization	120.7%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

EXISTING PLUS PROJECT AM PEAK HOUR

HCM Signalized Intersection Capacity Analysis

6: East Commerce Way & Arena Blvd

04/15/2018



Movement	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↔
Traffic Volume (vph)	271	11	535
Future Volume (vph)	271	11	535
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	5.9	5.4
Lane Util. Factor	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	271	11	535
RTOR Reduction (vph)	0	0	72
Lane Group Flow (vph)	272	11	464
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Turn Type	Prot	NA	pm+ov
Protected Phases	3	8	1!
Permitted Phases			8
Actuated Green, G (s)	18.3	10.0	67.5
Effective Green, g (s)	18.3	10.0	67.5
Actuated g/C Ratio	0.12	0.07	0.45
Clearance Time (s)	5.5	5.9	5.4
Vehicle Extension (s)	2.0	2.0	2.0
Lane Grp Cap (vph)	418	235	769
v/s Ratio Prot	c0.08	0.00	c0.23
v/s Ratio Perm			0.06
v/c Ratio	0.65	0.05	0.60
Uniform Delay, d1	62.8	65.5	31.1
Progression Factor	1.29	1.24	1.52
Incremental Delay, d2	2.7	0.0	0.9
Delay (s)	83.9	81.4	48.1
Level of Service	F	F	D
Approach Delay (s)		60.5	
Approach LOS		E	
Intersection Summary			

INTERSECTION ANALYSIS
EXISTING PLUS PROJECT PM PEAK HOUR

HCM Signalized Intersection Capacity Analysis

1: East Commerce Way & Del Paso Road

04/15/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↔↔	↔↔↔	↔		↔↔	↔↔↔	↔		↔↔	↔↔↔	↔
Traffic Volume (vph)	1	804	1043	275	26	218	799	135	18	286	450	338
Future Volume (vph)	1	804	1043	275	26	218	799	135	18	286	450	338
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00		0.97	0.91	1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85		1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3090	4577	1425		3090	4577	1425		3090	4577	1425
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	804	1043	275	26	218	799	135	18	286	450	338
RTOR Reduction (vph)	0	0	0	134	0	0	0	106	0	0	0	212
Lane Group Flow (vph)	0	805	1043	141	0	244	799	29	0	304	450	126
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases	1	1	6		5	5	2		3	3	8	
Permitted Phases				6				2				8
Actuated Green, G (s)		31.2	41.7	41.7		14.8	25.4	25.4		16.7	24.6	24.6
Effective Green, g (s)		31.2	41.7	41.7		14.8	25.4	25.4		16.7	24.6	24.6
Actuated g/C Ratio		0.27	0.35	0.35		0.13	0.22	0.22		0.14	0.21	0.21
Clearance Time (s)		5.4	5.2	5.2		5.5	5.2	5.2		5.5	6.0	6.0
Vehicle Extension (s)		2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		819	1622	505		388	988	307		438	957	298
v/s Ratio Prot		c0.26	0.23			0.08	c0.17			c0.10	0.10	
v/s Ratio Perm				0.10				0.02				0.09
v/c Ratio		0.98	0.64	0.28		0.63	0.81	0.09		0.69	0.47	0.42
Uniform Delay, d1		42.9	31.7	27.2		48.8	43.8	36.9		48.0	40.8	40.3
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		27.0	0.7	0.1		2.3	4.7	0.0		3.8	0.1	0.4
Delay (s)		69.9	32.4	27.3		51.1	48.5	36.9		51.8	40.9	40.7
Level of Service		E	C	C		D	D	D		D	D	D
Approach Delay (s)			46.0				47.7				43.9	
Approach LOS			D				D				D	

Intersection Summary

HCM 2000 Control Delay	46.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	117.6	Sum of lost time (s)	22.2
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: East Commerce Way & Del Paso Road

04/15/2018



Movement	SBL	SBT	SBR
Lane Configurations	LT	LT	LT
Traffic Volume (vph)	106	189	258
Future Volume (vph)	106	189	258
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	6.0	6.0
Lane Util. Factor	0.97	0.95	0.95
Frt	1.00	0.97	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3090	1543	1354
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3090	1543	1354
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	106	189	258
RTOR Reduction (vph)	0	7	170
Lane Group Flow (vph)	106	231	39
Turn Type	Prot	NA	Perm
Protected Phases	7	4	
Permitted Phases			4
Actuated Green, G (s)	14.3	22.2	22.2
Effective Green, g (s)	14.3	22.2	22.2
Actuated g/C Ratio	0.12	0.19	0.19
Clearance Time (s)	5.5	6.0	6.0
Vehicle Extension (s)	2.0	2.0	2.0
Lane Grp Cap (vph)	375	291	255
v/s Ratio Prot	0.03	0.15	
v/s Ratio Perm			0.03
v/c Ratio	0.28	0.79	0.15
Uniform Delay, d1	47.0	45.5	39.9
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	0.2	12.9	0.1
Delay (s)	47.1	58.4	40.0
Level of Service	D	E	D
Approach Delay (s)		49.3	
Approach LOS		D	

Intersection Summary

HCM 2010 TWSC
2: East Commerce Way & Snowy Egret Drive

04/15/2018

Intersection							
Int Delay, s/veh	0.2						
Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↔	↑↑↑	↗	↔	↑↑↑
Traffic Vol, veh/h	4	11	0	677	7	10	455
Future Vol, veh/h	4	11	0	677	7	10	455
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	0	150	-	175	240	-
Veh in Median Storage, #	0	-	-	0	-	-	0
Grade, %	0	-	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	4	11	0	677	7	10	455

Major/Minor	Minor1	Major1			Major2	
Conflicting Flow All	879	339	-	0	0	677
Stage 1	677	-	-	-	-	-
Stage 2	202	-	-	-	-	-
Critical Hdwy	5.74	7.14	5.64	-	-	5.34
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	2.32	-	-	3.12
Pot Cap-1 Maneuver	357	561	-	-	-	559
Stage 1	379	-	-	-	-	-
Stage 2	746	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	351	561	-	-	-	559
Mov Cap-2 Maneuver	351	-	-	-	-	-
Stage 1	379	-	-	-	-	-
Stage 2	733	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBU	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	351	561	559
HCM Lane V/C Ratio	-	-	-	0.011	0.02	0.018
HCM Control Delay (s)	0	-	-	15.4	11.5	11.6
HCM Lane LOS	A	-	-	C	B	B
HCM 95th %tile Q(veh)	-	-	-	0	0.1	0.1

HCM 2010 Signalized Intersection Summary

3: East Commerce Way & North Access

04/15/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	0	191	3	0	9	41	516	41	24	401	36
Future Volume (veh/h)	157	0	191	3	0	9	41	516	41	24	401	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	157	0	191	3	0	9	41	516	41	24	401	36
Adj No. of Lanes	1	1	0	0	1	0	2	3	0	1	3	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	386	0	345	16	0	48	694	889	70	358	1008	314
Arrive On Green	0.22	0.00	0.22	0.04	0.00	0.04	0.20	0.18	0.18	0.20	0.20	0.20
Sat Flow, veh/h	1774	0	1583	407	0	1220	3442	4808	378	1774	5085	1583
Grp Volume(v), veh/h	157	0	191	12	0	0	41	362	195	24	401	36
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1627	0	0	1721	1695	1796	1774	1695	1583
Q Serve(g_s), s	4.5	0.0	6.4	0.4	0.0	0.0	0.6	5.8	5.9	0.7	4.1	1.1
Cycle Q Clear(g_c), s	4.5	0.0	6.4	0.4	0.0	0.0	0.6	5.8	5.9	0.7	4.1	1.1
Prop In Lane	1.00		1.00	0.25		0.75	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	386	0	345	64	0	0	694	627	332	358	1008	314
V/C Ratio(X)	0.41	0.00	0.55	0.19	0.00	0.00	0.06	0.58	0.59	0.07	0.40	0.11
Avail Cap(c_a), veh/h	1106	0	987	1012	0	0	1018	1305	691	525	1957	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	0.0	20.7	27.7	0.0	0.0	19.2	22.1	22.2	19.2	20.8	19.6
Incr Delay (d2), s/veh	0.3	0.0	0.5	0.5	0.0	0.0	0.0	0.3	0.6	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	2.8	0.2	0.0	0.0	0.3	2.7	3.0	0.3	1.9	0.5
LnGrp Delay(d),s/veh	20.2	0.0	21.2	28.2	0.0	0.0	19.2	22.4	22.8	19.2	20.9	19.6
LnGrp LOS	C		C	C			B	C	C	B	C	B
Approach Vol, veh/h		348			12			598			461	
Approach Delay, s/veh		20.8			28.2			22.3			20.7	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		17.9	16.9	17.5		7.2	17.7	16.7				
Change Period (Y+Rc), s		* 4.9	* 4.9	5.7		4.9	5.7	* 5.7				
Max Green Setting (Gmax), s		* 37	* 18	22.9		37.0	17.6	* 23				
Max Q Clear Time (g_c+I1), s		8.4	2.6	6.1		2.4	2.7	7.9				
Green Ext Time (p_c), s		1.0	0.0	1.8		0.0	1.7	2.1				
Intersection Summary												
HCM 2010 Ctrl Delay			21.5									
HCM 2010 LOS			C									
Notes												

HCM 2010 Signalized Intersection Summary
 4: East Commerce Way & Center Access

04/15/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				  				  		  	  	
Traffic Volume (veh/h)	22	0	96	6	0	0	21	576	2	1	592	5
Future Volume (veh/h)	22	0	96	6	0	0	21	576	2	1	592	5
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	22	0	96	6	0	0	21	576	2	1	592	5
Adj No. of Lanes	1	1	0	3	1	1	1	3	1	2	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	0	141	97	98	83	1050	3734	1163	11	732	6
Arrive On Green	0.05	0.00	0.09	0.02	0.00	0.00	1.00	1.00	1.00	0.00	0.14	0.14
Sat Flow, veh/h	1774	0	1583	5003	1863	1583	1774	5085	1583	3442	5201	44
Grp Volume(v), veh/h	22	0	96	6	0	0	21	576	2	1	386	211
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1668	1863	1583	1774	1695	1583	1721	1695	1855
Q Serve(g_s), s	1.6	0.0	7.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	14.9	14.9
Cycle Q Clear(g_c), s	1.6	0.0	7.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	14.9	14.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	96	0	141	97	98	83	1050	3734	1163	11	477	261
V/C Ratio(X)	0.23	0.00	0.68	0.06	0.00	0.00	0.02	0.15	0.00	0.09	0.81	0.81
Avail Cap(c_a), veh/h	209	0	468	508	524	446	1050	3734	1163	334	1145	627
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.99	0.99	0.99	0.97	0.97	0.97
Uniform Delay (d), s/veh	61.2	0.0	59.7	65.0	0.0	0.0	0.0	0.0	0.0	67.1	56.2	56.2
Incr Delay (d2), s/veh	0.4	0.0	2.2	0.1	0.0	0.0	0.0	0.1	0.0	1.2	13.3	22.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	3.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	7.8	9.3
LnGrp Delay(d),s/veh	61.6	0.0	61.8	65.1	0.0	0.0	0.0	0.1	0.0	68.3	69.6	78.7
LnGrp LOS	E		E	E			A	A	A	E	E	E
Approach Vol, veh/h		118			6			599			598	
Approach Delay, s/veh		61.8			65.1			0.1			72.8	
Approach LOS		E			E			A			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.4	12.4	85.6	24.6	7.9	16.9	5.3	104.8				
Change Period (Y+Rc), s	* 5.1	* 5.3	* 5.7	* 5.6	* 5.3	* 4.9	* 4.9	5.7				
Max Green Setting (Gmax), s	* 16	* 38	* 15	* 46	* 14	* 40	* 13	47.5				
Max Q Clear Time (g_c+I1), s	3.6	0.0	2.0	16.9	2.2	9.9	2.0	2.0				
Green Ext Time (p_c), s	0.0	0.0	1.9	2.1	0.0	0.4	0.0	2.4				
Intersection Summary												
HCM 2010 Ctrl Delay			38.8									
HCM 2010 LOS			D									
Notes												

HCM 2010 Signalized Intersection Summary
 5: East Commerce Way & South Access

04/17/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	0	670	22	0	0	145	555	10	3	681	10
Future Volume (veh/h)	45	0	670	22	0	0	145	555	10	3	681	10
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	45	0	670	22	0	0	145	555	10	3	681	10
Adj No. of Lanes	1	1	0	1	1	0	2	3	1	1	3	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	899	0	692	59	1	0	330	701	218	410	1418	441
Arrive On Green	0.51	0.00	0.44	0.03	0.00	0.00	0.10	0.14	0.14	0.46	0.56	0.56
Sat Flow, veh/h	1774	0	1583	1774	1863	0	3442	5085	1583	1774	5085	1583
Grp Volume(v), veh/h	45	0	670	22	0	0	145	555	10	3	681	10
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	1863	0	1721	1695	1583	1774	1695	1583
Q Serve(g_s), s	1.7	0.0	55.7	1.6	0.0	0.0	5.4	14.3	0.7	0.1	10.9	0.4
Cycle Q Clear(g_c), s	1.7	0.0	55.7	1.6	0.0	0.0	5.4	14.3	0.7	0.1	10.9	0.4
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	899	0	692	59	1	0	330	701	218	410	1418	441
V/C Ratio(X)	0.05	0.00	0.97	0.37	0.00	0.00	0.44	0.79	0.05	0.01	0.48	0.02
Avail Cap(c_a), veh/h	899	0	722	106	781	0	344	1179	367	410	1418	441
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.87	0.87	0.87	0.99	0.99	0.99
Uniform Delay (d), s/veh	16.8	0.0	37.1	63.9	0.0	0.0	57.6	56.3	50.5	28.0	24.0	21.6
Incr Delay (d2), s/veh	0.0	0.0	24.9	1.4	0.0	0.0	0.3	7.9	0.3	0.0	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	29.2	0.8	0.0	0.0	2.6	7.2	0.3	0.1	5.1	0.2
LnGrp Delay(d),s/veh	16.9	0.0	61.9	65.3	0.0	0.0	57.9	64.2	50.9	28.0	25.1	21.7
LnGrp LOS	B		E	E			E	E	D	C	C	C
Approach Vol, veh/h		715			22			710			694	
Approach Delay, s/veh		59.1			65.3			62.8			25.1	
Approach LOS		E			E			E			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	73.8	0.0	17.8	43.3	9.4	64.4	36.9	24.3				
Change Period (Y+Rc), s	* 5.4	* 5.4	* 4.9	5.7	* 4.9	* 5.4	5.7	* 5.7				
Max Green Setting (Gmax), s	* 13	* 57	* 14	30.9	* 8.1	* 62	13.1	* 31				
Max Q Clear Time (g_c+I1), s	3.7	0.0	7.4	12.9	3.6	57.7	2.1	16.3				
Green Ext Time (p_c), s	2.6	0.0	0.1	3.1	0.0	1.3	2.6	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			49.4									
HCM 2010 LOS			D									
Notes												

HCM Signalized Intersection Capacity Analysis

6: East Commerce Way & Arena Blvd

04/15/2018



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations		↔↔	↔↔↔	↔		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	
Traffic Volume (vph)	11	442	964	26	11	0	669	239	53	28	13	2
Future Volume (vph)	11	442	964	26	11	0	669	239	53	28	13	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Lane Util. Factor		0.97	0.91	1.00		0.97	0.91	1.00	0.97	0.91	1.00	
Frbp, ped/bikes		1.00	1.00	0.99		1.00	1.00	0.99	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3433	5085	1562		3433	5085	1563	3433	5085	1583	
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)		3433	5085	1562		3433	5085	1563	3433	5085	1583	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	442	964	26	11	0	669	239	53	28	13	2
RTOR Reduction (vph)	0	0	0	13	0	0	0	186	0	0	12	0
Lane Group Flow (vph)	0	453	964	13	0	11	669	53	53	28	1	0
Confl. Peds. (#/hr)		1		1		1		1				
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot
Protected Phases	1!	1	6		5	5	2		7	4		3
Permitted Phases				6				2				4
Actuated Green, G (s)		29.2	50.5	50.5		2.0	23.3	23.3	13.2	9.8	9.8	
Effective Green, g (s)		29.2	50.5	50.5		2.0	23.3	23.3	13.2	9.8	9.8	
Actuated g/C Ratio		0.28	0.48	0.48		0.02	0.22	0.22	0.13	0.09	0.09	
Clearance Time (s)		5.4	5.8	5.8		5.5	5.9	5.9	5.4	5.9	5.9	
Vehicle Extension (s)		2.0	2.0	2.0		2.0	4.4	4.4	2.0	2.0	2.0	
Lane Grp Cap (vph)		954	2445	751		65	1128	346	431	474	147	
v/s Ratio Prot		0.13	0.19			0.00	c0.13		0.02	0.01		
v/s Ratio Perm				0.01				0.03			0.00	
v/c Ratio		0.47	0.39	0.02		0.17	0.59	0.15	0.12	0.06	0.01	
Uniform Delay, d1		31.5	17.5	14.3		50.7	36.6	32.9	40.8	43.4	43.2	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1	0.0	0.0		0.5	1.1	0.3	0.0	0.0	0.0	
Delay (s)		31.7	17.5	14.3		51.1	37.7	33.2	40.8	43.4	43.2	
Level of Service		C	B	B		D	D	C	D	D	D	
Approach Delay (s)			21.9				36.7			41.9		
Approach LOS			C				D			D		
Intersection Summary												
HCM 2000 Control Delay			38.5				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			105.0				Sum of lost time (s)		22.7			
Intersection Capacity Utilization			110.0%				ICU Level of Service		H			
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: East Commerce Way & Arena Blvd

04/15/2018



Movement	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↔
Traffic Volume (vph)	477	16	886
Future Volume (vph)	477	16	886
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	5.5	5.9	5.4
Lane Util. Factor	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00
Frt	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583
Flt Permitted	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00
Adj. Flow (vph)	477	16	886
RTOR Reduction (vph)	0	0	106
Lane Group Flow (vph)	479	16	780
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Turn Type	Prot	NA	pm+ov
Protected Phases	3	8	1!
Permitted Phases			8
Actuated Green, G (s)	20.0	16.7	45.9
Effective Green, g (s)	20.0	16.7	45.9
Actuated g/C Ratio	0.19	0.16	0.44
Clearance Time (s)	5.5	5.9	5.4
Vehicle Extension (s)	2.0	2.0	2.0
Lane Grp Cap (vph)	653	562	773
v/s Ratio Prot	c0.14	0.00	c0.28
v/s Ratio Perm			0.21
v/c Ratio	0.73	0.03	1.01
Uniform Delay, d1	40.0	37.3	29.6
Progression Factor	1.00	1.00	1.00
Incremental Delay, d2	3.7	0.0	34.7
Delay (s)	43.7	37.3	64.2
Level of Service	D	D	E
Approach Delay (s)		56.8	
Approach LOS		E	
Intersection Summary			

SYNCHRO QUEUING OUTPUT

**SYNCHRO QUEUING
EXISTING AM PEAK HOUR**

Queues

1: East Commerce Way & Del Paso Road

04/17/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	400	979	304	217	776	73	81	294	131	95	540	476
v/c Ratio	0.90	0.88	0.55	0.57	0.76	0.17	0.21	0.19	0.23	0.23	1.02	0.65
Control Delay	69.4	49.8	10.3	51.6	45.2	0.9	45.4	26.8	5.9	44.6	78.6	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.4	49.8	10.3	51.6	45.2	0.9	45.4	26.8	5.9	44.6	78.6	9.7
Queue Length 50th (ft)	145	247	16	76	191	0	27	55	0	31	~430	32
Queue Length 95th (ft)	#235	#329	96	115	241	0	51	79	43	57	#656	147
Internal Link Dist (ft)		1111			1390			1990			517	
Turn Bay Length (ft)	250		165	230		140	225		145	280		195
Base Capacity (vph)	456	1114	554	382	1021	426	380	1525	562	409	532	734
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.88	0.55	0.57	0.76	0.17	0.21	0.19	0.23	0.23	1.02	0.65

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

4: East Commerce Way & Center Access

04/17/2018



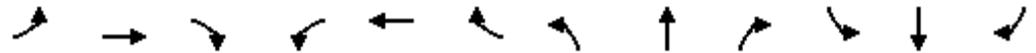
Lane Group	WBL2	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	40	4	463	1	1	637
v/c Ratio	0.02	0.00	0.13	0.00	0.00	0.15
Control Delay	12.8	0.0	7.3	0.0	15.0	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	0.0	7.3	0.0	15.0	3.6
Queue Length 50th (ft)	1	0	0	0	0	0
Queue Length 95th (ft)	9	0	70	0	1	48
Internal Link Dist (ft)			884			579
Turn Bay Length (ft)				145	235	
Base Capacity (vph)	4459	2578	4084	1583	1099	5050
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.00	0.11	0.00	0.00	0.13

Intersection Summary

Queues

6: East Commerce Way & Arena Blvd

04/17/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	298	909	21	13	443	153	100	22	5	213	9	445
v/c Ratio	0.48	0.41	0.03	0.02	0.39	0.33	0.17	0.02	0.01	0.23	0.01	0.73
Control Delay	35.7	18.5	0.0	35.1	28.1	7.0	35.0	31.0	0.0	29.0	30.8	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	18.5	0.0	35.1	28.1	7.0	35.0	31.0	0.0	29.0	30.8	15.2
Queue Length 50th (ft)	65	101	0	2	67	0	21	3	0	31	2	31
Queue Length 95th (ft)	148	236	0	13	118	47	60	12	0	113	10	157
Internal Link Dist (ft)		2349			1015			375			1020	
Turn Bay Length (ft)	360			220		150	290		200	200		160
Base Capacity (vph)	780	2505	830	634	2290	788	589	2485	835	943	1781	981
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.36	0.03	0.02	0.19	0.19	0.17	0.01	0.01	0.23	0.01	0.45

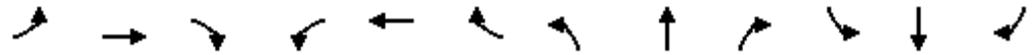
Intersection Summary

**SYNCHRO QUEUING
EXISTING PM PEAK HOUR**

Queues

1: East Commerce Way & Del Paso Road

04/17/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	805	1043	254	221	799	135	210	415	244	106	233	206
v/c Ratio	0.96	0.69	0.40	0.55	0.93	0.31	0.52	0.41	0.49	0.25	0.77	0.49
Control Delay	60.0	32.2	5.2	46.5	58.3	2.4	45.8	36.6	8.4	40.0	54.4	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	32.2	5.2	46.5	58.3	2.4	45.8	36.6	8.4	40.0	54.4	9.3
Queue Length 50th (ft)	260	210	0	69	184	0	65	88	0	31	142	0
Queue Length 95th (ft)	#384	260	54	107	#263	7	102	121	67	57	#266	64
Internal Link Dist (ft)		1111			1390			1990			517	
Turn Bay Length (ft)	250		165	230		140	225		145	280		195
Base Capacity (vph)	837	1501	638	401	860	440	401	1002	502	432	303	424
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.69	0.40	0.55	0.93	0.31	0.52	0.41	0.49	0.25	0.77	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

4: East Commerce Way & Center Access

04/17/2018



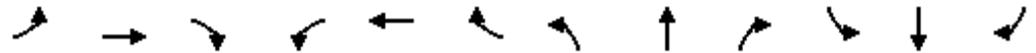
Lane Group	WBL2	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	6	22	490	2	1	391
v/c Ratio	0.00	0.03	0.11	0.00	0.00	0.08
Control Delay	14.7	6.6	4.2	0.0	16.0	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	6.6	4.2	0.0	16.0	1.5
Queue Length 50th (ft)	0	0	0	0	0	0
Queue Length 95th (ft)	3	18	69	0	2	28
Internal Link Dist (ft)			884			579
Turn Bay Length (ft)		230		145	235	
Base Capacity (vph)	4547	860	4582	1583	1170	4839
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.03	0.11	0.00	0.00	0.08

Intersection Summary

Queues

6: East Commerce Way & Arena Blvd

04/17/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	331	964	26	11	669	156	53	25	13	196	4	225
v/c Ratio	0.52	0.38	0.03	0.02	0.47	0.28	0.09	0.03	0.04	0.30	0.01	0.48
Control Delay	35.0	14.9	0.1	33.8	24.9	5.6	33.6	34.8	0.2	33.0	34.8	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	14.9	0.1	33.8	24.9	5.6	33.6	34.8	0.2	33.0	34.8	9.5
Queue Length 50th (ft)	83	112	0	2	109	0	12	4	0	46	1	0
Queue Length 95th (ft)	146	213	0	11	150	42	34	14	0	94	6	67
Internal Link Dist (ft)		2349			1015			375			1020	
Turn Bay Length (ft)	360			220		150	290		200	200		160
Base Capacity (vph)	765	2648	871	645	2375	813	598	2518	844	645	1805	917
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.36	0.03	0.02	0.28	0.19	0.09	0.01	0.02	0.30	0.00	0.25

Intersection Summary

SYNCHRO QUEUING
EXISTING PLUS PROJECT AM PEAK HOUR

Queues

1: East Commerce Way & Del Paso Road

04/17/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	400	979	398	338	776	73	98	298	144	95	555	488
v/c Ratio	0.77	0.82	0.65	0.96	0.82	0.17	0.32	0.19	0.24	0.29	1.01	0.65
Control Delay	62.2	50.9	13.6	96.7	56.4	0.9	57.4	31.0	5.0	55.9	81.9	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.2	50.9	13.6	96.7	56.4	0.9	57.4	31.0	5.0	55.9	81.9	10.5
Queue Length 50th (ft)	167	283	49	148	230	0	40	64	0	38	~511	40
Queue Length 95th (ft)	#246	326	156	#244	266	0	69	93	41	67	#789	174
Internal Link Dist (ft)		1111			1390			1990			517	
Turn Bay Length (ft)	250		165	230		140	225		145	280		195
Base Capacity (vph)	522	1337	645	351	1144	481	309	1579	593	332	550	750
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.73	0.62	0.96	0.68	0.15	0.32	0.19	0.24	0.29	1.01	0.65

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

3: East Commerce Way & North Access

04/17/2018



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	23	30	20	221	468	13	705	170
v/c Ratio	0.11	0.04	0.06	0.67	0.14	0.06	0.23	0.17
Control Delay	56.0	0.1	0.4	106.7	23.2	53.5	20.3	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	0.1	0.4	106.7	23.2	53.5	20.3	9.4
Queue Length 50th (ft)	21	0	0	0	5	12	113	18
Queue Length 95th (ft)	43	0	0	158	209	31	267	104
Internal Link Dist (ft)		274	198		579		587	
Turn Bay Length (ft)	150			170		200		125
Base Capacity (vph)	437	929	515	482	3374	261	3061	1002
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.03	0.04	0.46	0.14	0.05	0.23	0.17

Intersection Summary

Queues

4: East Commerce Way & Center Access

04/17/2018



Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	3	15	40	4	111	682	1	1	740
v/c Ratio	0.02	0.03	0.08	0.01	0.63	0.19	0.00	0.00	0.25
Control Delay	63.0	0.1	60.1	0.0	69.1	3.3	0.0	117.0	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.0	0.1	60.1	0.0	69.1	3.3	0.0	117.0	17.7
Queue Length 50th (ft)	3	0	13	0	113	58	0	0	54
Queue Length 95th (ft)	14	0	24	0	44	15	m0	m2	171
Internal Link Dist (ft)		552				884			579
Turn Bay Length (ft)	60				230		145	235	
Base Capacity (vph)	175	760	505	726	319	3533	1138	299	2967
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.08	0.01	0.35	0.19	0.00	0.00	0.25

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

5: East Commerce Way & South Access

04/17/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	7	106	9	3	774	784	17	11	709	49
v/c Ratio	0.05	0.13	0.08	0.01	0.89	0.21	0.01	0.05	0.28	0.06
Control Delay	63.7	0.3	67.2	0.0	52.5	24.0	0.0	50.6	17.7	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.7	0.3	67.2	0.0	52.5	24.0	0.0	50.6	17.7	3.0
Queue Length 50th (ft)	6	0	9	0	253	99	0	11	23	0
Queue Length 95th (ft)	23	0	28	0	m190	m329	m0	37	281	23
Internal Link Dist (ft)		446		287		1020			884	
Turn Bay Length (ft)	300		125		170		140	200		125
Base Capacity (vph)	153	938	153	731	1016	3848	1228	209	2513	867
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.11	0.06	0.00	0.76	0.20	0.01	0.05	0.28	0.06

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

6: East Commerce Way & Arena Blvd

04/17/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1094	909	21	13	443	450	100	35	5	272	11	535
v/c Ratio	0.88	0.28	0.02	0.04	0.30	0.58	0.19	0.06	0.02	0.75	0.03	0.69
Control Delay	54.5	15.7	0.0	62.3	43.1	7.2	57.8	56.0	0.0	96.4	66.0	41.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	15.7	0.0	62.3	43.1	7.2	57.8	56.0	0.0	96.4	66.0	41.0
Queue Length 50th (ft)	510	112	0	6	124	0	40	11	0	110	5	479
Queue Length 95th (ft)	#761	270	0	18	174	102	80	20	0	#208	17	610
Internal Link Dist (ft)		2349			1015			375			1020	
Turn Bay Length (ft)	360		300	220		150	290		200	200		160
Base Capacity (vph)	1241	3250	1034	320	1495	777	520	1250	497	363	896	774
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.28	0.02	0.04	0.30	0.58	0.19	0.03	0.01	0.75	0.01	0.69

Intersection Summary

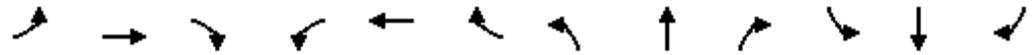
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

SYNCHRO QUEUING
EXISTING PLUS PROJECT PM PEAK HOUR

Queues

1: East Commerce Way & Del Paso Road

04/17/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	805	1043	275	244	799	135	304	450	338	106	238	209
v/c Ratio	0.99	0.65	0.43	0.63	0.81	0.32	0.70	0.47	0.66	0.28	0.80	0.49
Control Delay	73.0	35.5	11.1	59.2	52.0	6.3	59.3	42.0	16.4	53.7	64.7	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.0	35.5	11.1	59.2	52.0	6.3	59.3	42.0	16.4	53.7	64.7	9.7
Queue Length 50th (ft)	313	235	34	92	209	0	114	109	44	38	174	0
Queue Length 95th (ft)	#584	359	125	157	302	40	187	152	147	78	298	70
Internal Link Dist (ft)		1111			1390			1990			517	
Turn Bay Length (ft)	250		165	230		140	225		145	280		195
Base Capacity (vph)	816	1786	683	469	1276	509	568	1619	677	373	455	541
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.58	0.40	0.52	0.63	0.27	0.54	0.28	0.50	0.28	0.52	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

3: East Commerce Way & North Access

04/17/2018



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	157	191	12	41	557	24	401	36
v/c Ratio	0.27	0.18	0.02	0.04	0.40	0.05	0.28	0.07
Control Delay	22.2	0.4	0.1	30.3	22.9	32.6	22.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	0.4	0.1	30.3	22.9	32.6	22.6	0.3
Queue Length 50th (ft)	19	0	0	2	27	3	19	0
Queue Length 95th (ft)	166	0	0	35	200	48	147	0
Internal Link Dist (ft)		274	198		579		587	
Turn Bay Length (ft)	150			170		200		125
Base Capacity (vph)	1403	1427	1341	1361	2598	701	2623	862
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.13	0.01	0.03	0.21	0.03	0.15	0.04

Intersection Summary

Queues

4: East Commerce Way & Center Access

04/17/2018



Lane Group	EBL	EBT	WBL	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	22	96	6	21	576	2	1	597
v/c Ratio	0.13	0.14	0.01	0.13	0.16	0.00	0.00	0.18
Control Delay	57.9	0.4	50.8	42.6	3.5	0.0	56.0	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	0.4	50.8	42.6	3.5	0.0	56.0	14.6
Queue Length 50th (ft)	18	0	1	17	35	0	0	88
Queue Length 95th (ft)	47	0	6	51	18	m0	3	168
Internal Link Dist (ft)		552			884			579
Turn Bay Length (ft)	60			230		145	235	
Base Capacity (vph)	208	814	573	197	3503	1133	333	3241
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.12	0.01	0.11	0.16	0.00	0.00	0.18

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

5: East Commerce Way & South Access

04/17/2018



Lane Group	EBL	EBT	WBL	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	45	670	22	145	555	10	3	681	10
v/c Ratio	0.11	0.92	0.21	0.44	0.19	0.01	0.02	0.28	0.01
Control Delay	39.2	34.1	65.4	62.0	19.6	0.0	36.7	13.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	34.1	65.4	62.0	19.6	0.0	36.7	13.7	0.0
Queue Length 50th (ft)	26	229	19	62	81	0	2	139	0
Queue Length 95th (ft)	73	337	48	98	190	0	12	51	0
Internal Link Dist (ft)		446			1020			884	
Turn Bay Length (ft)	300		125	170		140	200		125
Base Capacity (vph)	422	963	107	343	2944	979	182	2435	832
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.70	0.21	0.42	0.19	0.01	0.02	0.28	0.01

Intersection Summary

Queues

6: East Commerce Way & Arena Blvd

04/17/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	453	964	26	11	669	239	53	28	13	479	16	886
v/c Ratio	0.53	0.37	0.03	0.02	0.55	0.43	0.07	0.03	0.03	0.71	0.02	1.05
Control Delay	38.8	18.6	0.1	46.6	35.5	7.3	38.3	37.8	0.2	46.4	37.4	68.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	18.6	0.1	46.6	35.5	7.3	38.3	37.8	0.2	46.4	37.4	68.2
Queue Length 50th (ft)	133	127	0	3	138	0	10	5	0	150	4	~757
Queue Length 95th (ft)	259	308	0	14	228	66	42	15	0	#335	15	#979
Internal Link Dist (ft)		2349			1015			375			1020	
Turn Bay Length (ft)	360		300	220		150	290		200	200		160
Base Capacity (vph)	855	2641	888	524	1883	729	708	1988	745	706	1617	847
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.37	0.03	0.02	0.36	0.33	0.07	0.01	0.02	0.68	0.01	1.05

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

SIMTRAFFIC OUTPUT

SIMTRAFFIC OUTPUT
EXISTING PLUS PROJECT AM PEAK HOUR

1: East Commerce Way & Del Paso Road Performance by movement

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Denied Delay (hr)	0.0	0.3	0.1	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	2.4	2.3	0.5	2.2	2.6	2.6	0.2	2.4	0.3	0.3	0.0	0.3
Total Delay (hr)	0.0	6.3	12.3	1.8	0.3	7.1	10.3	0.2	0.0	1.4	2.5	0.5
Total Del/Veh (s)	42.3	56.3	43.5	16.3	71.6	78.8	45.9	7.7	46.5	55.7	31.9	11.9
Stop/Veh	1.00	0.95	0.73	0.74	1.00	1.06	0.77	0.74	1.00	0.89	0.61	0.65
Travel Dist (mi)	0.2	84.3	212.7	85.6	4.1	82.9	208.2	19.4	1.1	34.0	103.5	49.9
Travel Time (hr)	0.0	8.8	17.2	4.6	0.4	9.5	15.0	0.8	0.1	2.3	4.8	1.8
Avg Speed (mph)	11	10	12	20	9	9	14	28	16	15	22	29

1: East Commerce Way & Del Paso Road Performance by movement

Movement	SBL	SBT	SBR	All
Denied Delay (hr)	7.0	30.8	47.5	86.3
Denied Del/Veh (s)	258.8	259.3	259.1	66.7
Total Delay (hr)	1.9	8.4	8.2	61.3
Total Del/Veh (s)	81.0	79.5	50.2	47.8
Stop/Veh	1.16	0.82	1.14	0.84
Travel Dist (mi)	8.4	37.6	58.1	989.9
Travel Time (hr)	9.2	40.0	57.9	172.4
Avg Speed (mph)	4	4	6	11

2: East Commerce Way & Snowy Egret Drive Performance by movement

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.2	0.1	0.1	0.0	0.0	0.1	0.7	1.1
Total Del/Veh (s)	25.8	3.9	1.1	1.7	3.8	7.1	2.3	2.5
Stop/Veh	1.00	1.00	0.00	0.00	0.00	0.38	0.00	0.05
Travel Dist (mi)	1.2	2.7	52.4	4.3	0.3	14.8	365.4	441.1
Travel Time (hr)	0.2	0.2	1.9	0.2	0.0	0.6	13.7	16.8
Avg Speed (mph)	6	14	27	23	25	24	27	26

3: East Commerce Way & North Access Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	4.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay (hr)	0.4	0.1	0.2	0.1	3.4	1.1	0.0	0.1	2.6	0.3	8.3
Total Del/Veh (s)	63.6	8.0	66.5	17.0	59.6	9.1	4.6	50.3	14.0	5.8	18.9
Stop/Veh	0.82	0.93	0.90	0.91	0.89	0.22	0.20	1.00	0.36	0.40	0.42
Travel Dist (mi)	1.1	1.6	0.4	0.4	25.6	53.7	1.2	1.3	85.2	19.8	190.3
Travel Time (hr)	0.5	0.1	0.2	0.1	4.4	2.9	0.1	0.2	5.5	1.1	15.0
Avg Speed (mph)	3	11	2	6	6	19	20	7	15	19	13

4: East Commerce Way & Center Access Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	3.4	0.1	0.1	0.1	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.8	0.0	1.7	1.5	0.0	0.0	3.1	0.1	7.3
Total Del/Veh (s)	75.1	8.3	65.2	6.4	55.2	8.4	1.9		16.2	12.8	17.1
Stop/Veh	1.00	0.87	0.88	0.75	0.85	0.15	0.00		0.30	0.30	0.30
Travel Dist (mi)	0.2	1.6	3.5	0.4	19.7	115.2	0.3	0.0	86.9	2.5	230.4
Travel Time (hr)	0.1	0.1	0.9	0.0	2.3	4.1	0.0	0.0	5.3	0.2	13.0
Avg Speed (mph)	4	16	4	16	9	28	30	5	16	15	18

5: East Commerce Way & South Access Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	3.9	0.2	4.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.3	0.2	0.0	17.3	4.9	0.0	0.2	3.6	0.2	26.7
Total Del/Veh (s)	77.4	10.8	84.3	4.5	83.3	23.8	5.3	65.7	18.7	13.7	40.4
Stop/Veh	1.00	0.87	0.86	1.00	1.21	0.55	0.47	0.89	0.39	0.45	0.73
Travel Dist (mi)	0.5	9.3	0.4	0.2	146.2	150.7	3.5	1.6	126.7	9.7	448.8
Travel Time (hr)	0.2	0.7	0.2	0.0	23.2	10.7	0.2	0.2	7.9	0.6	43.8
Avg Speed (mph)	3	13	2	13	6	14	20	7	16	17	10

6: East Commerce Way & Arena Blvd Performance by movement

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Denied Delay (hr)	19.2	15.5	0.4	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	63.1	62.7	72.0	3.2	3.3	0.2	2.9	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	85.3	9.6	0.1	0.2	0.0	5.4	3.4	1.5	0.7	0.0	0.0	5.8
Total Del/Veh (s)	276.3	40.2	18.4	67.7	66.2	42.8	27.7	54.6	67.2	12.1	63.8	79.1
Stop/Veh	2.34	0.76	0.40	0.90	1.00	0.70	0.72	0.85	0.86	1.00	1.00	0.92
Travel Dist (mi)	453.3	378.8	9.1	1.8	0.4	87.9	85.0	7.5	2.8	0.3	0.2	51.7
Travel Time (hr)	115.0	32.7	0.8	0.2	0.0	7.2	6.3	1.8	0.7	0.0	0.0	7.4
Avg Speed (mph)	5	22	29	8	9	12	14	4	4	12	7	7

6: East Commerce Way & Arena Blvd Performance by movement

Movement	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	35.6
Denied Del/Veh (s)	0.0	0.0	33.3
Total Delay (hr)	0.2	2.4	114.7
Total Del/Veh (s)	46.0	16.5	107.2
Stop/Veh	0.61	0.60	1.20
Travel Dist (mi)	2.9	104.0	1185.7
Travel Time (hr)	0.3	5.8	178.3
Avg Speed (mph)	10	18	8

Total Network Performance

Denied Delay (hr)	121.9
Denied Del/Veh (s)	58.0
Total Delay (hr)	223.7
Total Del/Veh (s)	105.1
Stop/Veh	1.49
Travel Dist (mi)	5147.5
Travel Time (hr)	497.3
Avg Speed (mph)	14

Intersection: 1: East Commerce Way & Del Paso Road

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	266	312	356	337	306	238	264	298	344	281	242	118
Average Queue (ft)	150	195	235	221	181	118	142	180	205	186	141	21
95th Queue (ft)	237	282	317	302	268	218	235	270	290	255	228	75
Link Distance (ft)			1133	1133	1133				1388	1388	1388	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250	250				165	230	230				140
Storage Blk Time (%)	0	1	7		9	2	1	3	3			6
Queuing Penalty (veh)	0	4	26		34	8	2	7	11			5

Intersection: 1: East Commerce Way & Del Paso Road

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	UL	L	T	T	T	R	UL	L	TR	R
Maximum Queue (ft)	99	105	126	138	151	154	100	355	573	270
Average Queue (ft)	37	52	36	57	72	50	17	224	540	269
95th Queue (ft)	85	93	89	115	133	104	58	472	558	276
Link Distance (ft)			1954	1954	1954				519	
Upstream Blk Time (%)									54	
Queuing Penalty (veh)									0	
Storage Bay Dist (ft)	225	225				145	280	280		195
Storage Blk Time (%)					1	0			61	3
Queuing Penalty (veh)					1	0			247	25

Intersection: 2: East Commerce Way & Snowy Egret Drive

Movement	WB	WB	SB	SB
Directions Served	L	R	UL	T
Maximum Queue (ft)	56	47	51	4
Average Queue (ft)	18	22	13	0
95th Queue (ft)	45	41	40	4
Link Distance (ft)	280	280		1954
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			240	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: East Commerce Way & North Access

Movement	EB	EB	WB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	UL	L	T	T	TR	UL	T	T	T
Maximum Queue (ft)	70	48	61	184	199	182	171	221	49	141	244	341
Average Queue (ft)	19	15	18	79	102	26	26	49	8	46	58	131
95th Queue (ft)	52	38	50	151	167	99	99	147	32	113	171	272
Link Distance (ft)		271	210			549	549	549		565	565	565
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150			170	170				200			
Storage Blk Time (%)				0	2	0				0		11
Queuing Penalty (veh)				1	3	1				0		19

Intersection: 3: East Commerce Way & North Access

Movement	SB
Directions Served	R
Maximum Queue (ft)	200
Average Queue (ft)	56
95th Queue (ft)	159
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	125
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 4: East Commerce Way & Center Access

Movement	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	TR	L	L	L	R	L	T	T	T	R	L
Maximum Queue (ft)	31	41	59	28	82	30	202	222	135	126	3	6
Average Queue (ft)	2	12	14	2	27	3	94	37	20	32	0	0
95th Queue (ft)	16	36	44	12	68	17	173	126	81	93	4	3
Link Distance (ft)		567	445	445	445	445		878	878	878		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	60						230				145	235
Storage Blk Time (%)	0	0					0	0		0		
Queuing Penalty (veh)	0	0					1	0		0		

Intersection: 4: East Commerce Way & Center Access

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (ft)	125	172	327
Average Queue (ft)	37	27	115
95th Queue (ft)	93	99	260
Link Distance (ft)	549	549	549
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: East Commerce Way & South Access

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	UL	L	T	T	T	R	L	T
Maximum Queue (ft)	45	93	41	19	207	245	967	931	798	143	42	216
Average Queue (ft)	8	42	7	2	200	239	561	301	150	10	8	61
95th Queue (ft)	31	75	28	12	226	258	976	806	460	66	29	158
Link Distance (ft)		454		280			974	974	974			878
Upstream Blk Time (%)							0	0	0			
Queuing Penalty (veh)							1	0	0			
Storage Bay Dist (ft)	300		125		170	170				140	200	
Storage Blk Time (%)					19	51	8		8			0
Queuing Penalty (veh)					49	134	61		1			0

Intersection: 5: East Commerce Way & South Access

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	140	515	183
Average Queue (ft)	21	173	30
95th Queue (ft)	80	434	125
Link Distance (ft)	878	878	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			125
Storage Blk Time (%)		12	
Queuing Penalty (veh)		6	

Intersection: 6: East Commerce Way & Arena Blvd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	398	435	2400	2394	2354	16	50	15	254	218	335	225
Average Queue (ft)	394	433	2107	2049	1545	2	10	1	159	119	81	151
95th Queue (ft)	409	447	2928	2969	2990	11	33	9	233	206	262	244
Link Distance (ft)			2359	2359	2359				1009	1009	1009	
Upstream Blk Time (%)			56	39	3							
Queuing Penalty (veh)			0	0	0							
Storage Bay Dist (ft)	360	360				300	220	220				150
Storage Blk Time (%)	34	48			0				1		0	17
Queuing Penalty (veh)	102	145			0				0		1	25

Intersection: 6: East Commerce Way & Arena Blvd

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	R
Maximum Queue (ft)	128	157	88	48	28	24	221	235	46	312	234
Average Queue (ft)	29	74	30	5	2	2	110	128	10	47	129
95th Queue (ft)	97	134	69	25	15	14	187	205	32	230	253
Link Distance (ft)			352	352	352			974	974	974	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	290	290				200	200				160
Storage Blk Time (%)							1	3			6
Queuing Penalty (veh)							1	4			0

Network Summary

Network wide Queuing Penalty: 927

SIMTRAFFIC OUTPUT
EXISTING PLUS PROJECT PM PEAK HOUR

1: East Commerce Way & Del Paso Road Performance by movement

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Denied Delay (hr)	0.0	13.7	16.4	4.5	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1
Denied Del/Veh (s)		60.7	57.6	58.9	2.6	2.5	0.2	2.5	1.1	1.4	0.1	1.4
Total Delay (hr)	0.0	36.1	12.5	0.9	0.4	3.9	10.8	0.4	0.3	4.6	5.0	1.8
Total Del/Veh (s)		160.8	44.6	11.8	60.4	63.5	48.0	10.0	56.2	55.6	38.7	19.0
Stop/Veh		1.81	0.85	0.68	0.96	0.95	0.79	0.73	0.89	0.85	0.66	0.69
Travel Dist (mi)	0.1	165.5	212.8	56.7	6.5	57.4	210.4	37.2	5.8	91.2	144.3	103.8
Travel Time (hr)	0.0	54.3	33.7	7.0	0.6	5.6	15.5	1.5	0.4	7.0	8.1	4.7
Avg Speed (mph)	5	4	12	22	11	11	14	26	13	13	18	23

1: East Commerce Way & Del Paso Road Performance by movement

Movement	SBL	SBT	SBR	All
Denied Delay (hr)	0.1	0.0	0.1	35.4
Denied Del/Veh (s)	3.3	0.9	1.0	25.8
Total Delay (hr)	1.8	3.3	2.7	84.5
Total Del/Veh (s)	62.7	61.1	36.9	61.2
Stop/Veh	0.92	0.86	1.07	0.97
Travel Dist (mi)	10.4	19.2	26.1	1147.1
Travel Time (hr)	2.3	3.7	3.8	148.3
Avg Speed (mph)	5	5	7	10

2: East Commerce Way & Snowy Egret Drive Performance by movement

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.3	0.0	0.0	0.0	0.3	0.7
Total Del/Veh (s)	16.9	5.8	1.7	2.1	11.9	7.1	1.8	1.9
Stop/Veh	1.00	1.00	0.00	0.00	0.67	0.38	0.00	0.01
Travel Dist (mi)	0.2	0.6	85.3	0.8	1.1	3.0	221.5	312.5
Travel Time (hr)	0.0	0.0	3.4	0.0	0.1	0.1	8.3	11.9
Avg Speed (mph)	8	13	25	21	21	24	27	26

3: East Commerce Way & North Access Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR	All
Denied Delay (hr)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Denied Del/Veh (s)	3.6	0.6	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.5
Total Delay (hr)	0.8	0.3	0.0	0.0	0.3	2.0	0.1	0.0	0.2	1.6	0.0	5.5
Total Del/Veh (s)	19.6	5.7	27.3	5.6	27.8	13.7	10.2	36.4	33.3	14.4	3.8	13.9
Stop/Veh	0.73	0.69	1.00	0.90	0.86	0.50	0.53	1.00	0.92	0.57	0.51	0.59
Travel Dist (mi)	8.0	9.9	0.1	0.4	5.3	65.5	5.3	0.2	2.9	49.4	4.3	151.4
Travel Time (hr)	1.3	0.8	0.0	0.0	0.5	4.2	0.3	0.0	0.3	3.3	0.2	11.1
Avg Speed (mph)	7	13	5	11	10	16	16	8	9	15	21	14

4: East Commerce Way & Center Access Performance by movement

Movement	EBL	EBR	WBL	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	3.9	0.2	0.1	0.0	0.0	0.0		0.0	0.0	0.1
Total Delay (hr)	0.4	0.3	0.1	0.4	1.3	0.0	0.0	2.9	0.0	5.3
Total Del/Veh (s)	59.8	10.0	66.7	62.9	7.8	6.6		17.8	16.1	14.4
Stop/Veh	0.91	0.78	1.00	0.82	0.12	0.00		0.35	0.50	0.30
Travel Dist (mi)	2.4	9.9	0.4	3.9	107.3	0.3	0.0	72.2	0.5	196.8
Travel Time (hr)	0.5	0.7	0.1	0.5	3.8	0.0	0.0	5.0	0.0	10.5
Avg Speed (mph)	5	15	4	8	28	26	7	15	13	19

5: East Commerce Way & South Access Performance by movement

Movement	EBL	EBR	WBL	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Denied Del/Veh (s)	3.7	1.6	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Total Delay (hr)	0.5	5.7	0.4	2.4	4.3	0.0	0.1	10.3	0.1	23.7
Total Del/Veh (s)	41.7	29.7	64.9	57.3	26.5	4.8	67.4	54.7	42.2	39.1
Stop/Veh	0.74	0.69	0.95	0.88	0.57	0.67	1.00	0.82	0.90	0.72
Travel Dist (mi)	4.0	58.7	1.2	29.1	116.6	1.8	0.5	122.4	1.8	336.2
Travel Time (hr)	0.7	8.5	0.5	3.5	8.8	0.1	0.1	14.5	0.2	36.9
Avg Speed (mph)	6	7	3	8	13	20	7	8	10	9

6: East Commerce Way & Arena Blvd Performance by movement

Movement	EBL	EBT	EBR	WBU	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Denied Delay (hr)	0.2	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0
Denied Del/Veh (s)	1.8	0.2	1.5	2.8	0.2	2.8	0.0	0.0	0.0	0.0	0.8	0.0
Total Delay (hr)	5.6	4.8	0.0	0.1	6.2	0.5	0.6	0.4	0.0	0.0	6.5	0.2
Total Del/Veh (s)	43.1	17.7	2.8	50.4	33.2	7.1	39.0	47.5	7.2	92.9	48.5	40.1
Stop/Veh	0.80	0.42	0.43	0.90	0.67	0.66	0.81	0.90	0.93	1.00	0.87	0.72
Travel Dist (mi)	205.0	428.8	12.4	1.8	129.8	46.7	4.0	2.2	1.2	0.3	94.3	3.5
Travel Time (hr)	10.6	13.5	0.3	0.2	8.9	2.0	0.7	0.4	0.1	0.0	9.8	0.3
Avg Speed (mph)	20	32	41	9	15	26	6	5	15	8	10	12

6: East Commerce Way & Arena Blvd Performance by movement

Movement	SBR	All
Denied Delay (hr)	0.3	0.9
Denied Del/Veh (s)	1.3	0.9
Total Delay (hr)	15.9	40.9
Total Del/Veh (s)	64.6	37.9
Stop/Veh	1.02	0.73
Travel Dist (mi)	171.4	1101.4
Travel Time (hr)	22.2	69.0
Avg Speed (mph)	8	16

Total Network Performance

Denied Delay (hr)	36.9
Denied Del/Veh (s)	16.7
Total Delay (hr)	165.9
Total Del/Veh (s)	73.1
Stop/Veh	1.28
Travel Dist (mi)	5233.2
Travel Time (hr)	355.3
Avg Speed (mph)	16

Intersection: 1: East Commerce Way & Del Paso Road

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	287	325	1177	1113	808	240	178	266	332	291	242	149
Average Queue (ft)	284	324	987	831	234	101	85	137	212	193	145	36
95th Queue (ft)	297	329	1402	1313	507	225	162	228	292	266	221	99
Link Distance (ft)			1133	1133	1133				1388	1388	1388	
Upstream Blk Time (%)			36	1	0							
Queuing Penalty (veh)			0	0	0							
Storage Bay Dist (ft)	250	250				165	230	230				140
Storage Blk Time (%)	31	57	1		14	0	0	0	4		7	
Queuing Penalty (veh)	107	198	6		39	0	0	0	11		10	

Intersection: 1: East Commerce Way & Del Paso Road

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	UL	L	T	T	T	R	UL	L	TR	R
Maximum Queue (ft)	196	218	189	195	250	210	125	278	411	270
Average Queue (ft)	114	132	99	103	96	108	14	80	243	165
95th Queue (ft)	184	199	161	162	174	186	66	167	362	297
Link Distance (ft)			1954	1954	1954				519	
Upstream Blk Time (%)									0	
Queuing Penalty (veh)									0	
Storage Bay Dist (ft)	225	225				145	280	280		195
Storage Blk Time (%)	0	0	0		2	5			23	1
Queuing Penalty (veh)	0	0	0		6	7			55	3

Intersection: 2: East Commerce Way & Snowy Egret Drive

Movement	WB	WB	SB
Directions Served	L	R	UL
Maximum Queue (ft)	30	28	33
Average Queue (ft)	3	8	5
95th Queue (ft)	18	27	23
Link Distance (ft)	280	280	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			240
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: East Commerce Way & North Access

Movement	EB	EB	WB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	UL	L	T	T	TR	UL	T	T	T
Maximum Queue (ft)	145	128	38	32	81	146	174	235	60	93	101	184
Average Queue (ft)	66	47	10	3	28	57	56	97	18	36	30	81
95th Queue (ft)	119	91	34	18	64	127	132	195	46	77	76	146
Link Distance (ft)		271	210			549	549	549		565	565	565
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150			170	170				200			
Storage Blk Time (%)	0	0						0				2
Queuing Penalty (veh)	1	0						0				1

Intersection: 3: East Commerce Way & North Access

Movement	SB
Directions Served	R
Maximum Queue (ft)	90
Average Queue (ft)	17
95th Queue (ft)	54
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	125
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: East Commerce Way & Center Access

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	L	L	T	T	T	R	L	T	T
Maximum Queue (ft)	66	98	22	27	87	112	101	125	3	5	130	144
Average Queue (ft)	22	42	2	4	22	24	17	30	0	0	38	30
95th Queue (ft)	54	81	12	20	60	74	65	87	3	3	96	123
Link Distance (ft)		567	445	445		878	878	878			549	549
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	60				230				145	235		
Storage Blk Time (%)	2	3						0				
Queuing Penalty (veh)	2	1						0				

Intersection: 4: East Commerce Way & Center Access

Movement	SB
Directions Served	TR
Maximum Queue (ft)	289
Average Queue (ft)	99
95th Queue (ft)	250
Link Distance (ft)	549
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: East Commerce Way & South Access

Movement	EB	EB	WB	NB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	UL	L	T	T	T	R	L	T	T
Maximum Queue (ft)	374	473	68	135	161	183	182	201	33	28	275	292
Average Queue (ft)	63	313	20	48	79	94	92	116	5	3	106	61
95th Queue (ft)	226	479	52	102	129	177	175	197	24	17	213	294
Link Distance (ft)		454				974	974	974			878	878
Upstream Blk Time (%)		4										0
Queuing Penalty (veh)		0										0
Storage Bay Dist (ft)	300		125	170	170				140	200		
Storage Blk Time (%)		13		0	0	1		9			1	
Queuing Penalty (veh)		6		0	0	1		1			0	

Intersection: 5: East Commerce Way & South Access

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	622	183
Average Queue (ft)	355	14
95th Queue (ft)	722	88
Link Distance (ft)	878	
Upstream Blk Time (%)	3	
Queuing Penalty (veh)	6	
Storage Bay Dist (ft)		125
Storage Blk Time (%)	41	
Queuing Penalty (veh)	4	

Intersection: 6: East Commerce Way & Arena Blvd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	231	245	219	209	188	39	36	4	280	241	174	107
Average Queue (ft)	126	144	108	110	82	5	8	0	174	135	48	40
95th Queue (ft)	203	223	184	183	166	21	27	4	253	220	142	82
Link Distance (ft)			2359	2359	2359				1009	1009	1009	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	360	360				300	220	220				150
Storage Blk Time (%)									3		0	0
Queuing Penalty (veh)									0		1	0

Intersection: 6: East Commerce Way & Arena Blvd

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	R
Maximum Queue (ft)	57	93	66	32	34	33	243	272	135	889	235
Average Queue (ft)	4	37	19	3	3	8	145	168	13	526	227
95th Queue (ft)	29	79	50	17	18	27	233	257	107	1006	272
Link Distance (ft)			352	352	352			974	974	974	
Upstream Blk Time (%)										1	
Queuing Penalty (veh)										3	
Storage Bay Dist (ft)	290	290				200	200				160
Storage Blk Time (%)							2	6			60
Queuing Penalty (veh)							5	15			5

Network Summary

Network wide Queuing Penalty: 492

SIMTRAFFIC OUTPUT
EXISTING PLUS PROJECT AM PEAK HOUR
IMPROVED DOUBLE LEFT TURN LANE

1: East Commerce Way & Del Paso Road Performance by movement

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Denied Delay (hr)	0.0	0.3	0.1	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	1.8	2.3	0.5	2.2	2.7	2.6	0.2	2.5	0.2	0.3	0.0	0.3
Total Delay (hr)	0.0	6.5	11.5	1.9	0.5	11.0	10.2	0.2	0.1	1.4	2.8	0.5
Total Del/Veh (s)	41.3	57.1	41.2	16.5	98.7	117.5	46.6	7.8	55.2	52.1	32.6	11.9
Stop/Veh	1.00	0.95	0.73	0.73	1.18	1.29	0.81	0.74	0.75	0.87	0.62	0.61
Travel Dist (mi)	0.2	85.9	212.7	85.9	4.3	86.3	204.9	18.9	1.5	35.8	109.6	51.0
Travel Time (hr)	0.0	9.1	16.4	4.6	0.6	13.5	14.8	0.7	0.1	2.3	5.2	1.8
Avg Speed (mph)	11	10	13	20	7	7	14	28	15	15	21	28

1: East Commerce Way & Del Paso Road Performance by movement

Movement	SBL	SBT	SBR	All
Denied Delay (hr)	6.0	25.5	37.8	70.2
Denied Del/Veh (s)	216.5	215.2	213.5	54.1
Total Delay (hr)	2.0	8.5	7.9	64.7
Total Del/Veh (s)	78.6	77.7	48.4	50.1
Stop/Veh	1.17	0.83	1.14	0.87
Travel Dist (mi)	9.0	38.7	58.2	1002.9
Travel Time (hr)	8.3	34.8	47.9	160.1
Avg Speed (mph)	4	4	6	11

2: East Commerce Way & Snowy Egret Drive Performance by movement

Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	0.3	0.1	0.1	0.0	0.0	0.1	0.7	1.2
Total Del/Veh (s)	31.8	4.2	0.8	1.2	7.8	7.4	2.4	2.6
Stop/Veh	0.97	1.00	0.00	0.00	0.00	0.35	0.00	0.06
Travel Dist (mi)	1.5	2.8	55.4	4.8	0.2	15.4	375.1	455.3
Travel Time (hr)	0.3	0.2	2.0	0.2	0.0	0.6	14.1	17.4
Avg Speed (mph)	5	14	28	23	22	24	27	26

3: East Commerce Way & North Access Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	4.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay (hr)	0.5	0.1	0.2	0.0	3.0	0.4	0.0	0.3	3.1	0.3	7.8
Total Del/Veh (s)	68.5	7.7	70.0	12.4	47.7	3.4	2.3	72.3	15.9	6.5	17.1
Stop/Veh	0.88	0.91	0.89	1.00	0.89	0.07	0.08	0.92	0.38	0.41	0.40
Travel Dist (mi)	1.2	1.7	0.3	0.4	28.0	57.3	1.5	1.6	86.8	21.0	199.7
Travel Time (hr)	0.5	0.2	0.2	0.1	4.0	2.3	0.1	0.3	6.0	1.1	14.9
Avg Speed (mph)	2	11	2	7	7	24	23	5	14	18	13

4: East Commerce Way & Center Access Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	4.7	0.1	0.1	0.1	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.7	0.0	2.1	1.3	0.0	0.0	2.5	0.1	6.9
Total Del/Veh (s)	109.4	9.4	72.5	9.5	64.2	7.1	2.6		12.6	10.4	15.6
Stop/Veh	1.00	0.87	0.92	0.75	0.92	0.12	0.00		0.26	0.30	0.27
Travel Dist (mi)	0.2	1.6	3.1	0.4	21.0	124.4	0.3	0.1	88.5	2.9	242.6
Travel Time (hr)	0.1	0.1	0.9	0.0	2.8	4.2	0.0	0.0	4.7	0.2	12.9
Avg Speed (mph)	4	15	4	14	8	30	28	3	19	17	19

5: East Commerce Way & South Access Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	3.8	0.2	4.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.2	0.4	0.2	0.0	15.4	3.1	0.0	0.3	4.5	0.3	24.3
Total Del/Veh (s)	89.7	13.2	84.0	5.4	72.1	14.0	3.3	98.5	22.9	17.4	35.2
Stop/Veh	0.86	0.88	1.00	1.00	0.89	0.34	0.24	0.91	0.44	0.46	0.57
Travel Dist (mi)	0.6	10.0	0.5	0.2	151.3	162.9	3.5	2.0	129.1	9.5	469.4
Travel Time (hr)	0.2	0.9	0.2	0.0	21.5	9.4	0.2	0.4	8.8	0.6	42.2
Avg Speed (mph)	3	12	2	13	7	17	21	5	15	15	11

6: East Commerce Way & Arena Blvd Performance by movement

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Denied Delay (hr)	0.2	0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.7	0.2	0.5	2.4	2.9	0.2	2.9	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	20.0	4.6	0.0	0.3	0.1	6.6	5.1	1.8	0.8	0.0	0.0	4.8
Total Del/Veh (s)	64.7	17.9	3.1	93.5	69.9	52.6	41.4	67.8	78.3	5.5	45.4	64.2
Stop/Veh	0.83	0.32	0.35	0.90	1.00	0.75	0.86	0.93	0.89	0.80	1.00	0.79
Travel Dist (mi)	481.1	413.8	10.4	1.8	0.6	86.4	85.1	7.3	3.0	0.4	0.1	52.6
Travel Time (hr)	31.4	13.0	0.3	0.3	0.1	8.4	8.0	2.1	0.9	0.0	0.0	6.4
Avg Speed (mph)	15	32	40	6	8	10	11	4	3	16	8	8

6: East Commerce Way & Arena Blvd Performance by movement

Movement	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.7
Denied Del/Veh (s)	0.0	0.0	0.6
Total Delay (hr)	0.2	3.0	47.4
Total Del/Veh (s)	55.0	19.4	43.1
Stop/Veh	0.56	0.62	0.67
Travel Dist (mi)	2.6	109.1	1254.4
Travel Time (hr)	0.3	6.5	77.7
Avg Speed (mph)	8	17	16

Total Network Performance

Denied Delay (hr)	70.9
Denied Del/Veh (s)	33.7
Total Delay (hr)	156.8
Total Del/Veh (s)	72.5
Stop/Veh	1.19
Travel Dist (mi)	5315.9
Travel Time (hr)	384.1
Avg Speed (mph)	17

Intersection: 1: East Commerce Way & Del Paso Road

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	253	312	354	316	294	235	266	299	470	401	233	96
Average Queue (ft)	149	193	227	214	171	119	179	216	245	217	132	20
95th Queue (ft)	241	280	308	291	262	209	288	309	489	434	214	66
Link Distance (ft)			1133	1133	1133				1388	1388	1388	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250	250				165	230	230				140
Storage Blk Time (%)	0	1	4		6	2	5	15	2		5	
Queuing Penalty (veh)	0	4	17		25	8	13	39	8		4	

Intersection: 1: East Commerce Way & Del Paso Road

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	UL	L	T	T	T	R	UL	L	TR	R
Maximum Queue (ft)	96	114	120	148	163	146	89	355	567	270
Average Queue (ft)	36	54	44	64	78	50	15	236	539	269
95th Queue (ft)	81	97	98	130	144	108	52	483	562	275
Link Distance (ft)			1954	1954	1954				519	
Upstream Blk Time (%)									53	
Queuing Penalty (veh)									0	
Storage Bay Dist (ft)	225	225				145	280	280		195
Storage Blk Time (%)					1	0			60	3
Queuing Penalty (veh)					1	0			245	25

Intersection: 2: East Commerce Way & Snowy Egret Drive

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	R	UL	T
Maximum Queue (ft)	70	56	6	53	7
Average Queue (ft)	23	23	0	13	0
95th Queue (ft)	55	45	6	42	5
Link Distance (ft)	280	280			1954
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			175	240	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: East Commerce Way & North Access

Movement	EB	EB	WB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	LTR	UL	L	T	T	TR	UL	T	T	T
Maximum Queue (ft)	71	56	59	198	213	217	63	109	80	163	249	389
Average Queue (ft)	22	17	18	89	110	15	6	19	13	51	61	151
95th Queue (ft)	56	43	47	176	193	96	33	66	52	123	174	324
Link Distance (ft)		271	210				549	549	549		565	565
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150			170	170				200			
Storage Blk Time (%)				0	2	0			0	0		14
Queuing Penalty (veh)				1	3	0			0	0		23

Intersection: 3: East Commerce Way & North Access

Movement	SB
Directions Served	R
Maximum Queue (ft)	200
Average Queue (ft)	69
95th Queue (ft)	189
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	125
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 4: East Commerce Way & Center Access

Movement	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	TR	L	L	L	R	L	T	T	T	R	L
Maximum Queue (ft)	29	37	58	17	73	30	219	180	127	143	6	7
Average Queue (ft)	3	11	13	1	26	3	118	35	18	28	0	0
95th Queue (ft)	18	36	42	7	62	18	202	115	74	92	5	4
Link Distance (ft)		567	445	445	445	445		878	878	878		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	60						230				145	235
Storage Blk Time (%)	0	0					0	0		0		
Queuing Penalty (veh)	0	0					1	0		0		

Intersection: 4: East Commerce Way & Center Access

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (ft)	144	149	343
Average Queue (ft)	37	19	90
95th Queue (ft)	102	78	254
Link Distance (ft)	549	549	549
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: East Commerce Way & South Access

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	UL	L	T	T	T	R	L	T
Maximum Queue (ft)	53	127	44	20	337	375	976	945	662	101	47	246
Average Queue (ft)	9	49	9	2	258	284	342	189	101	6	11	76
95th Queue (ft)	34	93	31	11	383	417	809	614	363	48	35	202
Link Distance (ft)		454		280			974	974	974			878
Upstream Blk Time (%)							0	0				
Queuing Penalty (veh)							3	0				
Storage Bay Dist (ft)	300		125		300	300				140	200	
Storage Blk Time (%)					7	15	11		4			2
Queuing Penalty (veh)					19	40	83		1			0

Intersection: 5: East Commerce Way & South Access

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	160	623	200
Average Queue (ft)	25	207	29
95th Queue (ft)	103	543	127
Link Distance (ft)	878	878	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			125
Storage Blk Time (%)		14	
Queuing Penalty (veh)		7	

Intersection: 6: East Commerce Way & Arena Blvd

Movement	EB	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB
Directions Served	L	L	T	T	T	R	UL	L	T	T	T	R
Maximum Queue (ft)	659	677	558	678	212	17	53	23	266	252	520	225
Average Queue (ft)	418	416	138	132	87	3	11	2	172	138	180	176
95th Queue (ft)	609	608	392	425	187	13	37	15	246	225	484	271
Link Distance (ft)			2359	2359	2359				1009	1009	1009	
Upstream Blk Time (%)				0								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)	760	760				300	220	220				150
Storage Blk Time (%)	0	0	0		0				3		1	26
Queuing Penalty (veh)	1	1	2		0				0		4	39

Intersection: 6: East Commerce Way & Arena Blvd

Movement	NB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	UL	L	T	T	T	R	UL	L	T	T	R
Maximum Queue (ft)	127	152	90	59	28	21	249	315	39	448	235
Average Queue (ft)	34	77	32	6	2	3	104	126	8	82	149
95th Queue (ft)	107	138	73	31	14	15	213	253	28	321	286
Link Distance (ft)			352	352	352			974	974	974	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	290	290				200	200				160
Storage Blk Time (%)							2	4			11
Queuing Penalty (veh)							3	5			1

Network Summary

Network wide Queuing Penalty: 625

Attachment 3
Water Supply Assessment

**City of Sacramento
SB 610/SB 221 Water Supply Assessment and Certification Form**

This form may be used to complete water supply assessments for projects located in an area covered by the City's most recent Urban Water Management Plan.

Note: Please do not use this form if the projected water demand for your project area was not included in the City's latest Urban Water Management Plan. To review the City's Urban Water Management Plan, please visit:
<http://www.cityofsacramento.org/utilities/urbanwater/index.html>

Project: Natomas Crossing Quad B Office Project

Date: June 1, 2018

Project Applicant (Name of Company): Hines Corporation

Applicant Contact (Name of Individual): Christina Erwin on behalf of ESA for the City of Sacramento

Phone Number: 916-564-4500

E-mail: cerwin@esassoc.com

Address: ESA, 2600 Capitol Avenue, Suite 200, Sacramento, CA 95816

Project Applicant to fill in the following:

- Does the project include:

Type of Development	Yes	No
A proposed residential development of 500 or more dwelling units		X
A shopping Center employing more than 1,000 persons or having more than 500,000 square feet?		X
A Commercial Office building employing more than 1,000 persons or having more than 250,000 square feet?	X	
A proposed hotel or motel, or both, having more than 500 rooms		X
A proposed industrial, manufacturing, or processing plant or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area		X
A mixed use project that includes one or more of the projects specified above		X
A project that would demand an amount of water equivalent to, or greater than, the water required by a 500 dwelling unit project	X	

If the answer is no to all of the above, a water supply assessment is not required for the project.

2. Is the projected water demand for the project location included in the City's 2015 Urban Water Management Plan, adopted June 2016?

Yes: X

No:

If the answer is no, you cannot use this form. Please refer to the requirements of SB 610 for preparing a water supply assessment.

3. Please fill in the project demands below:

Type of Development	Land Use Category	Demand Factor		Proposed Development			Current Zoning		
		Residential Water Use Factor, afy/dwelling unit	Non-Residential Water Use Factor, afy/employee	Number Dwelling Units	Number Employees	Total Demand	Number Dwelling Units	Number Employees	Total Demand
Residential - Low	Rural Residential (RR)	.61	.09						
	Suburban Neighborhood Low Density (SNLD)								
	Traditional Neighborhood Low Density (TLDR)								
Residential - Medium	Suburban Neighborhood Medium Density (SMDR)	.39	.09						
	Urban Neighborhood Low Density (ULDR)								
Residential - High	Suburban Neighborhood High Density (SHDR)	.12	.04						
	Traditional Neighborhood Medium Density (TMDR)								
	Urban Neighborhood Medium Density (UMDR)								
	Traditional Neighborhood High Density (THDR)								
Mixed Use	Employment Center Mid Rise (ECMR)	.19	.09						
	Suburban Center (SCnt)								
	Suburban Corridor (Scor)								
	Traditional Center (TCnt)								

Mixed Use - Higher Density	Urban Center High (UCntHigh)	.15	.04						
	Urban Center Low (UcntLow)								
	Urban Corridor High (UCorHigh)								
	Urban Corridor Low (UCorLow)								
Central Business District	Central Business District (CBD)	.15	.02						
	Urban Neighborhood High Density (UHDR)								
Commercial	Regional Commercial (RC)	.15	.09	0	8,617	775.50			
	Employment Center Low Rise (ECLR)								
Industrial	Industrial (IND)		.14						
Public	Public/Quasi-Public (PUB)	.37	.17						
Park	Parks and Recreation (PRK)	.37	.17						
Open Space	Open Space (OS)	0	0						
Other	MIXED Employment Center / Shopping Center	0.61	N/A				0	4,489*	2,738
Other									
Other									
Total Demand (AFY)				0	8,617	775.50	0	4,489*	2,738

* Calculated as 660,126 sf of Employment Center and Community Commercial uses / 1,000 sf x 6.8 employees = 4,489 employees

4. Required Elements of Water Supply Assessment (Water Code § 10910)

