PUBLIC REVIEW DRAFT

PAPERMILL BUILDING MIXED USE PROJECT INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION

August 2008

CITY OF EMERYVILLE
INCORPORATED 1896
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NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR THE PAPERMILL BUILDING MIXED-USE PROJECT

Notice is hereby given that the City of Emeryville (City) has completed a Draft Initial Study and Mitigated Negative Declaration for the proposed Papermill Building Mixed-Use Project (project) in accordance with the California Environmental Quality Act. The approximately 3.29-acre project site is bounded by Powell Street, Doyle Street, Hollis Street, and Stanford Avenue.

The project applicant is proposing to demolish most of two existing buildings and to construct two new mixed-use buildings on the project site. The project would demolish a one-story building known as the Papermill building on the eastern portion of the site fronting Powell Street, Doyle Street, and Stanford Avenue and a one- to three-story building located on the western portion of the site. The façades of the Papermill building that front Doyle Street and Stanford Avenue would be retained and incorporated into one of the two new buildings proposed for the site. Two new four-story buildings are proposed for the site, which would contain 187,224 square feet of residential space, 4,245 square feet of live/work space, 3,446 square feet of flex-space, and 10,516 square feet of retail/restaurant space. The project would also include a park, plaza, and two courtyards. The Initial Study prepared by the City was undertaken for the purpose of deciding whether the project may have a significant effect on the environment. On the basis of the Initial Study, City staff has concluded that the project will not have a significant effect on the environment and, therefore, has prepared a Draft Mitigated Negative Declaration. Furthermore, the project site is not on a list of hazardous waste sites compiled pursuant to Government Code Section 65962.5. The Initial Study reflects the independent judgment of the City.

PUBLIC REVIEW

The public review period for this Draft Initial Study and the Draft Mitigated Negative Declaration begins on Monday, August 18, 2008 and ends on Wednesday, September 17, 2008. The Planning Commission will review the Mitigated Negative Declaration at its regularly scheduled meeting on September 25, 2008 at 6:30 p.m. in Old Town Hall, 1333 Park Avenue, Emeryville, California and consider whether to recommend that the Mitigated Negative Declaration be adopted by the Emeryville City Council. The City Council will consider the Mitigated Negative Declaration at its regularly scheduled meeting on October 21, 2008 at 7:15 p.m. in Old Town Hall, 1333 Park Avenue, Emeryville, California. If the City finds that the project will not have a significant effect on the environment, it may adopt the Mitigated Negative Declaration. This means that the City may approve the project without the preparation of an Environmental Impact Report.

Written comments on the Draft Initial Study and Mitigated Negative Declaration should be directed to:

City of Emeryville
Planning and Building Department/ Attn: Miroo Desai, Senior Planner
1333 Park Avenue
Emeryville, CA 94608
Phone: (510) 596-3785; Fax: (510) 658-8095
mdesai@ci.emeryville.ca.us

The document is available for review at City Hall and on the City's website: www.emeryville.ca.us.

Signature: Charles S. Bryant Date: 8/18/08
Charles S. Bryant, Director of Planning & Building

PUBLIC REVIEW DRAFT

PAPERMILL BUILDING MIXED USE PROJECT INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION

Submitted to:

City of Emeryville
1333 Park Avenue
Emeryville, CA 94608

Prepared by:

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LSA

August 2008

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A. DRAFT MITIGATED NEGATIVE DECLARATION

Project Name. Papermill Building Mixed-Use Project

Project Location. The approximately 3.29-acre project site is located at 5780 Hollis Street in Emeryville, Alameda County, California. The site is bounded by Powell Street, Doyle Street, Hollis Street, and Stanford Avenue (APN 49-1317-1-1; 49-1041-66, -67, and -68).

Summary Description of Project. The project applicant is proposing to demolish most of two existing buildings and to construct two new mixed-use buildings on the project site. One of the existing buildings is known as the Papermill building. It is a one-story building located on the eastern portion of the site fronting Powell Street, Doyle Street, and Stanford Avenue. The second building is a one- to three-story building located on the western portion of the site fronting Powell Street, Hollis Street, and Stanford Avenue. The buildings would be demolished with the exception of the brick façades of the Papermill building that front Doyle Street and Stanford Avenue. These two façades would be retained and incorporated into one of the two new buildings proposed for the site.

The two new four-story buildings that are proposed for the site would contain residential, live/work, flex, and retail/restaurant spaces. As proposed by the applicant the site would provide 187,224 square feet of residential space, 4,245 square feet of live/work space, 4,535 square feet of flex-space, and 10,516 square feet of retail/restaurant space. The 169 residential units planned for the top three floors of the buildings would be organized around a second story courtyard. Common space, retail/restaurant use, and five live/work spaces are proposed for the ground level along with a parking area. A leasing/business center would be located on the ground level in the space that would separate the buildings. The ground level and sub-grade parking areas would provide 256 standard parking stalls and 26 tandem stalls. The existing parking lot that fronts Stanford Avenue would be developed as a City park and replacement parking for privately-owned parking spaces that would be affected by the project.

Findings. It is hereby determined that, based on the information contained in the attached Initial Study, the project would not have a significant adverse effect on the environment.

Mitigation measures necessary to avoid or reduce to a less-than-significant level the project's potentially significant effects on the environment are detailed on the following pages. These mitigation measures are hereby incorporated and fully made part of this Draft Mitigated Negative Declaration. The project applicant has hereby agreed to incorporate as part of the project and implement each of the identified mitigation measures, which would be adopted as part of the Mitigation Monitoring and Reporting Program.

Date: 8/18/08

Charles S. Bryant

Charles S. Bryant, AICP
Director of Planning and Building, City of Emeryville

B. MITIGATION MEASURES

Mitigation Measure AES-1: The project applicant shall prepare project lighting plans and submit them to the City of Emeryville for review. City staff shall review these plans to ensure that proposed lighting would be low-intensity, downward-directed, and located only in places where it is necessary. In addition, City staff shall review the final architectural drawings to ensure that the proposed building materials would not create excessive glare in the vicinity of the project site. If it is deemed that proposed building materials would create substantial glare, the project design shall be modified accordingly to reduce glare.

Mitigation Measure AIR-1: Consistent with the guidance from the BAAQMD, the project applicant shall include dust control measures in construction specifications for the project. The City shall review the final construction specifications to verify that the requirements have been included prior to issuing a grading permit for the project. The City shall verify via field inspection at least twice during construction that the measures are being implemented. The following measures are required:

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep daily (preferably with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.
- Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets.

Mitigation Measure AIR-2a: Implement Mitigation Measure AIR-1.

Mitigation Measure AIR-2b: Consistent with guidance from the BAAQMD, the project applicant shall require contractors to include emissions control measures in construction specifications for the project. The City shall review the final construction specifications to verify that the requirements have been included prior to issuing a grading permit for the project. The City shall verify via field inspection at least twice during construction that the measures are being implemented. The following actions are required:

- Idling time of diesel powered construction equipment shall be limited to 2 minutes;
- Alternative powered construction equipment (i.e., CNG, biodiesel, electric) shall be utilized when feasible;
- Add-on control devices shall be used such as diesel oxidation catalysts or particulate filters;
- Project construction (demolition, site preparation, and building erection) shall be phased; and
- Operating hours of heavy duty equipment shall be minimized.

Mitigation Measure BIO-1: Implement Mitigation Measures HYD-1a and HYD-1b.

Mitigation Measure CULT-1: Ground disturbance associated with project activities below the project site fill layer (determined to extend approximately three feet below the asphalt from the ground surface[1]) shall be monitored by a qualified archaeologist. Archaeological monitors shall be empowered to halt construction activities at the location of the discovery to review possible archaeological material and to protect the resource while the finds are being evaluated. Monitoring shall continue until, in the archaeologist's judgment, cultural resources are not likely to be encountered.

If deposits of prehistoric or historical archaeological materials are encountered during project activities, all work within 25 feet of the discovery shall be redirected and a qualified archaeologist contacted to assess the finds, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel shall not collect or move any archaeological materials or human remains and associated materials. Adverse effects to such deposits shall be avoided by project activities. If avoidance is not feasible, the archaeological deposits shall be evaluated for their eligibility for listing in the California Register. If the deposits are not eligible, avoidance is not necessary. If the deposits are eligible, adverse effects on the deposits shall be avoided or mitigated.

Mitigation shall consist of, but is not necessarily limited to, systematic recovery and analysis of archaeological deposits; recording the resource; preparation of a report of findings; accessioning recovered archaeological materials at an appropriate curation facility. Public educational outreach may also be appropriate. Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the archaeological materials discovered. The report shall be submitted to the City of Emeryville and the Northwest Information Center.

Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the archaeological materials discovered. The report shall be submitted to the applicant, the City of Emeryville, and the Northwest Information Center.

Mitigation Measure CULT-2: The project applicant shall inform its contractor(s) of the sensitivity of the project area for paleontological resources by including the following directive in contract documents:

> The subsurface at the construction site may be sensitive for paleontological resources. If paleontological resources are encountered during project subsurface construction, all ground-disturbing activities within 25 feet shall be redirected and a qualified paleontologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel shall not collect or move any paleontological materials. Paleontological resources include fossil plants and animals, and such trace fossil evidence of past life as tracks. Ancient marine

[1] Tan, Chris Yu Boon, and Richard Rodgers, 2007. *Geotechnical Investigation Papermill Parcels, Emeryville, California*. Treadwell & Rollo, San Francisco.

> sediments may contain invertebrate fossils such as snails, clam and oyster shells, sponges, and protozoa; and vertebrate fossils such as fish, whale, and sea lion bones. Vertebrate land mammals may include bones of mammoth, camel, saber tooth cat, horse, and bison. Paleontological resources also include plant imprints, petrified wood, and animal tracks.

The City shall verify that the language has been included in the contract documents before issuing the grading permit.

Adverse effects to such deposits shall be avoided by project activities. If avoidance is not feasible, the paleontological resources shall be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, project activities shall avoid disturbing the deposits, or the adverse effects of disturbance shall be mitigated. Upon completion of the paleontological assessment, a report shall be prepared documenting the methods, results, and recommendations of the assessment. The report shall be submitted to the project applicant and the City of Emeryville and, if paleontological materials are recovered, a paleontological repository, such as the University of California Museum of Paleontology.

Mitigation Measure CULT-3: If human remains are encountered, these remains shall be treated in accordance with HSC Section 7050.5. The project applicant shall inform its contractor(s) of the cultural sensitivity of the project area for human remains by including the following directive in contract documents:

> If human remains are encountered during project activities, work within 25 feet of the discovery shall be redirected and the County Coroner notified immediately. At the same time, an archaeologist shall be contacted, if an archaeological monitor is not present, to assess the situation and consult with agencies as appropriate. Project personnel shall not collect or move any human remains and associated materials. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

The City shall verify that the language has been included in the contract documents before issuing the grading permit.

Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the City of Emeryville and the Northwest Information Center.

Mitigation Measure GEO-1: The applicant shall implement all mitigation measures, design criteria, and specifications recommended in the geotechnical investigation report prepared for the project. The applicant shall submit to the City the final plans and specifications for conformance with the recommendations in the geotechnical report. The City shall review and approve the plans and specifications prior to issuing a building permit for the project and shall

verify by inspection that the measures have been implemented prior to issuing a permit of occupancy for the housing units.

Mitigation Measure GEO-2: The project applicant shall prepare an Erosion Control Plan in accordance with the Regional Water Quality Control Board's requirements. The City shall verify that the Erosion Control Plan has been prepared before issuing the grading permit for the project.

Mitigation Measure GEO-3: Implement Mitigation Measure HYD-1a and HYD-1b.

Mitigation Measure GEO-4: Implement Mitigation Measure GEO-1.

Mitigation Measure HAZ-1a: Prior to demolition of existing structures, the applicant shall prepare a Soil Management Plan and a Health and Safety Plan. The Soil Management Plan shall describe how contaminated fill material would be segregated from the underlying native alluvial soil and the maintenance requirements necessary to ensure that long-term soil management measures, such as capping of the soils, will remain effective during the site's use and occupancy period. The site-specific Health and Safety Plan shall be prepared in accordance with federal, State and local standards governing the remediation of soil and groundwater containing hazardous waste.

The City shall verify that the Soil Management Plan and Health and Safety Plan have been prepared before issuing the grading and demolition permits.

Mitigation Measure HAZ-1b: Prior to construction, the project applicant shall remove the heating oil UST to the exterior of the east corner of the Papermill building, in accordance with all regulations imposed by the Alameda County Heath Care Services Agency's Underground Storage Tank Program. The City shall verify that the tank has been removed before issuing a temporary certificate of occupancy for the project.

Mitigation Measure HAZ-1c: Prior to demolition of structures on the site, a comprehensive United States Environmental Protection Agency/United States Department of Housing and Urban Development (EPA/HUD)-Level Lead Based Paint survey shall be conducted. If any LBP is identified, it shall be removed from the site in accordance with all applicable regulations, including Occupational Safety and Health Administration (OSHA) guidelines. The City shall verify that the survey has been conducted before issuing the demolition permit for the project.

Mitigation Measure HAZ-1d: Prior to demolition of structures on the site, a complete Asbestos Hazard Emergency Response Act-Level Pre-Demolition Asbestos Survey shall be conducted. If asbestos is identified, a licensed asbestos abatement contractor shall be retained to abate identified asbestos-containing material in accordance with all applicable regulations. The City shall verify that the survey has been conducted before issuing the demolition permit for the project.

Mitigation Measure HYD-1a: The project applicant shall prepare a Stormwater Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality during the

construction period of the project. It is not required that the SWPPP be submitted to the RWQCB, but must be maintained on site and made available to RWQCB staff upon request. The SWPPP shall include specific and detailed Best Management Practices (BMPs) designed to mitigate construction-related pollutants. At minimum, BMPs shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain. The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and shall include both dry and wet weather inspections. The City shall verify that the SWPPP has been prepared before issuing the grading permit for the project.

Mitigation Measure HYD-1b: The project applicant shall prepare a Storm Water Control Plan that is consistent with the *Stormwater Guidelines for Green, Dense Redevelopment: Stormwater Quality Solutions for the City of Emeryville*. The City shall verify that the Storm Water Control Plan has been prepared before issuing the building permit for the project.

Mitigation Measure HYD-2: Implement Mitigation Measure GEO-2.

Mitigation Measure HYD-3: Implement Mitigation Measures HYD-1a and HYD-1b.

Mitigation Measure NOISE-1: The project contractor shall comply with the following measures:

Hours. Unless the City Council grants a waiver allowing different construction hours pursuant to Section 5-13.06 of the Emeryville Municipal Code, construction hours shall be limited to 7:00 a.m. to 6:00 p.m., Monday through Friday, and pile driving activity shall be limited to 8:00 a.m. to 5:00 p.m., Monday through Friday. In an urgent situation, the City Manager, Planning and Building Director, or Public Works Director may approve weekend or night work pursuant to Section 5-13.05(e) of the Emeryville Municipal Code.

Equipment. All heavy construction equipment used on the project shall be maintained in good operating condition, with all internal combustion, engine-driven equipment equipped with intake and exhaust mufflers that are in good condition and as deemed to be practically feasible. All non-impact tools shall meet a maximum noise level of no more than 85 dB when measured at a distance of 50 feet. All stationary noise-generating equipment shall be located as far away as possible from neighboring property lines, especially residential uses.

Noise Disturbance Coordinator. The applicant shall designate a "Noise Disturbance Coordinator" who shall be responsible for responding to any complaints about construction noise. The Noise Disturbance Coordinator shall determine the cause of the noise complaint and shall require that reasonable measures warranted to correct the problem be implemented. The applicant shall conspicuously post a telephone number for the Noise Disturbance Coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

Mitigation Measure NOISE-2: Noise reduction in the form of sound-rated assemblies (i.e., windows, exterior doors, and walls) shall be incorporated into project building design. Final recommendations for sound-rated assemblies will depend on the specific building designs and

layout of buildings on the site and shall be determined during the design phase. Mechanical ventilation, such as air conditioning systems, or noise-attenuated passive ventilation shall be included in the design for all residential and commercial units in the building to ensure that widows can remain closed for prolonged periods of time to meet the interior noise standard of 45 dBA L_{dn} and Uniform Building Code Requirements.

Mitigation Measure NOISE-3: Implement Mitigation Measure NOISE-1.

Mitigation Measure NOISE-4: Implement Mitigation Measure NOISE-1.

Mitigation Measure TRAFFIC-1: The City shall signalize the intersection at Doyle and Powell Streets, when traffic conditions warrant. Because this impact can be attributed to existing traffic in the area, as well as traffic from approved, planned, and potential development in and around Emeryville, the project sponsor shall pay for a portion of the cost of signalization, proportionate to the project's contribution to cumulative impacts at the intersection. In the Cumulative plus Project scenario, project traffic represents 13.7 percent of the total cumulative growth at this intersection in the AM peak hour and less than one percent of the total cumulative growth at this intersection in the PM peak hour.

C. SUMMARY INFORMATION

1. Project Title: Papermill Building Mixed Use Project

2. Lead Agency Name and Address:

City of Emeryville
1333 Park Avenue
Emeryville, CA 94608

3. Contact Person:

Miroo Desai, Senior Planner
Phone: (510) 596-3785
E-mail: mdesai@ci.emeryville.ca.us

4. Project Location:

The approximately 3.29-acre project site is located at 5780 Hollis Street in Emeryville, Alameda County, California (Figure 1). It is bounded by Powell Street, Doyle Street, Hollis Street, and Stanford Avenue (APN 49-1317-1-1; 49-1041-66, -67, and -68).

5. Project Sponsor's Name and Address:

Archstone-Smith
807 Broadway, Suite 210
Oakland, Ca 94607

6. General Plan Designation:

Mixed-Use (M-U)

7. Zoning:

Mixed-Use (M-U)

8. Description of Project:

The project applicant is proposing to demolish most of two existing buildings and to construct two new mixed-use buildings on the project site. One of the existing buildings is known as the Papermill building. It is a one-story building located on the eastern portion of the site fronting Powell Street, Doyle Street, and Stanford Avenue. The second building is a one- to three-story building located on the western portion of the site fronting Powell Street, Hollis Street, and Stanford Avenue. The buildings would be demolished with the exception of the brick façades of the Papermill building that front Doyle Street and Stanford Avenue. These two façades would be retained and incorporated into one of the two new buildings proposed for the site.

FIGURE 1

Papermill Building Mixed-Use Project IS/MND

Project Location Map

PROJECT SITE

0 400 800

FEET

SOURCE: GOOGLE MAPS, 2008.

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The two new four-story buildings that are proposed for the site would contain residential, live/work, flex, and retail/restaurant spaces. As proposed by the applicant the site would provide 187,224 square feet of residential space, 4,245 square feet of live/work space, 3,446 square feet of flex-space, and 10,516 square feet of retail/restaurant space. The 169 residential units planned for the top three floors of the buildings would be organized around a second story courtyard. Common space, retail/restaurant use, and five live/work spaces are proposed for the ground level along with a parking area. A leasing/business center would be located on the ground level in the space that would separate the buildings. The ground level and sub-grade parking areas would provide 256 standard parking stalls and 26 tandem stalls. The existing parking lot that fronts Stanford Avenue would be developed as a City park and replacement parking for privately-owned parking spaces that would be affected by the project. A detailed description of the proposed project is provided in Section D, below.

9. Surrounding Land Uses and Setting:

Like the project site, most adjacent blocks are designated Mixed Use (M-U) in the City's General Plan and Zoning Code. Areas designated as Industrial (I) and Medium Density Residential (M) in the General Plan are located nearby to the southwest and southeast, respectively. The project vicinity is highly urbanized and contains a mixture of land uses, including condominiums, retail and light industrial uses, and single-family houses. Residential uses are located to the east of the project site; light industrial and parking uses are located to the south and west; and condominiums and light industrial uses are located to the north.

10. Other agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

The project would be considered for approval by the City of Emeryville and would be subject to the planning regulations of the City.

D. PROJECT DESCRIPTION

In addition to a detailed description of the proposed project, this section describes the site's history and existing conditions and the design and project development process that the project applicant and City have undertaken to date. It also provides a summary of requested approvals.

1. Site History and Existing Conditions

The project site consists of four parcels totaling approximately 3.29 acres. It is occupied by two buildings on an approximately 2.35-acre parcel and a city-owned parking lot, which includes some privately-owned spaces, on the remaining parcels, which have a combined area of 0.94-acres. A one-story 32,340-square-foot, one-story building, known as the Papermill building, is located on the eastern portion of the site at the corner of Powell and Doyle streets. The second building is a one- to three-story 46,504-square-foot building occupying the western portion of the site at the corner of Powell and Hollis streets. The first buildings on the site were constructed in about 1906; the current buildings were built around 1939 and renovated in 1976. During the renovation, two older buildings were removed to create the asphalt parking area that now separates the buildings. The two buildings are currently used as commercial offices and warehouse space. Refer to Figure 2 for the existing site layout.

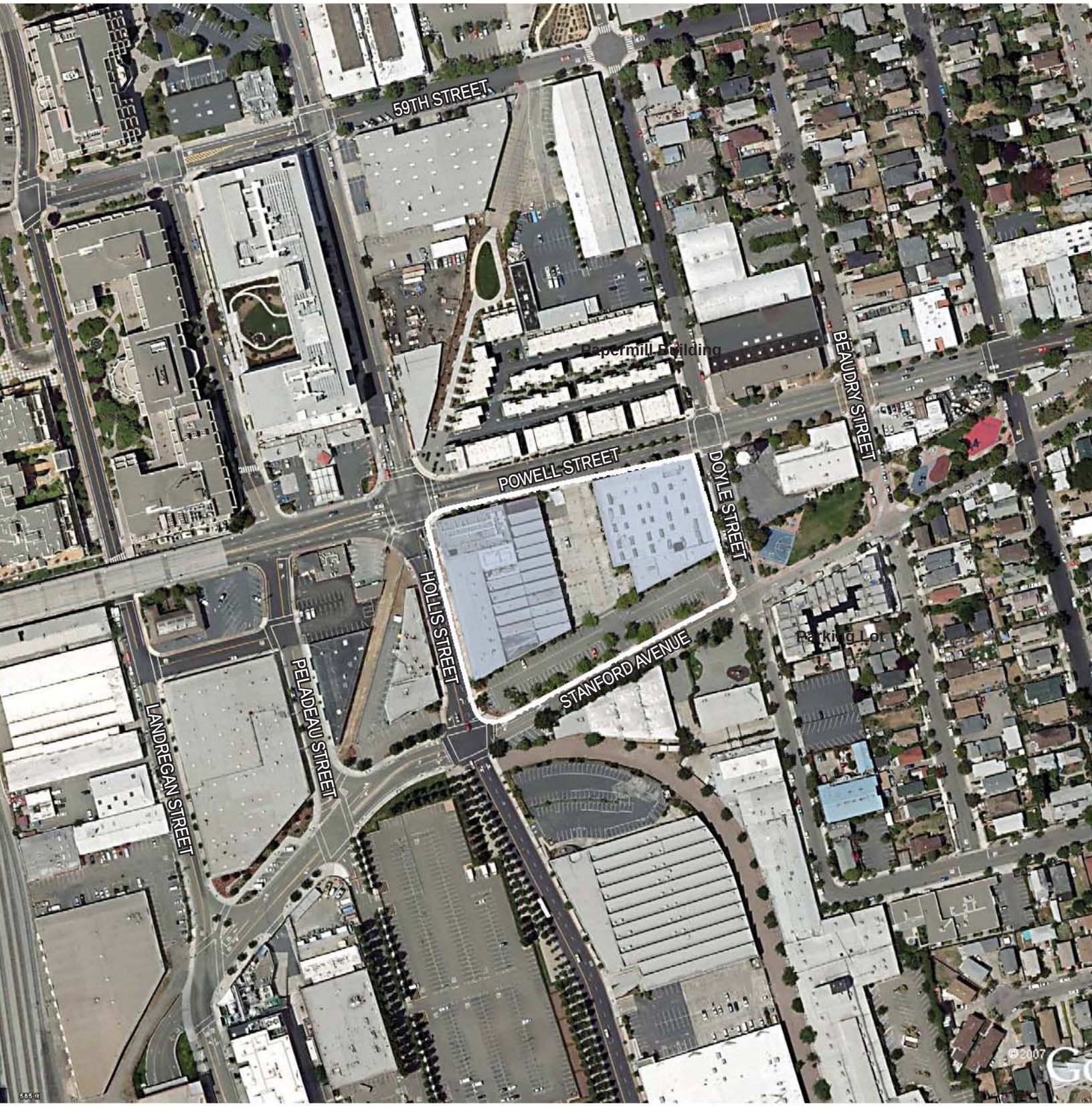

FIGURE 2

Papermill Building Mixed-Use Project IS/MND

Project Site Map

PROJECT SITE

EXISTING BUILDING

0 125 250

FEET

SOURCE: GOOGLE MAPS, 2008.

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FIGURE 3

Papermill Building Mixed-Use Project IS/MND

Project Site Plan and Landscaping

BUILDING A

BUILDING B

0 30 60

FEET

SOURCE: KAVA MASSIH ARCHITECTS, 2008

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2. Project Background

The proposed project was first brought by the project applicant to the City's Planning Commission in August 2007. Since that time the Planning Commission, project applicant, and a design team consisting of the project applicant's architect and a design consultant retained by the City have reviewed and modified the project designs. While the project has not changed substantially in terms of the unit count, unit distribution, and overall project density, both proposed buildings have been redesigned to address issues of scale, roof heights, massing, and visual interest.

3. Proposed Project

The project applicant is proposing to demolish most of two existing buildings on the approximately 2.35-acre parcel that fronts Hollis, Powell and Doyle streets. This parcel would be developed with two new mixed use buildings that would contain residential, live/work, flex, and retail/restaurant spaces. The adjacent 0.94-acre parking lot that fronts Stanford Avenue on the south side of the project site would be developed as a City park and replacement parking for privately-owned on-site parking spaces that would be affected by the project. Refer to Figure 3 for the proposed site layout.

a. Proposed Structures and Uses. The western portion of the 2.35-acre parcel would be developed with a four-story building (herein referred to as Building A) that would include a sub-grade parking level. The first floor (ground level) of Building A would contain additional parking spaces, a leasing office, a community room, three flex-space units fronting Powell Street, and six retail and restaurant spaces along the Hollis Street frontage. The building's second, third, and fourth floors would contain a mix of residential units varying in size from studios to three-bedroom units. The interior and exterior residential units would be accessible via interior hallways. Units on the exterior of the building would face Hollis and Powell streets and the ground level space located between Buildings A and B. This space would be occupied by a fitness club, swimming pool, and a driveway that would provide access to the parking areas from Powell Street. Interior units would be located around a second floor courtyard that would be open towards the new park and Stanford Avenue.

The eastern portion of the site would be developed with a four-story building (Building B) containing first-floor parking spaces, five live/work units, and lobbies. Similar to Building A, the second, third, and fourth floors would contain a mix of studio, one-bedroom, two-bedroom, and three-bedroom units with the interior and exterior units being accessible via interior hallways. Units on the exterior of the building would face Doyle and Powell streets and the ground level space located between Buildings A and B. Interior units would be located around a second floor courtyard that would be open towards the park and Stanford Avenue. The square footages of the project's major components are summarized in Table 1.

Table 1: Number and Square Footage of Residential and Retail Spaces

Use	Number of Units or Spaces	Square Footage per Unit	Total Square Footage
Residential	169	450 – 1,257	187,224
Live/Work	5	642 – 1,120	4,245
Flex-space	3	1,012 – 1,174	3,446
Retail/Restaurant	6	1,070 – 2,742	10,516

Source: Kava Massih Architects, 2008

The two proposed buildings would contain 169 residential apartments – of these 18 would be studios, 114 would be one-bedroom units, 32 would be two-bedroom units, and 5 would be three-bedroom units. Pursuant to the City's affordable housing ordinance, all projects with 30 or more units are required to provide at least 20 percent affordable units at the moderate-income level. Because this requirement applies to the project's five live/work units and three flex-spaces as well as the residential apartments, the project would be required to provide 35 affordable units.

b. Architecture and Design. Typical elevations for the proposed buildings are provided in Figures 4 and 5. The colors of the buildings would be those shown in the figures. Gray areas in the figures are corrugated metal (7/8-inch thick with a wave corrugation approximately 2½ inches on-center from ridge to ridge); the rest of the materials would be sand-finish stucco. Visual simulations from various public viewpoints have been prepared and are presented in the aesthetics analysis of the Initial Study (Section E.1, Checklist, Aesthetics). Generally, the buildings would have inset bays and balconies and a variable roofline to provide a regular visual rhythm down their facades. Between the bays, an additional setback would be added to further delineate the units and accentuate the rhythm of the bays. The maximum height of the buildings would be 55 feet. The existing brick façade of Building B would be preserved and incorporated into the first floor of the new building along the Doyle Street and Stanford Avenue frontages.

c. Circulation and Parking. The proposed project includes 256 parking spaces and 26 tandem spaces, for a total of 282 spaces located in the sub-grade and ground level parking areas. According to the Emeryville Zoning Ordinance, a total of 230 spaces would be required for a residential project of this size, 13 spaces would be required for the live/work and flex-space units, and between 25 and 67 spaces for retail and restaurant uses. The total parking spaces required for the project could vary from 268 spaces to 310 spaces depending on whether the proposed commercial space is occupied by retail or restaurant uses. While the proposed project includes only 282 spaces, the project applicant proposes that residential guest spaces be shared with the retail and restaurant space. The total required guest spaces are 42, while the required retail and restaurant spaces vary between 25 and 67 spaces. Under a shared parking proposal, the total parking requirement would vary from 248 spaces to 273 spaces. The project would therefore comply with the City of Emeryville parking requirements.

Vehicles would enter Building A parking levels via a driveway from Powell Street. The main pedestrian entrance from the parking levels to the residential levels would be through a main lobby and an additional lobby located at the southeast corner of the building. Vehicles would enter Building B via one of two driveways that lead into the garage – one from Powell Street and the other from Doyle Street. The pedestrian entry to the residential levels from the parking garage would occur through the two lobbies, one located at the north-east corner of the building and the other located as the south-west corner.

d. Landscaping and Open Space. Existing landscaping at the project site, primarily street trees, would be removed and replaced with new street trees. In addition, the proposed project would create several landscaped areas that would be available to residents and the public (see Figure 3). A new park would be constructed adjacent to the buildings on half of the existing parking area located on Stanford Avenue; this park would function as an extension of the existing Stanford Avenue Park. Preliminary designs for the park include a plaza on the west corner of the site with amenities such as picnic tables, benches, shade trees, café tables, bicycle racks, and drinking fountains. The park would also include

FIGURE 4

Papermill Building Mixed-Use Project IS/MND

Typical Elevations from Hollis and Doyle Streets

NOT TO SCALE

SOURCE: KAVA MASSIH ARCHITECTS, 2008
I:\CEM0703 Papermill\Figures\Fig_4.ai (5/21/08)

FIGURE 5

Papermill Building Mixed-Use Project IS/MND

Typical Elevations from Stanford Avenue

NOT TO SCALE

SOURCE: KAVA MASSIH ARCHITECTS, 2008
I:\CEM0703 Papermill\Figures\Fig_5.ai (5/21/08)

lawn with landscape mounding, pedestrian sidewalks, a shade structure with tables and benches, public seating, and two bocce courts. The park designs are preliminary and would be subject to public input prior to finalization of the project plans. Perpendicular street parking (41 spaces) between the park extension and Stanford Avenue would be provided to replace the existing private parking spaces; this area would be planted with shade trees. In addition to the park, a small plaza would be located at the corner of Powell and Hollis streets and various landscape elements would be included around the buildings.

The proposed project also includes two second-floor courtyards that would provide 21,458 square feet of outdoor space for the project's occupants. The courtyards would contain small lawns, landscaping, seating, and fountains. The space between the two new buildings would be occupied by a fitness club and swimming pool. The courtyards, fitness club, and the swimming pool area would be accessible only to the residents of the proposed mixed-use structure.

e. Stormwater Management. The entire site is currently covered with impervious surfaces. Based on the proposed plans for the project, approximately 20 percent of the project site would be covered with pervious surfaces after project implementation. The pervious surfaces would come from the park extension and from other landscaped areas of the site. The project is subject to the new C.3 requirements of the City's National Pollution Discharge Elimination System (NPDES) Stormwater Permit. A conceptual stormwater plan showing compliance with C.3 requirements would be submitted at the time of submission of a formal application.

f. Construction Phasing. The project would be constructed in one phase of development. Existing buildings would be demolished and both mixed-use buildings would be constructed in one sequential process, proceeding from demolition to construction without a delay in the timeline. The project applicant estimates that demolition activities would extend over approximately two months; construction activities would last approximately 18 to 24 months.

3. Requested Approvals

The project would require the following City approvals:

- Design Review
- Conditional Use Permit
- Demolition Permit
- Building Permit
- Encroachment Permit (for tree planting)
- Parking Variance

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

- ■ Aesthetics
- ■ Biological Resources
- ■ Hazards & Hazardous Materials
- ❒ Mineral Resources
- ❒ Public Services
- ❒ Utilities/Service Systems
- ❒ Agricultural Resources
- ■ Cultural Resources
- ■ Hydrology/Water Quality
- ■ Noise
- ❒ Recreation
- ■ Mandatory Findings of Significance
- ■ Air Quality
- ■ Geology/Soils
- ❒ Land Use/Planning
- ❒ Population/Housing
- ■ Transportation/Traffic

Determination.

On the basis of this initial evaluation:

❒ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

■ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

❒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

❒ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

❒ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Charles S. Bryant
Signature

8/18/08
Date

Charles S. Bryant
Printed Name

E. CHECKLIST

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS. Would the project:				
a) Have a substantial adverse effect on a scenic vista?	❒	❒	■	❒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	❒	❒	❒	■
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	❒	❒	■	❒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	❒	■	❒	❒

The visual resources analysis in this section is based on a reconnaissance of the project site and surrounding roadways and neighborhoods, and plans and architectural elevations of the proposed project prepared by Kava Massih Architects. The project site plan and representative elevations are included in this IS/MND as Figures 3 through 5. In addition, computer-generated visual simulations have been prepared to portray representative "before" and "after" visual conditions at the project site, as seen in Figures 6 through 10.

a) Have a substantial adverse effect on a scenic vista? ***(Less-than-Significant Impact)***

No scenic views or viewsheds in the vicinity of the project site are explicitly identified in the City of Emeryville General Plan or other local planning documents. However, views of the East Bay Hills, natural areas along the shoreline of San Francisco Bay, and the San Francisco city skyline and other landmarks adjacent to the Bay are generally considered scenic views.

The project site is located in an urbanized neighborhood within the flat coastal plain that extends along the eastern shore of San Francisco Bay. Because the project site does not contain significant topographical variation, views from the project site are limited by urban development in the vicinity of the site. In particular, a three-story residential development on Powell Street constrains views to the north of the site, while several multi-story buildings constrain views to the south. No views of San Francisco Bay are available from the site or streets immediately adjacent to the project site.

Implementation of the proposed project would result in the demolition of one existing one-story structure and one three-story structure on the project site and the replacement of these structures with two four-story buildings. The proposed building would be from one to three stories taller than some of the other buildings in the immediate vicinity of the project site. However, the proposed buildings would be shorter than the multi-story buildings located to the south of the site on Hollis and 53rd Street. The proposed buildings but would not block views of the East Bay Hills from Hollis Street (because the

building would not protrude into the viewshed associated with this street). In addition, no scenic hillside views are available along Powell Street, Stanford Avenue, or to the west of the project site; therefore, such views would not be adversely affected by the project.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway? ***(No Impact)***

The State scenic highways in Alameda County are: 1) Interstate 580 (from the San Joaquin County line to State Route 205, and from San Leandro city limits to State Route 24 in Oakland); and 2) Interstate 680 (from Mission Boulevard in Fremont to Bernal Avenue near Pleasanton, and from Bernal Avenue near Pleasanton to the Contra Costa County line).[2]

The project site is approximately 1.5 miles northwest of the western terminus of the Interstate 580 segment of the State scenic highway, at State Route 24. The project site is not visible from the intersection of I-580 and State Route 24, and it is not expected that the proposed four-story structure that would be constructed as part of the project would be visible from the State Scenic Highway. Implementation of the project would not result in the removal of trees, rock formations, significant historic buildings, or other scenic resources in the project site. Therefore, the proposed project would not damage scenic resources within the viewshed of a designated State scenic highway.

c) Substantially degrade the existing visual character or quality of the site and its surroundings? ***(Less-than-Significant Impact)***

Implementation of the project would change the visual character of the project site through the demolition of existing one- and three-story story brick structures and the replacement of these structures with two four-story buildings that would retain most of the facades of the Papermill building on the Doyle Street and Stanford Avenue frontages. The new buildings would be similar in style and design to the three-story Elevation 22 project, located immediately north of the project site across Powell Street. This change in visual character would not be considered a significant environmental impact, because it would not *substantially* degrade the visual character of the neighborhood (although the design aspects of the project may be considered during City's design review process). The following discussion summarizes: 1) the existing visual character of the project site; 2) applicable City of Emeryville policies that relate to visual character, and the consistency of the project with these policies; and 3) the effect of the project on visual character.

Existing Visual Character. The neighborhood in the vicinity of the project site is characterized by a diverse range of one- to three-story structures, which range in age from the newly constructed to many that are over 50 years old. The Powell Street frontage of the project site is characterized by a tree-lined sidewalk and the recently constructed Elevation 22 project to the north. A one-story warehouse and the Novartis (Chiron) facility are located to the west. The nearly uninterrupted facades on the Powell and Hollis street frontages of the building located on the west side of the project site provide little visual interest or relief for the pedestrian. To the east across Doyle Street east is a one-story commercial space, parking lot and Sierra Designs water tower and the Stanford Avenue park; to the south is a one-story brick structure, which has been renovated for commercial office use. The tree-lined streets and

[2] California Department of Transportation, 2007. California Scenic Highway Program. Website: www.dot.ca.gov/hq/LandArch/scenic/schwy1.html. May 18.

Existing view from the intersection of Powell Street and Hollis Street

Conceptual Visual Simulation of the Proposed Project

FIGURE 6

Papermill Building Mixed-Use Project IS/MND
Visual Simulation from the Intersection
of Powell and Hollis Streets

SOURCE: ANDREW McNICHOL, 2008

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Existing view from the intersection of Stanford Avenue and Hollis Street

Conceptual Visual Simulation of the Proposed Project

FIGURE 7

Papermill Building Mixed-Use Project IS/MND

Visual Simulation from the Intersection of Stanford Avenue and Hollis Street

SOURCE: ANDREW McNICHOL, 2008

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Existing view from the intersection of Powell Street and Doyle Street

Conceptual Visual Simulation of the Proposed Project

FIGURE 8

Papermill Building Mixed-Use Project IS/MND
Visual Simulation from the Intersection of Powell and Doyle Streets

SOURCE: ANDREW McNICHOL, 2008

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Existing view from the intersection of Stanford Avenue and Doyle Street

Conceptual Visual Simulation of the Proposed Project

FIGURE 9

Papermill Building Mixed-Use Project IS/MND

Visual Simulation from the Intersection of Stanford Avenue and Doyle Street

SOURCE: ANDREW McNICHOL, 2008

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Existing view of Powell Street looking east

Conceptual Visual Simulation of the Proposed Project

FIGURE 10

Papermill Building Mixed-Use Project IS/MND
Visual Simulation from Powell Street
Looking East

SOURCE: ANDREW McNICHOL, 2008

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park to the east and south sides of the project site offer a more visually interesting pedestrian environment than the project site itself.

Applicable Policies. Table 2 lists objectives and policies from the City of Emeryville General Plan that are applicable to visual resources in and around the project site, and the consistency of the project with these policies.

Effects on Visual Character. The proposed project would remove two buildings that offer a modest amount of visual interest from some limited viewpoints while retaining the most visually interesting facades of one of the buildings, the Papermill building, and incorporating those features into the proposed new structures. The buildings would also be taller than adjacent buildings, particularly those to the east and south. However, overall, the proposed project would enhance the visual character of the area in the following ways:

- Much of the existing parking area would be transformed into a park or other pedestrian-serving spaces.
- The proposed structures would be occupied, and would add substantial activity to the area.
- Ground floor retail uses would activate Powell and Hollis streets.
- Outward-facing windows would allow for "eyes on the street," especially along portions of Powell and Hollis Streets where few such opportunities currently exist.
- Street trees would be planted along Powell and Hollis Streets and the Stanford Avenue Park would be extended, which would enhance the pedestrian environment.
- The proposed park and open-ended courtyards that are proposed to face Stanford Avenue would provide a transition between the taller portions of the new buildings and the lower-rise buildings located south of Stanford Avenue.

Table 2: Project Consistency with Applicable Visual Resources Policies

General Plan Policy/Objective	Consistent with Project?
Emeryville General Plan(Community Design)	
Objective C. Retain the low-to-midrise form of buildings in all parts of the city, except in close proximity to existing high rise structures on the Peninsula and Bayfront.	Yes. The proposed structure would be one to three stories taller than other buildings in the vicinity of the site, but would still be considered "mid-rise."
Policy 1. Buildings and the cumulative image they create should reinforce the character and level of activity appropriate to different areas of the city. New buildings should be visually harmonious with the existing development scale and style.	Yes. The four-story building would be taller than other buildings in the vicinity of the project site, but this height reflects the character of Powell and Hollis Streets. The buildings would be harmonious with the style of the adjacent Elevation 22 project; incorporation of the existing brick facades along Doyle Street and Stanford Avenue would provide a visual link to the existing brick building on the south side of Stanford Avenue.
Policy 16. The historic industrial-warehouse image found in many parts of Emeryville should be preserved and enhanced through the retention of architecturally significant structures and the addition of architecturally compatible new construction.	Yes. The project would retain and re-use two facades of the Papermill building. The new structure has been designed to be architecturally compatible with the existing brick walls.

Source: LSA Associates, 2008

Although the proposed project would reduce the quality of the visual environment in some ways, in other ways it would improve the character and vitality of the area. Taken as a whole, the project would not result in a significant impact to the visual quality of the project site and its surroundings. Nevertheless, the design components of the project (including references to surrounding industrial-style architecture) would be considered during the design review process.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? ***(Potentially Significant Unless Mitigation Incorporated)***

The project applicant has not yet submitted site lighting plans. However, proposed lighting on the site is anticipated to be similar to that used in other mixed-use projects in Emeryville. This new lighting could cumulatively add to existing lighting associated with urban uses in the vicinity of the site and could adversely affect nighttime views. Implementation of the following mitigation measure would reduce the impacts of the project on light and glare to a less-than-significant level:

> Mitigation Measure AES-1: The project applicant shall prepare project lighting plans and submit them to the City of Emeryville for review. City staff shall review these plans to ensure that proposed lighting would be low-intensity, downward-directed, and located only in places where it is necessary. In addition, City staff shall review the final architectural drawings to ensure that the proposed building materials would not create excessive glare in the vicinity of the project site. If it is deemed that proposed building materials would create substantial glare, the project design shall be modified accordingly to reduce glare.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURAL RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to a non-agricultural use?	❒	❒	❒	■
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	❒	❒	❒	■

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	❒	❒	❒	■

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to a non-agricultural use? ***(No Impact)***

The project site is located in an urbanized neighborhood in Emeryville and no agricultural resources are located on or near the project site. The site is classified as "Urban and Built-Up Land" by the State Department of Conservation.[3] Therefore, implementation of the proposed project would not convert agricultural land to non-agricultural uses.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? ***(No Impact)***

The project site is not zoned for agricultural uses and is not operated under a Williamson Act contract.

c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use? ***(No Impact)***

Implementation of the proposed project would result in the redevelopment of an urban infill site and would not result in the extension of infrastructure into an undeveloped area, the development of urban uses on a greenfield site, or other physical changes that would result in the conversion of farmland to non-agricultural uses.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	❒	❒	■	❒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	❒	■	❒	❒

[3] California Department of Conservation, 2008. Division of Land Resource Protection, Farmland Mapping and Monitoring Program. Website: www.consrv.ca.gov/dlrp/fmmp/index.htm. March.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	❒	❒	■	❒
d) Expose sensitive receptors to substantial pollutant concentrations?	❒	■	❒	❒
e) Create objectionable odors affecting a substantial number of people?	❒	❒	■	❒

a) Conflict with or obstruct implementation of the applicable air quality plan? ***(Less-than-Significant Impact)***

The main purpose of an air quality plan is to bring an area into compliance with the requirements of federal and State air quality standards. Such plans describe air pollution control strategies to be implemented by a city, county or region. The City of Emeryville and the project site are located in the San Francisco Bay air basin and are within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The latest air quality plan, the *Bay Area 2005 Ozone Strategy*, was developed in order to bring the region into compliance with State and federal air quality standards. The Emeryville General Plan is consistent with the ozone strategy. The project would not require amendments to the Emeryville General Plan. Therefore the project would not conflict with the *Bay Area 2005 Ozone Strategy*.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? ***(Potentially Significant Unless Mitigation Incorporated)***

Pollutant monitoring results for the years 2004 to 2006 at the Fremont (Chapel Way), Oakland (Alice Street), and San Leandro (Foothill Boulevard) ambient air quality monitoring stations indicate that air quality in the project area has generally been good. As indicated in the monitoring results, one violation of State PM_{10} standards in the years 2005 and 2006 was recorded during the 3-year period and no violation of federal PM_{10} standard was recorded. The federal $PM_{2.5}$ standard was not exceeded during the 3-year period. In addition, State 1-hour O_3 standards have not been exceeded at these monitoring stations. Federal 1-hour and 8-hour O_3 standards have not been exceeded within the past 3 years at these monitoring stations. CO and NO_2 standards were not exceeded in this area during the 3-year period. SO_2 data was not available for these monitoring stations for the past three-year period.

Air pollutant emissions associated with the proposed project would occur over the short term in association with construction activities such as grading and vehicle/equipment use. Long-term emissions would result from vehicle trips to and from the project site associated with employee trips to work. The discussion below describes potential air quality violations that could occur as a result of

construction equipment exhaust emissions; fugitive dust; long-term vehicle emissions; and local carbon monoxide hot spots.

Construction Equipment Exhaust Emissions. Construction period emissions would result from implementation of the proposed project. Construction activities are a source of organic gas emissions. Solvents in adhesives, non-waterbased paints, thinners, some insulating materials and caulking materials would evaporate into the atmosphere and would participate in the photochemical reaction that creates urban ozone. Asphalt used in paving is also a source of organic gases for a short time after its application.

During construction various diesel-powered vehicles and equipment would be in use. In 1998, the California Air Resources Board (ARB) identified particulate matter from diesel-fueled engines as a toxic air contaminant (TAC). The ARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.[4] High volume freeways, stationary diesel engines and facilities attracting heavy and constant diesel vehicle traffic (e.g., distribution centers and truck stops) were identified as having the highest associated risk.

Health risks from TACs are a function of both concentration and duration of exposure. Unlike the above types of sources, construction diesel emissions are temporary, affecting an area for a period of days or perhaps weeks. Additionally, construction-related sources are mobile and transient in nature, and the emissions occur within the project site. Because of its short duration, health risks from construction emissions of diesel particulate would be a less-than-significant impact.

Fugitive Dust. Construction dust would affect local air quality at various times during construction of the proposed project. The dry, windy climate of the area during the summer months creates a high potential for dust generation when and if underlying soils are exposed. Clearing, grading and earthmoving activities have a high potential to generate dust whenever soil moisture is low and particularly when the wind is blowing.

Construction activities would result in increased dustfall and locally elevated levels of particulates downwind of construction activity. Construction dust has the potential to create a nuisance at nearby properties. In addition to nuisance effects, excess dustfall can increase maintenance and cleaning requirements and could adversely affect sensitive electronic devices.

Emissions of particulate matter or visible emissions are regulated by the BAAQMD under Regulation 6 “Particulate Matter and Visible Emissions.” Specifically, visible particulate emissions (i.e., dust) are prohibited whenever they are generated in sufficient quantity to fall on off-site properties and cause annoyance to the owner(s) of such property. Demolition activities on the site would be subject to Regulation 6.

Implementation of the following mitigation measure would reduce construction related impacts to a less-than-significant level.

[4] California Air Resources Board (CARB), 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, October.

Mitigation Measure AIR-1: Consistent with the guidance from the BAAQMD, the project applicant shall include dust control measures in construction specifications for the project. The City shall review the final construction specifications to verify that the requirements have been included prior to issuing a grading permit for the project. The City shall verify via field inspection at least twice during construction that the measures are being implemented. The following measures are required:

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials *or* require all trucks to maintain at least two feet of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep daily (preferably with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.
- Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets.

Long-Term Emissions. Long-term air emission impacts would be those associated with changes in permanent usage of the project site. Mobile source emissions would result from vehicle trips associated with the proposed project. The Urban Emissions Model (URBEMIS 2007) computer program, which is the most current air quality model available in California for estimating emissions associated with land use development projects, was used to calculate long-term mobile source emissions and emissions associated with natural gas and electricity usage associated with the proposed project. The emissions from daily vehicle trips associated with the proposed project are illustrated in Table 3.

The BAAQMD has established a significance threshold for ozone precursors reactive organic gases (ROG) and nitrous oxide (NOx) and particulate matter of 10 microns or less (PM_{10}) at 80 lbs/day. As shown in Table 3, the long-term vehicular emissions generated by the proposed project are not anticipated to exceed the BAAQMD's thresholds, and therefore the project would have a less-than-significant impact on local and regional air quality.

Table 3: Project Regional Emissions in Pounds Per Day

	Reactive Organic Gases	Nitrogen Oxides	PM_{10}	$PM_{2.5}$
Regional Emissions	54.3	31.4	46.6	20.7
BAAQMD Significance Threshold	80.0	80.0	80.0	NA
Exceed?	No	No	No	NA

Source: LSA Associates, Inc., 2008.

Local CO Hot Spots. The primary mobile source pollutant of local concern is carbon monoxide (CO), which is a direct function of vehicle idling time caused by traffic flow conditions. While CO transport is limited, it does disperse from the source under normal meteorological conditions. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthy levels affecting local sensitive receptors (e.g., residents, school children, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. Areas of vehicle congestion create pockets of high CO concentration called "hot spots." These pockets have the potential to exceed the State 1-hour standard of 20 parts per million (ppm) of CO and/or the 8-hour

standard of 9.0 ppm. In areas with high ambient background CO concentrations, modeling is recommended to determine a project's effect on local CO levels.

The impact of the proposed project on local CO levels was assessed with the California Air Resources Board-approved CALINE4 air quality model, which allows microscale CO concentrations to be estimated along roadway corridors or near intersections. This model is designed to identify localized concentrations of CO. The data in Tables 4 and 5 show the projected CO levels with and without the proposed project for the years 2007 and 2030, respectively.

The 1-hour CO concentrations near all 11 intersections analyzed range from 3.1 to 5.7 ppm in 2007 and from 2.9 to 3.8 in 2030, significantly lower than the 20 ppm State standard. The 8-hour CO concentrations range from 2.1 to 4.2 ppm in 2007 and from 2.0 to 2.6 ppm in 2030, also lower than the 9.0 ppm State standard. Therefore, implementation of the propose project would not result in substantial adverse air quality impacts associated with CO hot spots.

Greenhouse Gas Emissions. There is a general scientific consensus that global climate change is occurring, caused in whole or in part by increased emissions of greenhouse gases that keep the Earth's surface warm by trapping heat in the Earth's atmosphere, in much the same way as glass in a greenhouse. While many studies show evidence of warming over the last century and predict future global warming, the causes of such warming and its potential effects are far less certain. In its "natural" condition, the greenhouse effect is responsible for maintaining a habitable climate on Earth, but human activity has caused increased concentrations of these gases in the atmosphere, thereby contributing to an increase in global temperatures. Carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), and water vapor (H_2O) are the principal greenhouse gases, and when concentrations of these gases exceed the natural concentrations in the atmosphere, the greenhouse effect may be enhanced. Without these greenhouse gases, Earth's temperature would be too cold for life to exist. CO_2, CH_4 and N_2O occur naturally as well as through human activity. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Man-made greenhouse gases – with much greater heat-absorption potential than CO_2 – include fluorinated gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6) which are by-products of certain industrial processes.

In 2005, it was estimated that the emission of CO_2 equivalents (CO_2e)[5] from all major sources totaled 2,200,000 tons, nearly half of which were from transportation. Emissions are forecasted to increase by 12 percent from 2005 to 2010 (to 2,500,000 tons of CO_2e) and 19.5 percent (to 2,700,000 tons of CO_2e) by 2020, assuming "business as usual" into the future.

[5] CO_2e is an abbreviation of carbon dioxide equivalent and is the internationally recognized measure of green house gas emissions.

Table 4: 2007 CO Hot Spot Analysis

Intersection	Receptor Distance[a] to Road Centerline (Meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/With Project 1-Hour CO Concentration[b] (ppm)	Without/With Project 8-Hour CO Concentration[b] (ppm)	Exceeds State Standards[c]	
					1-Hr	8-Hr
Hollis Street and Powell Street	17 / 17	0.1 / 0.0	4.4 / 4.5	3.1 / 3.1	No	No
	17 / 17	0.0 / 0.0	4.4 / 4.4	3.1 / 3.1	No	No
	16 / 16	0.0 / 0.0	4.3 / 4.3	3.0 / 3.0	No	No
	16 / 16	0.0 / 0.0	4.2 / 4.2	2.9 / 2.9	No	No
Doyle Street and Powell Street	11 / 11	0.0 / 0.0	3.9 / 3.9	2.7 / 2.7	No	No
	11 / 11	0.0 / 0.0	3.9 / 3.9	2.7 / 2.7	No	No
	10 / 10	0.1 / 0.1	3.8 / 3.9	2.6 / 2.7	No	No
	10 / 10	0.0 / 0.0	3.8 / 3.8	2.6 / 2.6	No	No
Hollis Street and Stanford Avenue	14 / 14	0.0 / 0.0	3.8 / 3.8	2.6 / 2.6	No	No
	14 / 14	0.0 / 0.0	3.8 / 3.8	2.6 / 2.6	No	No
	14 / 14	0.0 / 0.0	3.8 / 3.8	2.6 / 2.6	No	No
	11 / 11	0.0 / 0.0	3.7 / 3.7	2.6 / 2.6	No	No
Doyle Street and Stanford Avenue	8 / 8	0.0 / 0.0	3.2 / 3.2	2.2 / 2.2	No	No
	8 / 8	0.0 / 0.0	3.2 / 3.2	2.2 / 2.2	No	No
	8 / 8	0.0 / 0.0	3.1 / 3.1	2.1 / 2.1	No	No
	8 / 8	0.0 / 0.0	3.1 / 3.1	2.1 / 2.1	No	No
San Pablo Avenue and Powell Street	17 / 17	0.0 / 0.0	4.7 / 4.7	3.3 / 3.3	No	No
	17 / 17	0.0 / 0.0	4.7 / 4.7	3.3 / 3.3	No	No
	17 / 17	0.0 / 0.0	4.7 / 4.7	3.3 / 3.3	No	No
	17 / 17	0.0 / 0.0	4.6 / 4.6	3.2 / 3.2	No	No
Hollis Street and 40th Street	17 / 17	0.0 / 0.0	4.2 / 4.2	2.9 / 2.9	No	No
	17 / 17	0.0 / 0.0	4.1 / 4.1	2.8 / 2.8	No	No
	16 / 16	0.0 / 0.0	4.1 / 4.1	2.8 / 2.8	No	No
	16 / 16	0.0 / 0.0	4.0 / 4.0	2.8 / 2.8	No	No
Seventh Street and Ashby Avenue	17 / 17	0.0 / 0.0	4.9 / 4.9	3.4 / 3.4	No	No
	17 / 17	0.0 / 0.0	4.9 / 4.9	3.4 / 3.4	No	No
	17 / 16	0.0 / 0.0	4.8 / 4.8	3.3 / 3.3	No	No
	16 / 14	0.1 / 0.0	4.7 / 4.8	3.3 / 3.3	No	No
Christie Avenue and Powell Street	24 / 24	0.1 / 0.1	5.6 / 5.7	3.9 / 4.0	No	No
	17 / 17	0.0 / 0.0	5.5 / 5.5	3.8 / 3.8	No	No
	16 / 16	0.0 / 0.0	5.2 / 5.2	3.6 / 3.6	No	No
	14 / 14	0.0 / 0.0	5.2 / 5.2	3.6 / 3.6	No	No
EB I-80 Ramps and Powell Street	17 / 17	0.0 / 0.0	5.4 / 5.4	3.8 / 3.8	No	No
	17 / 17	0.0 / 0.0	5.2 / 5.2	3.6 / 3.6	No	No
	17 / 17	0.0 / 0.0	5.2 / 5.2	3.6 / 3.6	No	No
	15 / 15	0.0 / 0.0	5.1 / 5.1	3.5 / 3.5	No	No
Frontage Road and Powell Street	17 / 17	0.3 / 0.2	5.8 / 6.1	4.0 / 4.2	No	No
	16 / 16	0.1 / 0.0	5.7 / 5.8	4.0 / 4.0	No	No
	15 / 15	0.1 / 0.1	5.6 / 5.7	3.9 / 4.0	No	No
	7 / 7	0.0 / 0.0	5.6 / 5.6	3.9 / 3.9	No	No
Frontage Road and WB I-80 Ramps	17 / 17	0.0 / 0.0	5.9 / 5.9	4.1 / 4.1	No	No
	15 / 15	0.0 / 0.0	5.7 / 5.7	4.0 / 4.0	No	No
	14 / 14	0.0 / 0.0	5.6 / 5.5	3.9 / 3.8	No	No
	14 / 14	0.0 / 0.0	5.5 / 5.5	3.8 / 3.8	No	No

[a] Distance within which CO concentrations were analyzed. Because CO disperses rapidly, areas outside of this zone would not be expected to experience elevated CO concentrations.
[b] Includes ambient 1-hour concentration of 3.2 ppm and ambient 8-hour concentration of 2.0 ppm. Measured at the nearest air quality monitoring station (40733 Chapel Way Fremont, CA).
[c] State Standard = 20.0 (1 hr.)/9.0 (8 hr.)
Source: LSA Associates, Inc., 2008.

Table 5: 2030 CO Hot Spot Analysis

Intersection	Receptor Distance[a] to Road Centerline (Meters)	Project Related Increase 1-hr/8-hr (ppm)	Without/With Project 1-Hour CO Concentration[b] (ppm)	Without/With Project 8-Hour CO Concentration[b] (ppm)	Exceeds State Standards[c]	
					1-Hr	8-Hr
Hollis Street and Powell Street	17 / 17	0.0 / 0.0	3.3 / 3.3	2.3 / 2.3	No	No
	17 / 17	0.0 / 0.0	3.3 / 3.3	2.3 / 2.3	No	No
	16 / 16	0.0 / 0.0	3.3 / 3.3	2.3 / 2.3	No	No
	16 / 16	0.0 / 0.0	3.3 / 3.3	2.3 / 2.3	No	No
Doyle Street and Powell Street	11 / 11	0.0 / 0.0	3.2 / 3.2	2.2 / 2.2	No	No
	10 / 10	0.0 / 0.0	3.2 / 3.2	2.2 / 2.2	No	No
	10 / 10	0.0 / 0.0	3.2 / 3.2	2.2 / 2.2	No	No
	10 / 10	0.0 / 0.0	3.2 / 3.2	2.2 / 2.2	No	No
Hollis Street and Stanford Avenue	14 / 14	0.0 / 0.0	3.2 / 3.2	2.2 / 2.2	No	No
	14 / 14	0.0 / 0.0	3.2 / 3.2	2.2 / 2.2	No	No
	14 / 14	0.0 / 0.0	3.2 / 3.2	2.2 / 2.2	No	No
	11 / 11	0.0 / 0.0	3.2 / 3.2	2.2 / 2.2	No	No
Doyle Street and Stanford Avenue	8 / 8	0.0 / 0.0	2.9 / 2.9	2.0 / 2.0	No	No
	8 / 8	0.0 / 0.0	2.9 / 2.9	2.0 / 2.0	No	No
	8 / 8	0.0 / 0.0	2.9 / 2.9	2.0 / 2.0	No	No
	8 / 8	0.0 / 0.0	2.9 / 2.9	2.0 / 2.0	No	No
San Pablo Avenue and Powell Street	17 / 17	0.0 / 0.0	3.5 / 3.5	2.4 / 2.4	No	No
	17 / 17	0.0 / 0.0	3.5 / 3.5	2.4 / 2.4	No	No
	17 / 17	0.0 / 0.0	3.5 / 3.5	2.4 / 2.4	No	No
	17 / 17	0.0 / 0.0	3.5 / 3.5	2.4 / 2.4	No	No
Hollis Street and 40th Street	17 / 17	0.0 / 0.0	3.3 / 3.3	2.3 / 2.3	No	No
	17 / 17	0.0 / 0.0	3.3 / 3.3	2.3 / 2.3	No	No
	16 / 16	0.0 / 0.0	3.3 / 3.3	2.3 / 2.3	No	No
	16 / 16	0.0 / 0.0	3.2 / 3.2	2.2 / 2.2	No	No
Seventh Street and Ashby Avenue	17 / 17	0.0 / 0.0	3.5 / 3.5	2.4 / 2.4	No	No
	17 / 17	0.0 / 0.0	3.5 / 3.5	2.4 / 2.4	No	No
	17 / 17	0.0 / 0.0	3.5 / 3.5	2.4 / 2.4	No	No
	16 / 16	0.0 / 0.0	3.4 / 3.4	2.4 / 2.4	No	No
Christie Avenue and Powell Street	24 / 24	0.0 / 0.0	3.7 / 3.7	2.6 / 2.6	No	No
	17 / 21	0.0 / 0.0	3.7 / 3.7	2.6 / 2.6	No	No
	16 / 17	0.0 / 0.0	3.6 / 3.6	2.5 / 2.5	No	No
	15 / 16	0.0 / 0.0	3.6 / 3.5	2.5 / 2.4	No	No
EB I-80 Ramps and Powell Street	17 / 17	0.0 / 0.0	3.7 / 3.7	2.6 / 2.6	No	No
	17 / 17	0.0 / 0.0	3.7 / 3.7	2.6 / 2.6	No	No
	17 / 17	0.0 / 0.0	3.6 / 3.6	2.5 / 2.5	No	No
	15 / 15	0.0 / 0.0	3.6 / 3.6	2.5 / 2.5	No	No
Frontage Road and Powell Street	17 / 17	0.1 / 0.0	3.7 / 3.8	2.6 / 2.6	No	No
	17 / 16	0.0 / 0.0	3.7 / 3.7	2.6 / 2.6	No	No
	16 / 15	0.0 / 0.0	3.6 / 3.6	2.5 / 2.5	No	No
	15 / 7	0.0 / 0.0	3.6 / 3.6	2.5 / 2.5	No	No
Frontage Road and WB I-80 Ramps	17 / 17	0.0 / 0.0	3.8 / 3.8	2.6 / 2.6	No	No
	15 / 15	0.0 / 0.0	3.7 / 3.7	2.6 / 2.6	No	No
	14 / 14	0.0 / 0.0	3.7 / 3.7	2.6 / 2.6	No	No
	14 / 14	0.0 / 0.0	3.6 / 3.6	2.5 / 2.5	No	No

[a] Distance within which CO concentrations were analyzed. Because CO disperses rapidly, areas outside of this zone would not be expected to experience elevated CO concentrations.
[b] Includes ambient 1-hour concentration of 3.2 ppm and ambient 8-hour concentration of 2.0 ppm. Measured at the nearest air quality monitoring station (40733 Chapel Way Fremont, CA).
[c] State Standard = 20.0 (1 hr.)/9.0 (8 hr.)
Source: LSA Associates, Inc., 2008.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05, establishing statewide greenhouse gas emission reduction targets. This order provides that by 2010, emissions shall be reduced to 2000 levels; by 2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80 percent of 1990 levels. On August 31, 2006, the California Assembly passed Bill 32 (AB 32 – signed into law on September 27, 2006 which is also known as the Global Warming Solutions Act), which commits California to reduce greenhouse gas emissions to 1990 levels and establishes a multi-year regulatory process under the jurisdiction of the California Air Resources Board (CARB) to establish regulations to achieve these goals. On December 6 and 7, 2007, CARB approved a resolution to adopt a statewide GHG emissions limit equivalent to the statewide GHG emissions levels in 1990, which must be achieved by 2020. By January 1, 2011, CARB is required to adopt rules and regulations, which shall become operative on January 1, 2012, to achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions.

The construction and occupation of development projects, such as the proposed project, cause greenhouse gas emissions. Greenhouse gases emissions occur in connection with many activities associated with development, including the use of construction equipment and building materials, vegetation clearing, natural gas usage, electrical usage (since electricity generation by conventional means is a major contributor to greenhouse gas emissions), water use (which relies on the use of electricity for pumping), and transportation. However, it is important to acknowledge that new development does not necessarily create entirely new greenhouse gas emissions, since most of the persons who will visit or occupy the new development will come from other locations where they were already causing such greenhouse gas emissions. Further, it has not been demonstrated that even new greenhouse gas emissions caused by a local development project can affect global climate change, or that a project's net increase in greenhouse gas emissions, if any, when coupled with other activities in the region, would be cumulatively considerable.

As of preparation of this Initial Study/Mitigated Negative Declaration, there are no statutes, regulations, guidelines, or case law decisions requiring analysis of climate change within a CEQA document. Under AB 32, CARB (the sole agency in charge of regulating sources of emissions of GHG in California) has been tasked with adopting regulations for reduction of greenhouse gas emissions. As of the date of this analysis, no air district in California (including BAAQMD) is known to have identified a significance threshold for GHG emissions or a methodology for analyzing air quality impacts related to GHG emissions. In particular, there is no emission rate criterion for the purpose of identifying a significant contribution to global climate change in CEQA documents.

The project would generate emissions of greenhouse gases primarily in the form of vehicle exhaust and in the consumption of electricity and natural gas for heating. The emissions from vehicle exhaust are controlled by the State and federal governments and are outside the control of this project. Emissions from building heating systems will be minimized by compliance with State Title 24 regulations for building energy efficiency. Emissions from electricity production will occur at nearby power plants.

Governor Schwarzenegger signed SB 97 (Chapter 185, Statutes 2007) into law on August 24, 2007. The legislation provides partial guidance on how greenhouse gases should be addressed in certain CEQA documents. SB 97 requires the Governor's Office of Planning and Research (OPR) to prepare CEQA guidelines for the mitigation of greenhouse gas emissions, including, but not limited to, effects associated with transportation or energy consumption. OPR must prepare these guidelines and transmit them to the Resources Agency by July 1, 2009. The Resources Agency must then certify and adopt the

guidelines by January 1, 2010. OPR and the Resources Agency are required to periodically review the guidelines to incorporate new information or criteria adopted by CARB pursuant to the Global Warming Solutions Act, scheduled for 2012.

Table 6: Project Related Greenhouse Gas Emissions

Emission Source	Emissions (tons per year)			
	CO_2	CH_4	N_2O	CO_2e
Vehicles	1,100	0.084	0.12	1,200
Electricity Production	60	0.0006	0.0004	60
Natural Gas Combustion	124	0.0024	0.0023	124
Total Annual Emissions	1,300	0.09	0.12	1,400

Source: LSA Associates, 2008

Evaluation of any potential global climate change effects resulting from the project, including modeling and gauging the impacts associated with an increase of trips or generation of new trips and the effect on greenhouse gas or global warming, would be speculative since no modeling protocol or significance criteria has been established. Table 6 shows that the proposed land uses generate up to 1,400 tons per year of carbon dioxide equivalent (CO_2e).

As described above, project-related greenhouse gas emissions are not confined to a particular air basin but are dispersed worldwide. Consequently, it is speculative to determine how project-related greenhouse gas emissions would contribute to global climate change and how global climate change may impact California. Therefore, project-related greenhouse gas emissions are not project-specific impacts to global warming but are instead the project's contribution to this cumulative impact. As stated previously, project-related CO_2 emissions and their contribution to global climate change impacts in the State of California are less than significant and less than cumulatively considerable because: (1) the project's impacts alone would not cause or significantly contribute to global climate change, and (2) the net increase in air pollutant emissions would not exceed the BAAQMD thresholds for criteria pollutants.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? ***(Less-than-Significant Impact)***

See III(b) above. Based on long-term emission estimates, the proposed project would not result in substantial increases to the levels of any criteria pollutants. Therefore, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant.

d) Expose sensitive receptors to substantial pollutant concentrations? ***(Potentially Significant Unless Mitigation Incorporated)***

Construction of the proposed project may expose surrounding, sensitive land uses to airborne particulates and fugitive dust, as well as a small quantity of pollutants associated with the use of construction equipment (e.g., diesel-fueled vehicles and equipment). Sensitive receptors are facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Since there are single-family houses and condominiums in the project vicinity, sensitive receptors could be exposed to increased pollutant concentrations, especially during construction.

Implementation of the following two-part mitigation measure would reduce impacts to a less-than-significant level:

Mitigation Measure AIR-2a: Implement Mitigation Measure AIR-1.

Mitigation Measure AIR-2b: Consistent with guidance from the BAAQMD, the project applicant shall require contractors to include emissions control measures in construction specifications for the project. The City shall review the final construction specifications to verify that the requirements have been included prior to issuing a grading permit for the project. The City shall verify via field inspection at least twice during construction that the measures are being implemented. The following actions are required:

- Idling time of diesel powered construction equipment shall be limited to 2 minutes;
- Alternative powered construction equipment (i.e., CNG, biodiesel, electric) shall be utilized when feasible;
- Add-on control devices shall be used such as diesel oxidation catalysts or particulate filters;
- Project construction (demolition, site preparation, and building erection) shall be phased; and
- Operating hours of heavy duty equipment shall be minimized.

Air pollution associated with the proposed project would be primarily vehicle related, and would not necessarily be concentrated in the vicinity of the project site. Based on the relatively small amount of traffic the project would generate, long term emissions would be less than significant. Therefore, implementation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations.

e) Create objectionable odors affecting a substantial number of people? ***(Less-than-Significant Impact)***

The proposed project would not contain any major sources of odor, and with the exception of the generally inoffensive smell of the "salt air" of San Francisco Bay, would not be located in an area with existing odors. In addition, the proposed project is not located downwind from any significant odor sources (e.g., landfills, sewage treatment plants) that could affect persons within the project site. Therefore, the proposed project would not "create objectionable odors affecting a substantial number of people" and would have a less-than-significant impact in terms of odors.

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

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? ***(No Impact)***

The project site has been developed with urban uses since at least 1939 and has low wildlife habitat value. Wildlife species that would be expected to use or pass through the site are common species that are adapted to urban and suburban conditions, and would not be adversely affected by redevelopment of the project site. No protected species are known to occur on the project site. Therefore,

implementation of the proposed project would not have a substantial direct or indirect effect on protected species.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? ***(Potentially Significant Unless Mitigation Incorporated)***

No riparian habitat or wetlands are located within or in the immediate vicinity of the project site. The nearest creek to the project site is a branch of Derby Creek in the Temescal Watershed, which flows approximately 1,500 feet north of the project site.[6] Development on the project site would not measurably affect the water quality of Derby Creek – or other local creeks. However, the project site drains to San Francisco Bay, which hosts a variety of sensitive natural communities. Runoff from the project site could adversely affect water quality in the Bay and associated natural communities. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

Mitigation Measure BIO-1: Implement Mitigation Measures HYD-1a and HYD-1b.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) Through direct removal, filling, hydrological interruption, or other means? ***(No Impact)***

Federally-protected wetlands, as defined by Section 404 of the Clean Water Act, are not located in the project site.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? ***(Less-than-Significant Impact)***

The project site has been subject to human disturbance since at least 1939, when the first building was constructed on the site. As a result, wildlife associated with the project site is adapted to disturbed urban sites and would not be substantially affected by the proposed project. The project site is located approximately 1 mile to the north of the Emeryville Crescent, which provides important nesting and foraging grounds for shore birds (the Emeryville Crescent is also the location where Temescal Creek enters San Francisco Bay). However, there are no wildlife corridors between the project site and the Emeryville Crescent. No native wildlife nursery sites are known to occur in the project site.

Implementation of the proposed project would require the removal of several street trees and trees from the parking lot located on the south portion of the project site. This vegetation could be used by wildlife species that are adapted to urban conditions; however, the removal of vegetation and the demolition of site buildings would not be expected to result in long-term adverse impacts to populations of these wildlife species. Therefore, implementation of the proposed project would not

[6] Sowers, Janet M., 1993. *Creek and Watershed Map of Oakland and Berkeley*. Published by Oakland Museum of California. Revised 2000.

substantially interfere with the movement of native or migratory wildlife species, or adversely affect native resident or migratory wildlife corridors or native nursery sites.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ***(Less-than-Significant Impact)***

Street trees are located adjacent to the site along Doyle Street, Powell Street, and in the parking lot along Stanford Avenue. Title 7, Chapter 10 of the City of Emeryville Municipal Code is the Urban Forestry Ordinance, which provides mechanisms by which street trees may be removed or replaced, and imposes penalties on unauthorized tree removal. Street trees are defined as any tree growing within the public right-of-way, including unimproved public streets and sidewalks. In general, the Urban Forestry ordinance requires that an encroachment permit be granted prior to the planting or removal of street trees. If street trees are removed, the Emeryville Public Works Department normally requires the planting of replacement trees of equal or cumulative diameter to the trees approved for removal.

The preliminary landscape plans indicate that the proposed project would plant 14 Brisbane box trees along Powell Street and 7 evergreen pear street trees along Doyle Street. The project applicant would be required to procure encroachment permits prior to the planting of street trees, consistent with the City's Urban Forestry Ordinance. Therefore, the proposed project would comply with this ordinance, and would not conflict with any local policies or ordinance adopted for the protection of biological resources. Compliance with the City of Emeryville's adopted Stormwater Guidelines for Green, Dense Redevelopment is discussed in Section VIII, Hydrology and Water Quality, of this IS/MND.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or State habitat conservation plan? ***(No Impact)***

The project site is located within an urbanized portion of Emeryville and is not subject to the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	❒	❒	❒	■
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	❒	■	❒	❒

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	❒	■	❒	❒
d) Disturb any human remains, including those interred outside of formal cemeteries?	❒	■	❒	❒

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5? ***(No Impact)***

The project site does not contain any recorded historical resources. The building complex in the project site is over 50 years old; however, based on a previous evaluation of the building[7,8] and a study done by LSA for the current project, it is not considered a historical resource pursuant to CEQA due to its marginal historical significance and physical alterations that have compromised its integrity. The following section includes: a summary of historic resources regulations in Emeryville; a description of the legislative context of historic resources in California; and a discussion of how the historic resources criteria apply to the buildings in the project site.

Historic Resources Regulations in Emeryville. The City of Emeryville does not maintain a Register of Historic Resources. However, on October 3, 2006, the City Council adopted Ordinance 06-013, which amended Section 8-1.09 of Chapter 1 of Title 8 of the Emeryville Municipal Code to "preserve significant structures and to protect against the moving, removal, or demolition of significant structures unless certain findings are made by the City Council."

Section 8-1.09 states: "The Building Official shall not issue a building permit to move, remove or demolish the street façade(s) or more than seventy-five percent (75%) (defined as 75% of the replacement cost of the structure, not including the foundation immediately prior to destruction) of any significant structure, as defined in Section 9-4.67.2 of Chapter 4 of Title 9, Planning and Zoning, of the Emeryville Municipal Code, that is non-residential and outside of the Park Avenue District, unless the Emeryville City Council first approves such action in conjunction with the approval of a replacement structure, based upon the findings specified in Section 9.4.67.6 of Chapter 4 of Title 9, Planning and Zoning."

A *significant structure*, as defined in Section 9-4.67.2, is a "structure that is at least fifty (50) years old and meets one of the following criteria:

(a) A prominent structure that is emblematic of Emeryville and important to the history of Emeryville or

[7] Painter, Diana, 2003. *Architectural Resource Assessment and Evaluation for Cingular Wireless Installation PL-362-10 at the Sierra Designs Water Tank*. Painter Preservation & Planning, Petaluma, California.

[8] Painter, Diana, 2003. State of California Department of Parks and Recreation form 523 record for P-01-010660. On file, Northwest Information Center, Sonoma State University, Rohnert Park, California.

(b) A structure that has five of the following features in its street façade(s):

1. Predominantly brick, poured-in-place concrete or wood
2. Windows and doors covering at least 30 percent of a street façade
3. Repetitive rhythm or symmetry as defined by window and door openings on most of the façade
4. Multi-paned windows (at least half of the windows having panes measuring no more than 3 feet by 4 feet)
5. Window sills protruding from walls
6. Window frames at least 4 inches wide on more than half of the windows (such as wood frames or brick pattern on all sides of windows)
7. Roofline with varied heights or angled or curved shapes at street front
8. Decorative bas relief, concrete inlays, ironwork, stained glass, tiles, or other decorative features
9. Walls with horizontal articulation such as columns, curves, or recesses of at least 1 foot.
10. Walls with vertical articulation such as cornices
11. Varied patterns in the predominant cladding material
12. Major entrance on the street
13. Arch or angle over the major entrance"

Section 9-4.67.8 requires that the following findings be made by the City Council if it authorizes the demolition of a significant structure (and approves a replacement structure, along with a CEQA finding):

(a)

1. The elimination of the significant structure would not be materially detrimental to the public interest of the affected neighborhood of the city,
2. The replacement structure would include five of the features listed in Section 9-4.67.2(b) and
3. The replacement structure would feature design quality that is as high or higher than the demolished structure and that it is compatible with the character of the neighborhood;

or

(b) The significant structure is irrevocably damaged due to natural disaster;

or

(c) The significant structure or the lot is irrevocably contaminated with one or more toxins, such that the appropriate agency requires demolition or partial demolition of the structure before soil remediation or renovation and reuse of the structure can occur;

or

(d) The significant structure will be replaced by publicly accessible landscaped open space."

The Papermill building in the project site, which is over 50 years old, is considered a "significant structure" pursuant to 9-4.67.2. The Papermill building contains at least five of the significance features listed in the section, mostly in the facades that face Doyle Street and Stanford Avenue, including: 1) predominantly brick construction; 2) windows and doors covering at least 30 percent of the façade; 3) repetitive rhythm or symmetry as defined by window and door opening on most of the façade; 4) multi-paned windows (at least half of which have panes measuring no more than 3 feet by 4 feet; 5) window sills protruding from the building; and 6) window frames at least 4 inches wide; varied patterns in the brick cladding material. These facades would be preserved and incorporated into the proposed buildings.

The other major building that fronts Powell and Hollis streets and Stanford Avenue on the west side of the site is also 50 years old. This building does not contain at least five of the significance features listed in 9-4.67.2 and therefore is not considered a significant structure.

Because the Papermill building is a "significant structure," according to Ordinance 06-013, the Emeryville City Council would be required to make certain findings if building demolition is approved. However, as described below (under "Resources on the Project Site"), the building is not considered a historic resource pursuant to CEQA.

State Legislative Context. CEQA defines a "historical resource" as a resource which meets one or more of the following criteria:

- Listed in, or eligible for listing in, the California Register;
- Listed in a local register of historical resources;
- Identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code; or
- Determined to be a historical resource by a project's lead agency.

A historical resource consists of "Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California . . . Generally, a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (CCR Title 14(3) § 15064.5(a)(3)). Archaeological resources may also be considered historical resources.

Resources on the Project Site. The buildings on the project site are not considered historical resources pursuant to CEQA, based on the criteria listed above:

- The Papermill building complex was found not to be eligible for listing in the National Register of Historic Places by architectural historian Diana Painter, Ph.D., a conclusion supported by the California Office of Historic Preservation, which assigned the building a rating of "6Y": "determined ineligible for listing in the National Register by consensus—not evaluated for the California Register of Historical Resources or a local register." Generally, buildings that are not eligible for listing in the National Register are also not eligible to the California Register. The buildings do not meet any of the California Register eligibility criteria: association with important

events or persons in California history; embodiment of a notable architectural style; possession of high architectural value; or possession of important historic information about California.

- The City of Emeryville does not maintain a local register of historical resources.
- Emeryville has not conducted a survey that would meet the requirements of Section 5024.1(g) of the Public Resources Code.
- The City of Emeryville has not made a determination that the Papermill building complex is a historical resource.

Therefore, implementation of the proposed project would not result in an adverse change in the significance of a historical resource. Potential impacts to archaeological resources (which may be considered historic resources) are discussed in Section V.b, below.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? ***(Potentially Significant Unless Mitigation Incorporated)***

LSA Associates, Inc. conducted a records search at the Northwest Information Center at Sonoma State University to determine if archaeological resources have been identified in and around the project site. Prehistoric or historic-period archaeological deposits (which may be considered historical resources under CEQA) have not been identified within the project site. However, two prehistoric archaeological sites, CA-ALA-309 (the Emeryville Shellmound) and P-01-010873, were identified within a ¼ mile of the project site. The proximity of prehistoric archaeological resources indicates that the project site is sensitive for the presence of subsurface archaeological deposits and there is a possibility of encountering such subsurface deposits during project ground-disturbing activities. Implementation of the following mitigation measure would reduce potential impacts to archaeological deposits to a less-than-significant level:

> Mitigation Measure CULT-1: Ground disturbance associated with project activities below the project site fill layer (determined to extend approximately three feet below the asphalt from the ground surface[9]) shall be monitored by a qualified archaeologist. Archaeological monitors shall be empowered to halt construction activities at the location of the discovery to review possible archaeological material and to protect the resource while the finds are being evaluated. Monitoring shall continue until, in the archaeologist's judgment, cultural resources are not likely to be encountered.
>
> If deposits of prehistoric or historical archaeological materials are encountered during project activities, all work within 25 feet of the discovery shall be redirected and a qualified archaeologist contacted to assess the finds, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel shall not collect or move any archaeological materials or human remains and associated materials. Adverse effects to such deposits shall be avoided by project activities. If avoidance is not feasible, the archaeological deposits shall be evaluated for their eligibility for listing in the California Register. If the

[9] Tan, Chris Yu Boon, and Richard Rodgers, 2007. *Geotechnical Investigation Papermill Parcels, Emeryville, California*. Treadwell & Rollo, San Francisco.

deposits are not eligible, avoidance is not necessary. If the deposits are eligible, adverse effects on the deposits shall be avoided or mitigated.

Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the archaeological materials discovered. The report shall be submitted to the applicant, the City of Emeryville, and the Northwest Information Center.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? ***(Potentially Significant Unless Mitigation Incorporated)***

No unique geologic resources are located on the project site. A fossil locality search conducted on March 25, 2008, by Dr. Pat Holroyd of the University of California Museum of Paleontology (UCMP), Berkeley found that there are no recorded fossil localities within or adjacent to the project site. However, nine vertebrate fossil localities representing Late Pleistocene Rancholabrean fauna have been discovered within five miles of the project site. These fossil localities were found in the same geologic formation – Late Pleistocene (126,000 to 10,000 years B.P.) alluvial deposits – that underlies the project site.

The proximity of nine fossil localities in the same Late Pleistocene deposits that underlie the project area indicates paleontological sensitivity. There is the possibility of encountering significant paleontological resources in the fossil-bearing Late Pleistocene alluvium in the project site that is overlain by three feet of modern artificial fill and as much as 10 feet of Holocene (10,000 years B.P. to present) alluvium. In the event that paleontological resources are encountered during project ground-disturbing activities, these shall be treated in accordance with Mitigation Measure CULT-2. Implementation of the following mitigation measure would reduce impacts to potential paleontological resources on the site to a less-than-significant level:

Mitigation Measure CULT-2: The project applicant shall inform its contractor(s) of the sensitivity of the project area for paleontological resources by including the following directive in contract documents:

> The subsurface at the construction site may be sensitive for paleontological resources. If paleontological resources are encountered during project subsurface construction, all ground-disturbing activities within 25 feet shall be redirected and a qualified paleontologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel shall not collect or move any paleontological materials. Paleontological resources include fossil plants and animals, and such trace fossil evidence of past life as tracks. Ancient marine sediments may contain invertebrate fossils such as snails, clam and oyster shells, sponges, and protozoa; and vertebrate fossils such as fish, whale, and sea lion bones. Vertebrate land mammals may include bones of mammoth, camel, saber tooth cat, horse, and bison. Paleontological resources also include plant imprints, petrified wood, and animal tracks.

The City shall verify that the language has been included in the contract documents before issuing the grading permit.

Adverse effects to such deposits shall be avoided by project activities. If avoidance is not feasible, the paleontological resources shall be evaluated for their significance. If the resources are not significant, avoidance is not necessary. If the resources are significant, project activities shall avoid disturbing the deposits, or the adverse effects of disturbance shall be mitigated. Upon completion of the paleontological assessment, a report shall be prepared documenting the methods, results, and recommendations of the assessment. The report shall be submitted to the project applicant and the City of Emeryville and, if paleontological materials are recovered, a paleontological repository, such as the University of California Museum of Paleontology.

d) Disturb any human remains, including those interred outside of formal cemeteries? ***(Potentially Significant Unless Mitigation Incorporated)***

Nearby prehistoric archaeological sites, including CA-ALA-309, the Emeryville Shellmound, are known to contain Native American interments. Although Native American remains have not been identified within the project site, there is a possibility that human remains exist in the project site. Such remains could be uncovered during construction period activities that involve ground disturbance. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

Mitigation Measure CULT-3: If human remains are encountered, these remains shall be treated in accordance with HSC Section 7050.5. The project applicant shall inform its contractor(s) of the cultural sensitivity of the project area for human remains by including the following directive in contract documents:

> If human remains are encountered during project activities, work within 25 feet of the discovery shall be redirected and the County Coroner notified immediately. At the same time, an archaeologist shall be contacted, if an archaeological monitor is not present, to assess the situation and consult with agencies as appropriate. Project personnel shall not collect or move any human remains and associated materials. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

The City shall verify that the language has been included in the contract documents before issuing the grading permit.

Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the City of Emeryville and the Northwest Information Center.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	❒	■	❒	❒
b) Result in substantial soil erosion or the loss of topsoil?	❒	■	❒	❒
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	❒	❒	❒	■
d) Be located on expansive soil, as defined in Table 22-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	❒	■	❒	❒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	❒	❒	❒	■

The following section is based on the *Geotechnical Investigation, Papermill Parcels, Emeryville, CA,* prepared by Treadwell & Rollo, Inc. in 2007.[10] The study was based on a reconnaissance of the site and surrounding areas; soil sampling to a maximum depth of 78.5 feet below the ground surface at the project site and a nearby property on the north side of Doyle Street; laboratory testing of the samples; a review of published geotechnical and geologic data that pertains to the project area; and geotechnical interpretation and engineering analyses.

[10] Treadwell & Rollo, Inc, 2007. *Geotechnical Investigation, Papermill Parcels, Emeryville, CA.* July 16.

a) *Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42; ii) Strong seismic ground shaking; iii) Seismic-related ground failure, including liquefaction; iv) Landslides?* ***(Potentially Significant Unless Mitigation Incorporated)***

Fault Rupture. The San Francisco Bay region is a seismically active region that is subject to large earthquakes. There are 30 known faults in the Bay Area that are considered capable of generating earthquakes. The Hayward Fault is the nearest active fault to the project site and is located approximately 5 miles northeast of the site. The project site is not within an Earthquake Fault Zone (formerly Alquist-Priolo "Special Studies" Zone) as defined by the California Division of Mines and Geology.

The project site is not located in close proximity to other faults. Other faults around the project site include: the San Andreas Fault, approximately 24 miles to the west of the site; the Calaveras Fault, approximately 25 miles to the east of the site; and the Concord Fault, which is approximately 26 miles to the east of the site. Since surface faulting or ground rupture tends to occur along previous fault lines and identified fault lines are not located within the site, implementation the proposed project would not adversely affect persons or structures due to the rupture of a known earthquake fault.

Ground-shaking. The project site is located in the San Francisco Bay Area, which is considered one of the most seismically active regions in the United States. In 2003, the Working Group on California Earthquake Probabilities, in conjunction with the United States Geological Survey, found that there is a 62 percent probability that at least one magnitude 6.7 or greater earthquake will occur in the Bay Area between 2003 and 2032. Earthquakes on any of the faults within the Bay Area could cause strong ground shaking at the project site depending upon the magnitude of the earthquake, the distance of the project site from the earthquake epicenter, the type of geologic materials that underlie the site, as well as other factors. Because it affects a much broader area, ground shaking, rather than surface fault rupture, is the cause of most damage during earthquakes. The project is likely to be subject to earthquakes during its operation period.

Structural damage to buildings results from the transmission of earthquake-induced vibrations through the ground. A large earthquake on any of the faults within 25 miles of the project site (but especially an earthquake on the Hayward Fault) would result in strong ground shaking at the project site. The Uniform Building Code (UBC) Chapter 16, Division IV Earthquake Design requires that structures be designed using certain earthquake design criteria.

Implementation of the following mitigation measure would reduce the impact of ground-shaking to a less-than-significant level:

> Mitigation Measure GEO-1: The applicant shall implement all mitigation measures, design criteria, and specifications recommended in the geotechnical investigation report prepared for the project. The applicant shall submit to the City the final plans and specifications for conformance with the recommendations in the geotechnical report. The City shall review and approve the plans and specifications prior to issuing a building permit for the project and shall

verify by inspection that the measures have been implemented prior to issuing a permit of occupancy for the housing units.

Ground Failure. Ground failure hazards of potential concern at the project site include densification and liquefaction. Soil liquefaction is primarily associated with saturated soil layers located near the ground surface. Soils that are most susceptible to liquefaction are relatively loose, clean, poorly-graded, fine-grained sands. These soils lose strength during ground shaking and become incapable of supporting overlying structures. Due to the loss of strength, the soil acquires "mobility" sufficient to permit both horizontal and vertical movements. Densification, a closely-related phenomenon, occurs when ground-shaking causes predominantly granular soils to become compact and occupy less volume, which results in settlement.

Soil samples taken from the borings at and near the project site contained predominantly clayey soil with some sandy clay and clay with sand located below the groundwater table. According to the geotechnical report, these soils are stiff and dense enough and/or have sufficient cohesion to resist liquefaction. Because the soils have a low potential to liquefy and the surrounding area is fairly level, the potential for lateral spreading is also low. Subsurface data indicate that the soil encountered above the groundwater is clay and not subject to differential settlement or densification.

Landslides. The project site is located on the coastal plain on the eastern side of San Francisco Bay, and is not located adjacent to steep slopes. Maps prepared by the California Geological Survey indicate that the site is not located in an area where there is a potential for earthquake-induced landslides. Therefore, the site would not be exposed to significant landslide hazards.

b) Result in substantial soil erosion or the loss of topsoil? ***(Potentially Significant Unless Mitigation Incorporated)***

Exposed soils on the site could be subject to erosion during construction although the erosion potential is reduced by the flat topography of the site. The potential for soil erosion exists during the period of earthwork activities and between the time when earthwork is completed and new vegetation is established or hardscape is installed.

A Storm Water Pollution Prevention Plan (SWPPP) and Erosion Control Plan are a routine condition of projects that require grading permits. SWPPPs identify best management practices to protect the quality of storm water runoff, while the Erosion Control Plan, which is required for the grading permit, provides the details of the erosion control measures to be applied on the site. Implementation of the following mitigation measures would reduce impacts on soil erosion or loss of topsoil to a less-than-significant level:

Mitigation Measure GEO-2: The project applicant shall prepare an Erosion Control Plan in accordance with the Regional Water Quality Control Board's requirements. The City shall verify that the Erosion Control Plan has been prepared before issuing the grading permit for the project.

Mitigation Measure GEO-3: Implement Mitigation Measure HYD-1a and HYD-1b.

c) *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?* ***(No Impact)***

As noted in VI.a, the project site is not prone to liquefaction or other forms of ground-failure, and is not within a landslide hazard area. Therefore, the project would not be constructed on geologic materials that are unstable or otherwise prone to collapse.

d) *Be located on expansive soil, as defined in Table 22-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?* ***(Potentially Significant Unless Mitigation Incorporated)***

The soil near the existing grade is predominantly fill and includes expansive soil, which could cause displacement and cracking of proposed building foundations. Expansion could particularly be a problem for proposed structures on the project site during seasonal changes in moisture content. Implementation of the following mitigation measure would reduce impacts associated with soil expansion to a less-than-significant level:

Mitigation Measure GEO-4: Implement Mitigation Measure GEO-1.

e) *Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?* ***(No Impact)***

Sewer infrastructure is available on the site and septic tanks, or alternative wastewater disposal systems, are not proposed as part of the project.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	❒	❒	■	❒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	❒	■	❒	❒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	❒	❒	■	❒

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	❒	❒	❒	■
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	❒	❒	❒	■
f) For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	❒	❒	❒	■
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	❒	❒	■	❒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	❒	❒	❒	■

The following section is based on the *Phase I Environmental Site Assessment, Papermill Project, Emeryville, California*, prepared by CERES Environmental in 1994, and the *Limited Environmental Characterization Papermill Parcels, Emeryville, California*, prepared by Treadwell & Rollo in 2007. These reports were based on a site reconnaissance; drive-by survey of the area around the project site; review of previous hazardous materials reports and studies; review of local hazardous materials records and government databases; and a review of the nation-wide radon survey.

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? ***(Less-than-Significant Impact)***

Implementation of the proposed project would result in the construction of two four-story buildings, which would contain a mixture of residential and commercial uses. Although small quantities of commercially-available hazardous materials could be used within the proposed building and in landscaped areas in the project site for cleaning and maintenance, these materials would not be used in sufficient quantities to pose a threat to human or environmental health. All toxic materials used during the construction and operation period would be handled in compliance with hazardous materials regulations. Therefore, implementation of the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? ***(Potentially Significant Unless Mitigation Incorporated)***

According to environmental investigations, known contaminants are present on the project site. The following discussion includes a description of three potential sources of contamination on the site: 1) Historic land uses; 2) an underground storage tank; and 3) lead- and asbestos-containing building materials.

Historic Land Uses. The project site has been occupied by a mixture of commercial and light industrial uses since development of the site occurred in the 1939, when the property was developed by Moore Business Forms. The property was owned by Moore until 1976 when it was acquired by Papermill Properties.

Albany Press, a former tenant of the Papermill building, was a commercial printer and has records of being a hazardous waste generator. Bel Aire Graphics, located in the building on the west side of the site (fronting Hollis and Powell streets), was observed during the Phase I site reconnaissance to be storing hazardous materials related to their printing business. The company is also listed as a hazardous waste generator. Hazardous materials are stored in a separate concrete room with a berm to prevent materials from spilling on to the production floor. The production area had a considerable amount of ink staining on the concrete floor. It is anticipated that land uses have released contaminants into the site or surrounding areas.

Based on analytical results of limited soil samples, elevated levels of lead and chromium were detected in the shallow soil on the site. Elevated levels of lead were detected beneath the Building B and elevated chromium levels were detected beneath the parking lot near Building A. The soil sample analytical results from subsurface investigations were compared to State of California total threshold limit concentration and hazardous waste criteria. Based on these comparisons, the fill material beneath Building B would likely require disposal at a State of California Hazardous Waste Facility. The remaining fill material would likely be re-used on-site as fill material or be disposed at a Class II/III non-hazardous waste facility. Based on calculations conducted as part of the most recent environmental site assessment, approximately 800 tons of fill material classified as State of California Class I hazardous waste, and approximately 12,800 tons of fill classified as non-hazardous Class II/III likely exists within the three feet of fill material at the proposed site.

Because of the elevated levels of lead and hydrocarbon detected at the site, the most current environmental site assessment, recommends that a Soil Management Plan and a Health and Safety Plan be prepared prior to construction. The Soil Management Plan must include a soil handling plan, which describes how the fill material would be segregated from the underlying native alluvial soil, post-excavation soil sampling to confirm the removal of the Class I contaminated fill material, and maintenance requirements to ensure that long-term soil management measures, such as capping the soils, will remain effective during the site's use and occupancy period. The Health and Safety Plan must describe proper soil handling procedures and health and safety requirements, in order to minimize worker and public exposure to hazardous materials during construction.

Underground Storage Tank. According to records on file with the City of Emeryville Building Department, a 2,000-gallon underground storage tank (UST) and a 10,000-gallon UST, along with

their associated pumps were removed from the property in 1969. The USTs were reported to have contained gasoline and were located south of the former location of the water tower. Soil sampling beneath the USTs was not conducted at the time the tanks were removed. This portion of the property now contains a parking lot.

There is currently a 6,000-gallon UST exterior to the east corner of Papermill building that is known to have contained heating oil. The Property owner would be required to remove the UST, and due to its reported size, removal and closure of the UST would fall under the jurisdiction of the Alameda County Health Care Services Agency.

Lead and Asbestos. All permanent structures at the project site were constructed prior to the 1980s, and therefore may contain lead-based paint and/or asbestos-containing materials. Potential asbestos-containing materials have been detected during property surveys. Analytical results from sampling indicate that asbestos above the detection limit of one percent by volume were found in resilient floor tiles, thermal pipe and fitting insulation, heating, ventilation, and air conditioning duct tape, and the roof mastic on the Building B roof parapet. Demolition of the structures on the project site could release lead particles and asbestos fibers into the air, where they could potentially pose a health risk to construction workers and the general public.

Implementation of the following four-part mitigation measure would reduce the impacts of exposure to contaminated soil, asbestos-containing materials, and lead-based paint to a less-than-significant level:

> Mitigation Measure HAZ-1a: Prior to demolition of existing structures, the applicant shall prepare a Soil Management Plan and a Health and Safety Plan. The Soil Management Plan shall describe how contaminated fill material would be segregated from the underlying native alluvial soil and the maintenance requirements necessary to ensure that long-term soil management measures, such as capping of the soils, will remain effective during the site's use and occupancy period. The site-specific Health and Safety Plan shall be prepared in accordance with federal, State and local standards governing the remediation of soil and groundwater containing hazardous waste.
>
> The City shall verify that the Soil Management Plan and Health and Safety Plan have been prepared before issuing the grading and demolition permits.
>
> Mitigation Measure HAZ-1b: Prior to construction, the project applicant shall remove the heating oil UST to the exterior of the east corner of the Papermill building, in accordance with all regulations imposed by the Alameda County Heath Care Services Agency's Underground Storage Tank Program. The City shall verify that the tank has been removed before issuing a temporary certificate of occupancy for the project.

Mitigation Measure HAZ-1c: Prior to demolition of structures on the site, a comprehensive United States Environmental Protection Agency/United States Department of Housing and Urban Development (EPA/HUD)-Level Lead Based Paint survey shall be conducted. If any LBP is identified, it shall be removed from the site in accordance with all applicable regulations, including Occupational Safety and Health Administration (OSHA) guidelines. The City shall verify that the survey has been conducted before issuing the demolition permit for the project.

Mitigation Measure HAZ-1d: Prior to demolition of structures on the site, a complete Asbestos Hazard Emergency Response Act-Level Pre-Demolition Asbestos Survey shall be conducted. If asbestos is identified, a licensed asbestos abatement contractor shall be retained to abate identified asbestos-containing material in accordance with all applicable regulations. The City shall verify that the survey has been conducted before issuing the demolition permit for the project.

c) *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?* ***(Less-than-Significant Impact)***

The Pacific Rim International School is located at 5521 Doyle Street, across Stanford Avenue to the south of the project site. Emery Secondary School is located approximately three-quarters of a mile southeast of the project site at 1100 47th Street. The proposed residential and commercial/retail uses at the project site would not emit or handle hazardous or acutely hazardous materials that would present a substantial hazard to students, teachers, or others present at the schools. Therefore, the impact would be less-than-significant.

d) *Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?* ***(No Impact)***

The project site is not included in any of the hazardous materials/contaminated sites lists compiled pursuant to Government Code Section 65962.5.[11]

e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?* ***(No Impact)***

The project site is not located within an airport land use plan, or within 2 miles of a public or private airport. Therefore, implementation of the proposed project would not result in an airport-related safety hazard.

[11] California Environmental Protection Agency, 2008. Cortese List. Website: http://www.calepa.ca.gov/SiteCleanup/CorteseList/default.htm. April 2.

f) For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? ***(No Impact)***

The project site is not located within the vicinity of a private airstrip.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ***(Less-than-Significant Impact)***

The Emeryville General Plan designates Interstates 80/580 (I-80/I-580) as "general evacuation routes" and Powell Street as a designated flood and earthquake evacuation route. San Pablo Avenue is also designated as an earthquake evacuation route. The proposed project would not restrict vehicular, pedestrian, or bicycle access within or in the vicinity of the project site. The project's effects on traffic congestion and circulation are discussed in Section XV, Transportation/Circulation. Implementation of the proposed project would not conflict with any emergency evacuation plans.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? ***(No Impact)***

The project site is located within a completely urbanized portion of Emeryville that is not subject to wildland fires.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	❒	■	❒	❒
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater Table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	❒	❒	■	❒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	❒	■	❒	❒

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	❒	❒	■	❒
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	❒	■	❒	❒
f) Otherwise substantially degrade water quality?	❒	❒	❒	■
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	❒	❒	❒	■
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	❒	❒	❒	■
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding of as a result of the failure of a levee or dam?	❒	❒	❒	■
j) Inundation by seiche, tsunami, or mudflow?	❒	❒	❒	■

a) Violate any water quality standards or waste discharge requirements? ***(Potentially Significant Unless Mitigation Incorporated)***

The following section describes the agencies that regulate surface water and groundwater quality; existing storm water regulations; proposed storm water management features on the project site; and required mitigation measures to reduce the project's effects on water quality to a less-than-significant level.

Regulatory Agencies. Water quality in surface and groundwater bodies is regulated by the State and Regional Water Quality Control Boards. The project site is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB), which is responsible for implementation of State and federal water quality protection regulations. The RWQCB is responsible for implementing the Water Quality Control Plan (Basin Plan),[12] a master policy document for managing water quality issues in the region. The Basin Plan establishes beneficial water uses for waterways and water bodies within the region.

[12] San Francisco Bay Regional Water Quality Control Board, 1995. *Water Quality Control Plan*. June 21.

Storm Water Regulations. Runoff water quality is regulated by the National Pollutant Discharge Elimination System (NPDES) Nonpoint Source Program (established through the Clean Water Act); the objective of the NPDES program is to control and reduce pollutants to water bodies from nonpoint discharges. Locally, the NPDES program is administered by the RWQCB. The RWQCB has conveyed responsibility for implementation of storm water regulations in the vicinity of the project site to the Alameda Countywide Clean Water Program (ACCWP). The ACCWP maintains compliance with the NPDES Permit and promotes storm water pollution prevention within that context. Compliance with the NPDES Permit is mandated by State and federal statutes and regulations.

Participating agencies must comply with the provisions of the County permit by ensuring that new development and redevelopment projects mitigate water quality impacts to storm water runoff both during construction and operation periods. Recent changes to the permit held by the ACCWP are detailed in RWQCB Order R2-2003-0021 (NPDES Permit No. CAS0029831). In February 2003, the San Francisco Bay RWQCB and the Central Valley RWQCB revised Provision C.3 in the NPDES permit governing discharges from the municipal storm drain systems of cities and towns in the two regions. The C.3 requirements started in 2005, but new requirements were added in 2006.

New development and significant redevelopment projects that are subject to Provision C.3 of the RWQCB order are grouped into two categories based on project size. While all projects regardless of size are encouraged to consider incorporating appropriate source control and site design measures that minimize storm water pollutant discharges to the maximum extent practicable, new and redevelopment projects that do not fall into Group 1 or Group 2 are not subject to the requirements of Provision C.3. The general criteria for establishing whether a project is a Group 1 or Group 2 project is presented below (for a detailed definition, refer to the County NPDES permit (No. CAS0029831)):

Group 1	New development and redevelopment projects that would create or replace more than 1 acre of impervious surface (e.g., roof area, streets, sidewalks, parking lots).
Group 2	New development and redevelopment projects that would create or replace more than 10,000 square feet of impervious surface. Projects consisting of one single-family home are excluded from Group 2.

The proposed project would be considered a Group 1 Project and therefore would be required to meet all the terms of the permit, including (but not limited to):

- *Numeric Sizing Criteria for Pollutant Removal Treatment Systems.* The project must include source controls, design measures, and treatment controls to minimize storm water pollutant discharges. Treatment controls must be sized to treat a specific amount – about 85 percent – of average annual runoff from the site (in the Bay Area this is equivalent to about the 1-inch storm).
- *Operation and Maintenance of Treatment Measures.* Treatment controls often do not work unless adequately maintained. The permit requires an operations and maintenance (O&M) program, which includes: 1) identifying the properties with treatment controls; 2) developing agreements with private entities to maintain the controls (e.g., incorporation into CC&Rs or homeowners association duties); and 3) periodic inspection, maintenance (as needed), and reporting.
- *Limitation on Increase of Peak Storm Water Runoff Discharge Rates.* Urbanization creates impervious surfaces that reduce the landscape's natural ability to absorb water and release it slowly to

creeks. These impervious surfaces increase peak flows in creeks and can cause erosion. Projects must evaluate the potential for this to occur and provide mitigation as necessary. In addition, projects disturbing more than one acre of land during construction are required to file a Notice of Intent (NOI) with the RWQCB to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. A developer must propose control measures that are consistent with the State General Permit. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site covered by the general permit. A SWPPP should include Best Management Practices (BMPs) designed to reduce potential impacts to surface water quality during the construction of the project.

On December 6, 2005, the Emeryville City Council adopted *Stormwater Guidelines for Green, Dense Redevelopment: Stormwater Quality Solutions for the City of Emeryville*. These guidelines outline ideas for meeting new storm water treatment requirements using site design, parking strategies, and storm water treatment measures to allow water to flow through plants and soil. Numeric requirements apply to development projects of 10,000 square feet or more as of August 15, 2006. The guidelines generally require vegetative storm water treatment measures, and apply city-wide.

Implementation of the following mitigation measure would ensure the adequacy of the SWPPP and the Stormwater Management Plan, and would reduce the project's impacts on water quality to a less-than-significant level:

Mitigation Measure HYD-1a: The project applicant shall prepare a Stormwater Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality during the construction period of the project. It is not required that the SWPPP be submitted to the RWQCB, but must be maintained on site and made available to RWQCB staff upon request. The SWPPP shall include specific and detailed Best Management Practices (BMPs) designed to mitigate construction-related pollutants. At minimum, BMPs shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain. The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and shall include both dry and wet weather inspections. The City shall verify that the SWPPP has been prepared before issuing the grading permit for the project.

Mitigation Measure HYD-1b: The project applicant shall prepare a Storm Water Control Plan that is consistent with the *Stormwater Guidelines for Green, Dense Redevelopment: Stormwater Quality Solutions for the City of Emeryville*. The City shall verify that the Storm Water Control Plan has been prepared before issuing the building permit for the project.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater Table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? ***(Less-than-Significant Impact)***

The project would not result in the removal of water from local groundwater or other direct impacts to groundwater supplies. In addition, the park proposed along Stanford Avenue would reduce the amount

of impervious surface cover of the site. The park would provide some pervious surfaces to the site, and would allow for an incremental amount of groundwater recharge. The proposed project would not result in a net deficit in aquifer volume or a lowering of the local groundwater level.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? ***(Potentially Significant Unless Mitigation Measure Incorporated)***

The nearest surface water to the project site is the San Francisco Bay, located approximately 2,600 feet west of the site. Surface flow direction is to the west towards the Bay. The estimated groundwater flow direction is to the west-southwest.[13]

Implementation of the proposed project would not alter a stream or river or alter the existing drainage pattern of the site. Therefore, runoff generated by the project during its operational phase would not cause substantial erosion or siltation on- or off-site. However, erosion could occur during the demolition and construction phase of the project. Implementation of the following mitigation measure would reduce the impacts associated with the drainage pattern and erosion to a less-than-significant level:

Mitigation Measure HYD-2: Implement Mitigation Measure GEO-2.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? ***(Less-than-Significant Impact)***

Implementation of the proposed project would not result in an alteration to the existing drainage pattern of the site or the course of a stream or river. In addition, the project includes plans for a park area along Stanford Avenue. This park would provide a pervious surface that would allow water infiltration and would reduce the chance for on- or off-site flooding. Therefore, the proposed project is not expected to increase storm water runoff, or otherwise result in localized flooding.

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? ***(Potentially Significant Unless Mitigation Incorporated)***

Implementation of the proposed project would reduce the amount of impervious surfaces on the site by including the park along Stanford Avenue. Therefore, the project is not expected to generate additional storm water runoff.

However, polluted runoff could be generated during the project construction period due to erosion from soil stockpiles, oil and gas leaks, and ground disturbance. Implementation of the following

[13] CERES Environmental, 1994. Phase I Environmental Site Assessment, Papermill Project. February 8.

mitigation measure would ensure that the project would not increase the volume or substantially reduce the quality of runoff from the site:

Mitigation Measure HYD-3: Implement Mitigation Measures HYD-1a and HYD-1b.

f) Otherwise substantially degrade water quality? ***(No Impact)***

No other elements of the project would generate contaminants that would cause substantial degradation of water quality.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? ***(No Impact)***

The project site is not located within the 100-year flood hazard zone, as mapped by the Federal Emergency Management Agency (FEMA),[14] and therefore the project site would not be expected to be susceptible to storm-related flooding.

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? ***(No Impact)***

See Section VIII.g.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding of as a result of the failure of a levee or dam? ***(No Impact)***

The project site is located outside of the inundation area for Lake Temescal, which would pose the most significant threat of dam failure in the vicinity of the project site.[15] Therefore, the project site would not be exposed to hazards associated with failure of other levees or dams.

j) Inundation by seiche, tsunami, or mudflow? ***(No Impact)***

The project site, which is located approximately 38 feet National Geodetic Vertical Datum (NGVD) is outside the area of potential tsunami inundation.[16] In addition, the site would not be exposed to inundation by seiches or mudflows.

[14] Federal Emergency Management Agency (FEMA)/Environmental Systems Research Institute, 2007. U.S. Flood Hazard Maps: Website: www.esri.com/hazards/. May 21.

[15] City of Emeryville, 1993. *City of Emeryville General Plan*. March 2.

[16] Ibid.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	❒	❒	❒	■
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	❒	❒	■	❒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	❒	❒	❒	■

a) Physically divide an established community? ***(No Impact)***

The physical division of an established community would typically involve the construction of large features (such as freeways) that then function as physical or psychological barriers between communities, or the removal of roads (e.g., through the assembly of numerous parcels and the creation of "superblocks") such that access from one neighborhood to another is diminished.

The project applicant proposes to demolish two buildings and construct two four-story mixed-use buildings on the site. The project would not change access patterns around the project site or otherwise restrict traffic flow on Stanford Avenue, Powell Street, Hollis Street, or other streets in the vicinity of the project site. Therefore, the proposed project would not divide an established community.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? ***(Less-than-Significant Impact)***

The project site is designated as Mixed-Use (M-U) by the City of Emeryville General Plan.[17] The project would generally be consistent with this General Plan designation.

The Emeryville General Plan states that mixed-use projects should be developed: "in such fashion that a variety of compatible uses will be established on the same site. In the largest of such mixed use projects (in excess of 200,000 square feet) residential uses should be provided." Therefore, the residential component of the project would be consistent with the Mixed-Use designation.

The project site is also designated as a Mixed-Use (M-U) zoning district by the City of Emeryville Municipal Code. The purpose of this district is to implement the policies contained in the Community Development component of the General Plan, particularly the policies related to the Mixed Use land

[17] Emeryville, City of, 1993. *Emeryville General Plan, Land Use Element.* March 2.

use category. The project is considered a multi-family residential use with ground level commercial use. Live/work units are considered a separate use. All three uses are allowed in the M-U district with a conditional use permit (CUP).

Key development standards associated with the zoning designation of the project site are listed in Table 7, along with findings on the consistency of the project with these standards.

As shown in Table 7, with a CUP the proposed project would not exceed the densities (measured in residential units/acre) and the building height permitted in the M-U district. The proposed project would result in approximately 72 units per acre. The project site is located in a transitional area between the medium density residential neighborhood to the east and a mixed use area to the west. The only nearby multi-family residential development in the M-U district is the Elevation 22 project, located immediately adjacent to the northern portion of the site, which has a density of 40 units per acre. The Doyle Street condominium project, located immediately southeast of the site has a density of 37 units per are, plus eight live/work units, in accordance with the permitted densities in the R-M zone.

Table 7: Development Standards in Emeryville Planning Code

Development Standard	Emeryville (M-U)	Consistency of Project
Residential Uses	Permitted with Conditional Use Permit (CUP)	Consistent
Density	45 units per acre, or up to 60 units with CUP, and up to 75 units per acre with the 25 percent density bonus for affordable housing	Consistent. The density of the project site would be approximately 72 units per acre.
Building Intensity	1.0 floor-area-ratio (FAR) district.	Consistent. FAR of project (.18) would be less than maximum permitted FAR.
Building Height	40 feet (55 feet with CUP)	Consistent with CUP

Source: City of Emeryville Municipal Code

The project site is generally an appropriate location for dense residential units: it is located near San Pablo Avenue, which is a major transit corridor; it is within walking distance to retail shops; and is close to major job centers in Emeryville and Downtown Oakland. Therefore, the relatively high density of the project would not result in environmental impacts beyond those identified in other sections of this IS/MND (e.g., Traffic/Circulation). Therefore, the proposed project would not conflict with any applicable local planning policies or programs.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan? ***(No Impact)***

The project site is not located within an area that is included in a habitat conservation plan or natural community conservation plan. Therefore, the proposed project would not conflict with any of these plans.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
X. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	❒	❒	❒	■
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	❒	❒	❒	■

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State? ***(No Impact)***

No known mineral resources are present at the project site. Implementation of the proposed project would not result in the loss of availability of a known mineral resource.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? ***(No Impact)***

The project site is not designated by a general plan, specific plan, or other land use plans as a locally-important mineral recovery site.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. NOISE. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	❒	■	❒	❒
b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?	❒	■	❒	❒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	❒	❒	■	❒

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	❒	■	❒	❒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	❒	❒	❒	■
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	❒	❒	❒	■

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? ***(Potentially Significant Unless Mitigation Incorporated)***

The City of Emeryville sets noise standards in the Emeryville General Plan and noise ordinance of the Municipal Code. The City establishes exterior noise thresholds of 60 decibels (dBA) day/night noise level (L_{dn}[18]) as normally acceptable for residential uses. In areas with noise levels from 60 dBA to 75 dBA L_{dn}, projects that include the construction of medium- to high-density residential buildings are required to undergo acoustic analysis to determine the insulation needed to maintain an indoor noise level of 45 dBA L_{dn} or to reduce exterior noise levels to below 60 dBA L_{dn}. Noise levels of up to 65 dBA L_{dn} are considered normally acceptable for restaurant and retail commercial land uses.

The City of Emeryville regulates construction noise in the City's Municipal Code Section 5-13.05, Construction Noise Limits ordinance. This ordinance limits construction and demolition activities to 7:00 a.m. to 6:00 p.m. on weekdays; pile driving and extremely loud activities are limited to weekdays from 8:00 a.m. to 5:00 p.m. Construction and demolition activities are not permitted on weekends. Zoning Ordinance Section 9.4.59 states that noise at lot lines shall not exceed the maximum permitted sound level as set forth in the Noise Standards Table adopted by the City Council.

Ambient Noise Environment. The primary noise source in the vicinity of the project site is traffic on Interstate-80 (I-80) and Powell Street. The project site is located approximately 2,000 feet east of I-80, immediately south of Powell Street between Hollis and Doyle streets. Another major noise source in the project vicinity includes the Union Pacific Railroad that lies approximately 850 feet west of the project site.

[18] The Day/Night noise level, L_{dn}, is the 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 decibels to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.

The northern and western portions of the project site lie beyond the 65 dBA but within the 60 dBA L_{dn} roadway noise contours of Powell and Hollis streets shown in Figure 9-10 of the City of Emeryville's Opportunities and Challenges Report.[19] In addition, the entire site lies beyond the 65 dBA but within the 60 dBA L_{dn} railroad noise contour of the Union Pacific Railroad. These roadway and railroad noise levels are within the City's "normally acceptable" range for new residential and commercial development.

Short-Term Noise Impacts. Two types of short-term noise impacts would occur during demolition and project construction. The first type would result from the increase in traffic flow on local streets, associated with the transport of workers, equipment, and materials to and from the project site. Heavy equipment for demolition and construction is expected to be moved to the site and remain for the duration of demolition/construction. The increase in traffic flow on the surrounding roads due to construction traffic is expected to be minimal. However, there would be short-term intermittent high noise levels associated with trucks arriving at and departing from the project site.

The second type of short-term noise impact is related to the noise generated by heavy equipment operating on the project site. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 8 lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor.

Construction of the proposed project is expected to require the use of earthmovers such as bulldozers and scrapers, loaders and graders, water trucks, and pickup trucks. As shown in Table 8, the typical maximum noise level generated by each bulldozer on the project site is assumed to be 88 dBA L_{max} at 50 feet from the operating earthmover. The maximum noise level generated by hydraulic backhoes is approximately 86 dBA L_{max} at 50 feet. The maximum noise level generated by water and other trucks is approximately 85 dBA L_{max} at 50 feet from these vehicles. The use of pile drivers is also expected during construction of this project. The maximum noise level generated by a pile driver on the proposed project site would be 93 dBA L_{max} when measured at 50 feet from the pile driver.

[19] Emeryville, City of, 2005. *Opportunities and Challenges Report,* Chapter 9: Environmental Resources and Challenges, Figure 9-10. October.

Each doubling of the sound sources with equal strength would increase the noise level by 3 dBA. Assuming each piece of construction equipment operates at some distance apart from the other equipment, the worst-case combined noise level at the nearest uses to the site during this phase of construction would be 91 dBA L_{max} at the nearest existing sensitive receivers in the vicinity of the project site. Nearby noise sensitive land use include residential units located on the north side of Powell Street directly across from the project site at a distance of approximately 65 feet. Another nearby noise sensitive land use includes the outdoor recreational land use on the east side of Doyle Street directly across from the project site. Due to the short-term nature of this construction-related impact, the City would consider it a less-than-significant impact if each of the noise-reducing measures, described under Mitigation Measure NOISE-1, is implemented.

Table 8: Typical Construction Equipment Maximum Noise Levels, L_{max}

Type of Equipment	Range of Maximum Sound Levels (dBA at 50 feet)	Suggested Maximum Sound Levels for Analysis (dBA at 50 feet)
Pile Drivers	81 to 96	93
Rock Drills	83 to 99	96
Jackhammers	75 to 85	82
Pneumatic Tools	78 to 88	85
Pumps	68 to 80	77
Scrapers	83 to 91	87
Haul Trucks	83 to 94	88
Electric Saws	66 to 72	70
Portable Generators	71 to 87	80
Rollers	75 to 82	80
Dozers	85 to 90	88
Tractors	77 to 82	80
Front-End Loaders	86 to 90	88
Hydraulic Backhoe	81 to 90	86
Hydraulic Excavators	81 to 90	86
Graders	79 to 89	85
Air Compressors	76 to 89	85
Trucks	81 to 87	85

Source: *Bolt, Beranek & Newman, 1987.* Noise Control for Buildings and Manufacturing Plants.

Mitigation Measure NOISE-1: The project contractor shall comply with the following measures:

Hours. Unless the City Council grants a waiver allowing different construction hours pursuant to Section 5-13.06 of the Emeryville Municipal Code, construction hours shall be limited to 7:00 a.m. to 6:00 p.m., Monday through Friday, and pile driving activity shall be limited to 8:00 a.m. to 5:00 p.m., Monday through Friday. In an urgent situation, the City Manager, Planning and Building Director, or Public Works Director may approve weekend or night work pursuant to Section 5-13.05(e) of the Emeryville Municipal Code.

Equipment. All heavy construction equipment used on the project shall be maintained in good operating condition, with all internal combustion, engine-driven equipment equipped with intake and exhaust mufflers that are in good condition and as deemed to be practically feasible. All non-impact tools shall meet a maximum noise level of no more than 85 dB when measured at a distance of 50 feet. All stationary noise-generating equipment shall be located as far away as possible from neighboring property lines, especially residential uses.

Noise Disturbance Coordinator. The applicant shall designate a "Noise Disturbance Coordinator" who shall be responsible for responding to any complaints about construction noise. The Noise Disturbance Coordinator shall determine the cause of the noise complaint and shall require that reasonable measures warranted to correct the problem be implemented. The applicant shall conspicuously post a telephone number for the Noise Disturbance Coordinator at

the construction site and include it in the notice sent to neighbors regarding the construction schedule.

Long-Term Noise Impacts. As outlined in the ambient noise environment discussion, the project site lies within the acceptable range for railroad and freeway noise. Therefore, these noise sources would be considered less-than-significant and are not further analyzed. Implementation of the proposed project would result in an increase in vehicle trips in the vicinity of the project site and potential increases in traffic noise along access roads leading to the project site. Tables 9 and 10 show the existing and existing plus project traffic noise levels for roadway segments in the project site vicinity. Tables 11 and 12 show the cumulative and cumulative plus project traffic noise levels. As shown in Tables 10 and 12, the project would not generate enough traffic to create a perceptible change (at least 3 dBA) in traffic noise in the vicinity of the project site. A substantial long-term increase in ambient noise levels is not expected as a result of project implementation.

As shown in Table 12, cumulative plus project traffic noise levels could reach up to 66.1 dBA L_{dn} along roadway segments adjacent to the project site. These roadway noise levels are in excess of City of Emeryville's "normally acceptable" level of 60 dBA L_{dn} for new residential development and 65 dBA L_{dn} for new commercial development, but under the maximum exterior level of 75 dBA L_{dn}. In accordance with the noise element, in areas with noise levels from 60 dBA to 75 dBA L_{dn}, construction of medium to high density residential buildings require acoustic analysis to determine the insulation needed to maintain an indoor noise level of 45 dBA L_{dn} or to reduce exterior noise levels to below 60 dBA L_{dn}. Commercial land uses must meet the interior noise level standard of 60 dBA L_{dn}.

Based on the United States Environmental Protection Agency's (EPA's) Protective Noise Levels,[20] with a combination of walls, doors, and windows, standard construction for northern California residential buildings would provide more than 25 dBA in exterior to interior noise reduction with windows closed and 15 dBA or more with windows open. With windows open, the residents would not meet the interior noise standard (i.e., 66.1 dBA – 15 dBA = 51.1 dBA). As a result, a form of mechanical ventilation, such as air conditioning systems, would be required to ensure that windows could remain closed for a prolonged period of time and maintain the interior noise level of 45 dBA L_{dn} (i.e., 66.1 dBA – 25 dBA = 41.1 dBA).

Implementation of the following mitigation measure would reduce project-related traffic noise impacts to a less-than-significant level:

[20]EPA 550/9-79-100, November 1978.

Table 9: Existing (2008) Traffic Noise Levels

Roadway Segment	ADT [a]	Center-line to 70 L_{dn} (feet)	Center-line to 65 L_{dn} (feet)	Center-line to 60 L_{dn} (feet)	L_{dn} (dBA) 50 feet from Centerline of Outermost Lane
Powell Street - I-80 EB Ramps to Christie Avenue	33,800	76	137	279	67.6
Powell Street - Christie Avenue to Hollis Street	19,800	< 50	93	195	66.6
Powell Street - Hollis Street to Doyle Street [c]	13,100	< 50	72	149	64.8
Powell Street - Doyle Street to Stanford Avenue	12,900	< 50	72	147	64.8
Hollis Street - 59th Street to Powell Street	9,100	< 50	< 50	93	63.1
Hollis Street - Powell Street to Stanford Avenue [c]	10,500	< 50	< 50	103	63.4
Hollis Street - Stanford Avenue to 53rd Street	10,600	< 50	< 50	104	63.4
Stanford Avenue - Hollis Street to Doyle Street [c]	1,600	< 50	< 50	< 50	55.6
Doyle Street - 59th Street to Powell Street	1,600	< 50	< 50	< 50	55.6
Doyle Street - Powell Street to Stanford Avenue [c]	900	< 50	< 50	< 50	53.1

[a] Average Daily Trips.
[b] Traffic noise within 50 feet of roadway centerline requires site specific analysis.
[c] Cells in grey indicate roadway segments adjacent to the project site.
Source: LSA Associates, Inc., April 2008.

Table 10: Existing Plus Project Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 L_{dn} (feet)	Center-line to 65 L_{dn} (feet)	Center-line to 60 L_{dn} (feet)	L_{dn} (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions
Powell Street - I-80 EB Ramps to Christie Avenue	34,000	77	137	281	67.7	0.1
Powell Street - Christie Avenue to Hollis Street	20,000	< 50	93	196	66.7	0.1
Powell Street - Hollis Street to Doyle Street	13,400	< 50	73	151	64.9	0.1
Powell Street - Doyle Street to Stanford Avenue	13,000	< 50	72	148	64.8	0.0
Hollis Street - 59th Street to Powell Street	9,100	< 50	< 50	93	63.1	0.0
Hollis Street - Powell Street to Stanford Avenue	10,200	< 50	< 50	101	63.3	0.0
Hollis Street - Stanford Avenue to 53rd Street	10,600	< 50	< 50	104	63.4	0.0
Stanford Avenue - Hollis Street to Doyle Street	1,600	< 50	< 50	< 50	55.6	0.0
Doyle Street - 59th Street to Powell Street	1,600	< 50	< 50	< 50	55.6	0.0
Doyle Street - Powell Street to Stanford Avenue	900	< 50	< 50	< 50	53.1	0.0

Cells in grey indicate roadway segments adjacent to the project site.
Source: LSA Associates, Inc., April 2008.

Table 11: Cumulative Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 L_{dn} (feet)	Center-line to 65 L_{dn} (feet)	Center-line to 60 L_{dn} (feet)	L_{dn} (dBA) 50 feet from Centerline of Outermost Lane
Powell Street - I-80 EB Ramps to Christie Avenue	48,000	89	168	351	69.2
Powell Street - Christie Avenue to Hollis Street	26,900	56	113	238	67.9
Powell Street - Hollis Street to Doyle Street	17,100	< 50	85	177	66.0
Powell Street - Doyle Street to Stanford Avenue	16,700	< 50	84	174	65.9
Hollis Street - 59th Street to Powell Street	13,100	< 50	56	119	64.7
Hollis Street - Powell Street to Stanford Avenue	15,000	< 50	61	130	64.9
Hollis Street - Stanford Avenue to 53rd Street	15,400	< 50	62	132	65.0
Stanford Avenue - Hollis Street to Doyle Street	2,100	< 50	< 50	< 50	56.8
Doyle Street - 59th Street to Powell Street	2,200	< 50	< 50	< 50	57.0
Doyle Street - Powell Street to Stanford Avenue	1,800	< 50	< 50	< 50	56.1

Cells in grey indicate roadway segments adjacent to the project site.
Source: LSA Associates, Inc., April 2008.

Table 12: Cumulative Plus Project Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 L_{dn} (feet)	Center-line to 65 L_{dn} (feet)	Center-line to 60 L_{dn} (feet)	L_{dn} (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Conditions
Powell Street - I-80 EB Ramps to Christie Avenue	48,200	89	169	352	69.2	0.0
Powell Street - Christie Avenue to Hollis Street	27,100	57	113	239	68.0	0.1
Powell Street - Hollis Street to Doyle Street	17,400	< 50	86	179	66.1	0.1
Powell Street - Doyle Street to Stanford Avenue	16,800	< 50	84	175	65.9	0.0
Hollis Street - 59th Street to Powell Street	13,100	< 50	56	119	64.7	0.0
Hollis Street - Powell Street to Stanford Avenue	15,000	< 50	61	130	64.9	0.0
Hollis Street - Stanford Avenue to 53rd Street	15,400	< 50	62	132	65.0	0.0
Stanford Avenue - Hollis Street to Doyle Street	2,100	< 50	< 50	< 50	56.8	0.0
Doyle Street - 59th Street to Powell Street	2,200	< 50	< 50	< 50	57.0	0.0
Doyle Street - Powell Street to Stanford Avenue	1,200	< 50	< 50	< 50	54.3	0.0

Cells in grey indicate roadway segments adjacent to the project site.
Source: LSA Associates, Inc., April 2008.

Mitigation Measure NOISE-2: Noise reduction in the form of sound-rated assemblies (i.e., windows, exterior doors, and walls) shall be incorporated into project building design. Final recommendations for sound-rated assemblies will depend on the specific building designs and layout of buildings on the site and shall be determined during the design phase. Mechanical ventilation, such as air conditioning systems, or noise-attenuated passive ventilation shall be included in the design for all residential and commercial units in the building to ensure that

widows can remain closed for prolonged periods of time to meet the interior noise standard of 45 dBA L_{dn} and Uniform Building Code Requirements.

Stationary Noise Impacts. Implementation of the proposed project would result in an increase in ambient noise levels in the vicinity of the project site with development of the commercial/retail component of the mixed-use project. However, this component of the project is not expected to require the use of large generators, large loading/unloading facilities, or other substantial noise generating sources. The noise generated by the commercial/retail component of the project, when averaged over a 24-hour period, would not result in a perceptible change in ambient noise levels. (Audible increases in noise levels generally refer to a change of 3.0 dBA or greater, since this level has been found to be barely perceptible in exterior environments). Therefore implementation of the commercial/retail component of the proposed mixed- use project would result in a less-than-significant impact.

b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels? ***(Potentially Significant Unless Mitigation Incorporated)***

No permanent noise sources that would expose persons to excessive ground borne vibration or noise levels would be located within the project site. Therefore, implementation of the proposed project would not permanently expose persons within or around the project site to excessive ground borne vibration or noise.

Construction activities associated with implementation of the proposed project could temporarily expose persons in the vicinity of the project site to excessive ground borne vibration or ground borne noise levels. Implementation of Mitigation Measure NOISE-1 would reduce this impact to a less-than-significant level.

Mitigation Measure NOISE-3: Implement Mitigation Measure NOISE-1.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? ***(Less-than-Significant Impact)***

The proposed long-term use of this project site is residential and retail. These land uses would not generate high ambient noise levels. The project would not generate enough traffic to create a perceptible change (at least 3 dBA) in traffic noise in the vicinity of the project site. No substantial long-term increase in ambient noise levels is expected as a result of project implementation.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? ***(Potentially Significant Unless Mitigation Incorporated)***

Project-related construction activities could result in high intermittent noise up to 91 dBA L_{max} at nearby residences. This noise would result from the temporary use of demolition and construction equipment. Implementation of Mitigation Measure NOISE-1 would reduce this impact to a less-than-significant level.

Mitigation Measure NOISE-4: Implement Mitigation Measure NOISE-1.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? ***(No Impact)***

The project site is located approximately 7.6 miles north of Oakland International Airport (the nearest airport) and 15 miles northeast of San Francisco International Airport. Due to the distance from these two airports and the orientation of the runways and flight patterns, the project site does not lie within the 55 dBA CNEL noise contours of any airport. Therefore, the impact of noise levels from aviation sources would be less than significant.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? ***(No Impact)***

The project site is not located in the vicinity of a private airstrip.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	❒	❒	■	❒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	❒	❒	❒	■
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	❒	❒	❒	■

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? ***(Less-than-Significant Impact)***

Implementation of the proposed project would directly induce population growth in Emeryville. Based on an average household size in Emeryville of 1.72 persons, the project would increase the local population by approximately 290 persons. This population growth would not be considered substantial in the context of the existing population in Emeryville. The population of Emeryville is expected to increase by 1,300 between 2005 and 2010, and the proposed project would comprise 22 percent of that population increase. Between 2005 and 2035, the population of Emeryville is expected to increase by 6,700, and the proposed project would compromise 4 percent of that growth. This growth is consistent with the growth projections in Emeryville and over the long-term, the proposed project would not be considered substantial population growth. In addition, the project site, which is adjacent to a major

transit line and is in close proximity to shopping and job centers in Emeryville and Oakland, is an appropriate place for increased population growth.

Based on an average employee generation rate of 1 employee per 500 square feet of retail space, the project would generate approximately 21 employees. In 2005, there were 3,240 retail jobs in Emeryville. Therefore, the new jobs that would result from the project represent less than 1 percent of the retail jobs in Emeryville. This growth in employment would not be considered substantial.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? ***(No Impact)***

The project site does not currently contain any residential units. Therefore, the project would not displace housing. The project would increase the housing supply in Emeryville 169 residential units and 5 live/work units.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? ***(No Impact)***

The project site does not contain a residential population. Therefore, implementation of the project would not displace people.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. PUBLIC SERVICES.				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	❒	❒	■	❒
Fire protection?	❒	❒	■	❒
Police protection?	❒	❒	■	❒
Schools?	❒	❒	■	❒
Parks?	❒	❒	■	❒
Other public facilities?	❒	❒	■	❒

a) *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: Fire protection, police protection, schools, parks, other public facilities?* ***(Less-than-Significant Impact)***

The following section includes a discussion of the project's potential effects on: fire service; police service; schools; and parks and other public facilities. Impacts to public services would occur if the project were to cause an increase in demand for services such that new or expanded facilities would be required, and these new facilities would themselves cause environmental impacts.

Fire. The Emeryville Fire Department would be the primary responder to emergency calls for fire and ambulance service on the project site. The proposed project would increase the local residential population and add new retail space to the site, which would incrementally increase demand for emergency service. However, increased demand would not require the construction of new fire fighting facilities.[21]

Police. The Emeryville Police Department would be the primary responder to emergency calls within the project site. The City of Emeryville Police Department currently responds to non-emergency calls within 6 minutes; average response to emergency calls is 2 minutes. Implementation of the project would incrementally increase demand for police services, particularly to respond to incidents of theft. According to the Police Department, the proposed project, in combination with other planned projects in the area, could result in the need for one Police Service Technician (to enforce traffic rules) and a general Police Officer.[22] However, the addition of these personnel would not require the alteration of existing police facilities. Therefore, the project would not result in an adverse environmental impact related to demand for police services.

Schools. Based on City of Emeryville student generation data, the average residential unit in Emeryville generates 0.107 students. Therefore, the proposed project would be expected to generate approximately 18 students spanning grades Kindergarten through Grade 12. Students living in the proposed project would attend schools in the Emery Unified School District. The district has total enrollment of 802 students.[23] The 18 students generated by the proposed project represent less than one percent of the total enrollment of the school district. It is expected that the district would be able to handle these additional 18 students. Therefore, the project would not result in an adverse effect on school facilities.

Parks. Parks in the vicinity of the project site include Stanford Avenue Park, located at the corner of Stanford Avenue and Doyle Street, and the 61st Street Minipark, located at 61st Street and Doyle

[21] Warren, George, 2007. Deputy Fire Marshall, Emeryville Fire Department. Personal communication with LSA Associates, Inc. May.

[22] Wong, Jeannie, 2007. Commander, Emeryville Police Department. Personal communication with LSA Associates, Inc. May 21.

[23] California Department of Education, 2008. Dataquest. Website: dq.cde.ca.gov/dataquest/ March.

Street. Occupants of the proposed project would most likely use these parks, along with the park space that would be created on the southern portion of the project site. In addition, occupants of the project site would also likely use portions of the San Francisco Bay Trail and Eastshore State Park, which extends from Oakland to Richmond, and regional parks in Oakland and Berkeley.

Implementation of the project would incrementally increase the use of these parks. However, this increase in use is not expected to adversely affect the physical conditions of local and regional open space areas, or require the provision of new park facilities. Use of public neighborhood and regional parks by occupants of the project would likely be reduced due to the provision of the park area, courtyards, and private balconies within the project site. Therefore, the project would not result in adverse impacts to parks.

Other Public Facilities. Implementation of the project would incrementally increase demand for other public services, including libraries, community centers, and public health care facilities. The increased residential population that would result from the project is not expected to result in substantially increased usage of these facilities, such that new facilities would be needed to maintain service standards.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	❒	❒	■	❒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	❒	❒	■	❒

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? ***(Less-than-Significant Impact)***

As discussed in Section XIII, residents of the project site would be expected to use local parks and community facilities in Emeryville, in addition to regional recreational facilities such as the San Francisco Bay Trail, regional parks in the Berkeley/Oakland hills, and Eastshore State Park. Although the project would incrementally increase use of these facilities, this increase in use is not expected to result in substantial physical deterioration of local parks, trails, and community centers. Use of local and regional parks would be distributed over several locations on any given day. In addition, use of public facilities by occupants of the project would be marginally reduced due to the provision of private open space on the project site, including the park and two courtyards. Therefore, the proposed project would have less-than-significant impacts on existing neighborhood or regional parks.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? ***(Less-than-Significant Impact)***

The proposed project would include the construction of a park area, two interior courtyards, private balconies, and a pool area. The park would be located on the southern portion of the site, along Stanford Avenue. The park would include a hardscaped plaza on the west corner of the site and a lawn with landscape mounding, pedestrian sidewalk, a shade structure with tables and benches, public seating, and two bocce courts on the remainder of the area. The proposed project includes two second floor courtyards that would provide 21,458 square feet of open space, along with balconies attached to most units. The area in between the two buildings would contain the fitness center, pool, spa, and a pathway to the park. The open space, particularly the park area, would help to decrease stormwater runoff generated by the site as it would add pervious surface cover to a site that is currently nearly 100 percent impervious. As such, the open areas and recreational space associated with the proposed project would not create additional stormwater runoff would have a less-than-significant environmental impacts.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. TRANSPORTATION/TRAFFIC. Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	❒	❒	■	❒
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency or designated roads or highways?	❒	■	❒	❒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	❒	❒	❒	■
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	❒	❒	■	❒
e) Result in inadequate emergency access?	❒	❒	■	❒
f) Result in inadequate parking capacity?	❒	❒	■	❒

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Conflict with adopted polices, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	❒	❒	■	❒

a) *Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?* ***(Less-than-Significant Impact)***

The project site is located at the intersection of Powell and Hollis streets in Emeryville and is a mixed-use building located in an M-U zoning district. The project land use program is summarized in Table 13.

Table 13: Project Land Use Summary

Land Use	Unit	Amount
Apartments	DU	169
Studio		*18*
1-bedroom		*114*
2-bedroom		*32*
3-bedroom		*5*
Flexible Space Units	DU	3
Live/Work Units	DU	5
Commercial Retail	SF	10,516

Source: Kava Massih Architects, 2008.
DU = Dwelling Unit
SF = Square Feet

Project parking would be provided on site, with access via two proposed driveways located on Powell Street between Hollis Street and Doyle Street and Doyle Street between Stanford Avenue and Powell Street.

Existing Roadway Network. The regional and local roadway network around the project site is discussed below.

Regional Access. A brief description of the regional roadway network serving the project site is provided below:

- ***Interstate 80 (I-80)*** is a regional freeway extending west to San Francisco via the San Francisco-Oakland Bay Bridge, and east through Berkeley, Sacramento and into Nevada. Four to five lanes are generally provided in each direction on this freeway west of the project site. Access to and from I-80 from the project site is provided by on- and off-ramps at Powell Street, with average daily traffic just south of the Powell Street ramps reaching 294,000 vehicles per day.[24]

[24] Caltrans Traffic Volumes on the State Highway System, 2006.

- ***Interstate 580 (I-580)*** is a regional freeway located west of the project site, stretching from U.S. 101 in Marin County to Interstate 5 (I-5) south of Tracy. I-580 joins I-80 just south of the project site, splitting off further north near Richmond. Access to and from I-80 / I-580 is provided at the Powell Street ramps. Average daily traffic just south of the Powell Street ramps is 294,000 vehicles per day.[1]
- ***Interstate 880 (I-880)*** is a regional freeway extending between San Jose to the south and I-80 in Oakland to the north. Four lanes are generally provided in each direction on this freeway near Emeryville. Access to I-880 from the project site is provided via I-80. Average daily traffic on I-880 just south of the I-80 junction is 127,000 vehicles per day.[1]
- ***State Route 24 (SR-24)*** is a regional freeway extending between Walnut Creek to the east and downtown Oakland to the west. SR-24 becomes I-980 at the I-580 interchange. Three lanes are generally provided in each direction on this freeway near the project site. Primary access from the project site to SR-24 is provided by I-580. Average daily traffic on SR-24 just east of the I-580 / I-980 interchange is 135,000 vehicles per day.[1]
- ***Interstate 980 (I-980)*** is a 2.5-mile stretch of freeway extending from I-880 to I-580. Three to four lanes are generally provided in each direction on this freeway, with auxiliary lanes available at some locations. I-980 becomes SR-24 at the I-580 interchange. Average daily traffic on I-980 south of the I-580 junction is 97,000 vehicles per day.[1]
- ***State Route 13 (SR-13)*** is a regional freeway extending from I-580 in East Oakland to I-80 / I-580 in Berkeley. It consists of three contiguous segments: the Warren Freeway from I-580 to SR-24 in Oakland; Tunnel Road, a narrow two-lane road from SR-24 to Claremont Avenue in Berkeley; and Ashby Avenue, a main east-west arterial from Claremont Avenue to I-80 / I-580. Average daily traffic on SR-13 just east of I-80 is 26,000 vehicles per day.[1]

Local Access. A brief description of the local and arterial streets serving the project site is given below:

- ***Ashby Avenue*** is an undivided east-west arterial that runs from Claremont Avenue to I-80 / I-580. Ashby Avenue operates as a two-way, four-lane roadway with left turn pockets at key intersections. It provides a key linkage from I-80 / I-580 to South Berkeley and Emeryville and is designated as SR-13. East of Claremont Avenue, Ashby Avenue becomes Tunnel Road, which continues as SR-13 and offers connections to SR-24 and I-580 in East Oakland.
- ***40th Street*** is a four-lane, east-west arterial stretching from Hubbard Street eastward to Piedmont Avenue, providing access to North Oakland and South Berkeley. At Hubbard Street, 40th Street becomes Shellmound Street, offering access to I-80 and I-580 at Powell Street. A landscaped median separates traffic on most of 40th Street in the vicinity of the project, with left turn pockets provided at most intersections.
- ***Powell Street*** is an east-west arterial that runs from Marshall Street west past I-80 / I-580 to the Emeryville Marina. At Marshall Street, Powell Street joins Stanford Avenue, providing access to South Berkeley. Powell Street is a two-way, four-lane roadway, with left turn pockets at key intersections and landscaped medians east of the project site. Powell Street provides the main freeway access to Emeryville and South Berkeley and serves major commercial uses along I-80 / I-580 in Emeryville, such as Powell Street Plaza and Bay Street.
- ***San Pablo Avenue*** is a major north-south arterial located directly east of the project site, stretching from downtown Oakland north to the City of San Pablo. It is designated as State Route 123 (SR-

123) and is part of AC Transit's Rapid Bus network. Traffic signals along the roadway provide priority to AC Transit buses. In the vicinity of the project site, San Pablo Avenue operates with two lanes in each direction, with left turn pockets provided at key intersections.

- ***Hollis Street*** is a north-south collector running from Peralta Street in the south to Folger Street the north, near Ashby Avenue. Hollis Street operates as a two-way, two-lane roadway with separate left and right turn pockets at key intersections.
- ***Frontage Road*** is a north-south roadway that runs parallel to I-80 / I-580 from Gilman Street in the north to Powell Street in the south. Frontage Road generally operates as a two-way, two-lane roadway, offering access to the I-80 Westbound (WB) ramps at Gilman Street, University Avenue, Ashby Avenue, and Powell Street.

Study Intersections. Intersection level of service conditions were analyzed at eleven key intersections in the vicinity of the project site for the AM and PM peak hours (7:00-9:00 AM and 4:00-6:00 PM). These eleven intersections, shown in Figure 11**,** were selected, in coordination with the City of Emeryville, because they are inclusive of all locations which could be significantly affected by project traffic. The eleven study intersections are listed below:

1. Hollis Street / Powell Street (*signalized*);
2. Doyle Street / Powell Street (*unsignalized*);
3. Hollis Street / Stanford Avenue (*signalized*);
4. Doyle Street / Stanford Avenue (*unsignalized*);
5. San Pablo Avenue / Stanford Avenue (*signalized*);
6. Hollis Street / 40th Street (*signalized*);
7. Seventh Street / Ashby Avenue (*signalized*);
8. Christie Avenue / Powell Street (*signalized*);
9. I-80 EB Ramps / Powell Street (*signalized*);
10. Frontage Road / Powell Street (*signalized*); and
11. Frontage Road / I-80 WB Ramps (*signalized*).

Roadway Segments. An Alameda County Congestion Management Agency (ACCMA) roadway segment analysis is required for projects that would generate more than 100 trips during the AM or PM peak hours. Based on preliminary trip generation estimates, the proposed project is expected to generate more than 100 trips in both the AM and PM peak hours. Therefore, an ACCMA analysis is included. However, existing uses at the project site generate a similar, though slightly lesser, number of trips and therefore the net trip generation created by the project is less than 100. Refer to the section on project trip generation that follows for additional explanation. The following roadway segments in the vicinity of the proposed project are designated as part of the Congestion Management Program (CMP) and Metropolitan Transportation System (MTS) roadway networks and were selected for analysis:

1. I-80, from University Avenue to Powell Street;
2. I-80, from Powell Street to I-580 Junction;
3. Powell Street, from I-80 to Hollis Street;
4. Powell Street, from Hollis Street to San Pablo Avenue;
5. Ashby Avenue, from I-80 to San Pablo Avenue;
6. San Pablo Avenue, from Ashby Avenue to Powell Street; and
7. San Pablo Avenue, from Powell Street to 40th Street.

LSA

FIGURE 11

NOT TO SCALE

Study Intersection

BART

Papermill Building Mixed-Use Project IS/MND

Project Location and Study Intersections

SOURCE: DMJM HARRIS/AECOM, 2008

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Existing Conditions Traffic Volumes. Weekday traffic counts for the AM and PM peak hours were collected between Tuesday, December 4, 2007 and Thursday, December 6, 2007. Figure 12 shows the existing lane geometry and signal control for the eleven study intersections. Figure 13 shows existing traffic volumes during the AM and PM peak hours.

Level of Service Methodology. The operation of a local roadway network is commonly evaluated using the Level of Service (LOS) methodology. This methodology qualitatively characterizes traffic conditions associated with varying levels of vehicular traffic, ranging from LOS A (indicating free-flow traffic conditions with little or no delay experienced by motorists) to LOS F (indicating congested conditions where traffic flows exceed design capacity and result in long queues and delays). This LOS methodology applies to both signalized and unsignalized intersections. LOS A, B, and C are generally considered satisfactory service levels, while the influence of congestion becomes more noticeable (though still considered acceptable) at LOS D. LOS E and F are generally considered unacceptable.

Signalized Intersections. At signalized study intersections, traffic conditions were evaluated using the 2000 *Highway Capacity Manual* (HCM) operations methodology. The operation analysis uses various intersection characteristics (e.g., traffic volumes, lane geometry, and signal phasing/timing) to estimate the average control delay experienced by motorists at an intersection. Table 14 summarizes the relationship between delay and LOS for signalized and unsignalized intersections.

Unsignalized Intersections. At unsignalized (one-way, two-way, and all-way stop-controlled) study intersections, traffic conditions were also evaluated using the HCM operations methodology. With this methodology, the LOS is related to the total delay per vehicle for the intersection as a whole (for all-way stop-controlled intersections) or for each stop-controlled movement or approach only (for one- and two-way stop-controlled intersections). Total delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs the queue. This time includes the time required for a vehicle to travel from the last-in-queue position to the first-in-queue position.

Roadway Segments. The CMA analysis addresses project impacts to roadway facilities on the CMP network. The 2000 HCM provides a roadway LOS methodology, similar to intersection LOS, based on the volume-to-capacity (v/c) ratio of the roadway. This methodology is summarized in Table 15. LOS E or better is generally considered acceptable and LOS F is considered unacceptable.

Existing Conditions Intersection Level of Service. The eleven study intersections were analyzed using Trafficware's Synchro 7 software package based on the methodologies outlined in the 2000 HCM. The existing AM and PM peak hour intersection LOS for the eleven study intersections are shown in Table 16. The LOS calculation sheets for all study intersections and for all scenarios are provided in Appendix A.

As shown in Table 16, all of the study intersections currently operate at acceptable levels of service during the AM and PM peak hours, except for the intersection of Christie Avenue / Powell Street, which operates at LOS E in the PM peak hour.

Existing Conditions Roadway Segment Level of Service. The existing AM and PM peak hour roadway segment LOS for the selected study roadway segments are shown in Table 17.

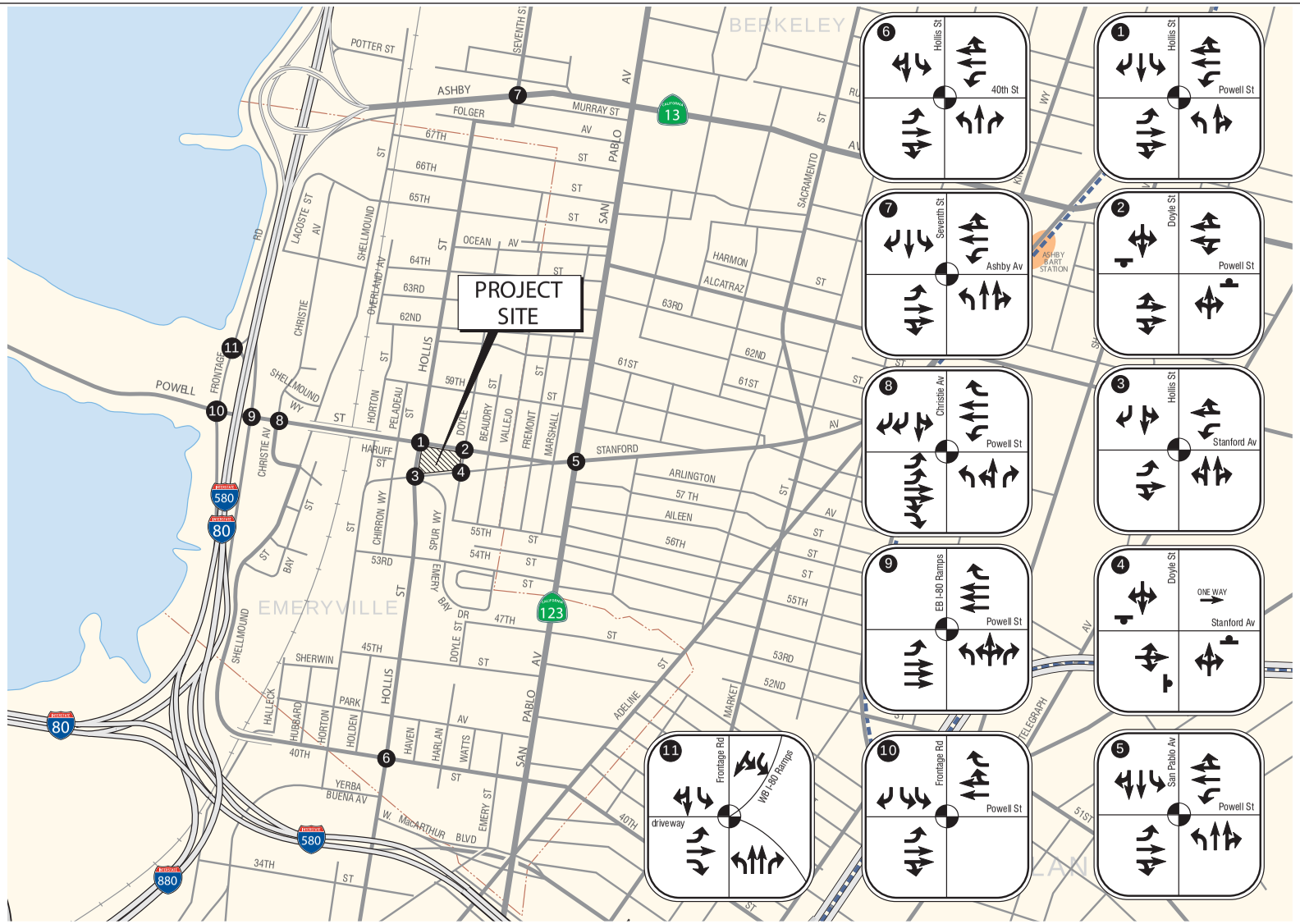

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FIGURE 12

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Papermill Building Mixed-Use Project IS/MND

Existing Lane Geometry and Control

SOURCE: DMJM HARRIS/AECOM, 2008

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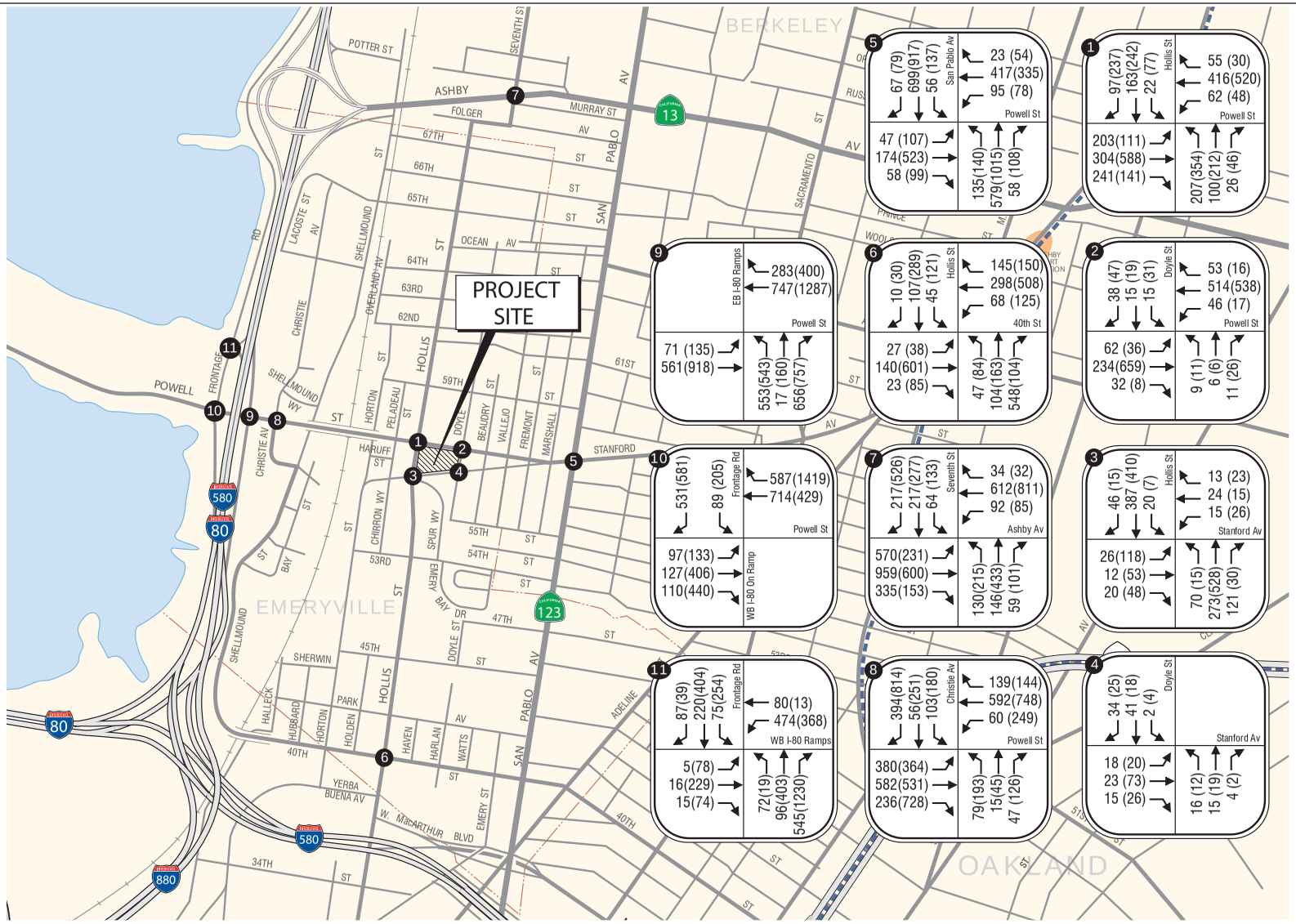

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FIGURE 13

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Papermill Building Mixed-Use Project IS/MND

Existing Traffic Volumes

AM(PM) Peak Hour

SOURCE: DMJM HARRIS/AECOM, 2008

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Table 14: Intersection Level of Service Definitions

Level of Service	Description of Traffic Conditions	Average Delay per Vehicle (seconds)
Signalized Intersections		
A	Insignificant Delays: No approach phase is fully utilized and no vehicle waits longer than one red indication.	≤10.0
B	Minimal Delays: An occasional approach phase is fully utilized. Drivers begin to feel restricted.	>10.0 and ≤20.0
C	Acceptable Delays: Major approach phase may become fully utilized. Most drivers feel somewhat restricted.	>20.0 and ≤35.0
D	Tolerable Delays: Drivers may wait through more than one red indication. Queues may develop but dissipate rapidly, without excessive delays.	>35.0 and ≤55.0
E	Significant Delays: Volumes approaching capacity. Vehicles may wait through several signal cycles and long vehicle queues form upstream.	>55.0 and ≤80.0
F	Excessive Delays: Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	>80.0
Unsignalized Intersections		
A	No delay for stop-controlled approaches.	≤10.0
B	Operations with minor delay.	>10.0 and ≤15.0
C	Operations with moderate delays.	>15.0 and ≤25.0
D	Operations with some delays.	>25.0 and ≤35.0
E	Operations with high delays, and long queues.	>35.0 and ≤50.0
F	Operation with extreme congestion, with very high delays and long queues unacceptable to most drivers.	>50.0

Source: Highway Capacity Manual, Transportation Research Board, 2000.

Table 15: Roadway Level of Service Definitions

Level of Service	Description of Traffic Conditions	v/c Ratio
A	Vehicles travel at free-flow speeds and can maneuver almost freely within the traffic stream.	≤ 0.30
B	Vehicles travel at free-flow speeds and movement within the traffic stream is only slightly restricted	> 0.30 and ≤ 0.50
C	Vehicles travel at or near free-flow speed and movement is somewhat restricted. Incidents can cause local queuing.	> 0.50 and ≤ 0.71
D	Vehicle speed declines as density increases, and maneuverability within the traffic stream is noticeably limited	> 0.71 and ≤ 0.89
E	Roadway is operating at or near capacity, with vehicles closely spaced. Any incident can cause backups that propagate upstream.	> 0.89 and ≤ 1.00
F	Roadway operates beyond capacity, with significant queuing at bottlenecks such as key intersections or lane drops. Vehicles are closely spaced and maneuverability is extremely restricted.	> 1.00

Source: Highway Capacity Manual, Transportation Research Board, 2000.

Table 16: Existing Conditions Intersection Levels of Service

No.	Intersection	Traffic Control	Peak Hour	Existing Conditions	
				LOS	Delay
1	Hollis Street / Powell Street	Signal	AM	D	39.1
			PM	D	50.5
2	Doyle Street / Powell Street[a]	Two-Way Stop	AM	C	19.7
			PM	C	24.2
3	Hollis Street / Stanford Avenue	Signal	AM	A	4.6
			PM	A	7.1
4	Doyle Street / Stanford Avenue	All-Way Stop	AM	A	7.3
			PM	A	7.6
5	San Pablo Avenue / Stanford Avenue	Signal	AM	C	28.9
			PM	D	36.9
6	Hollis Street / 40th Street	Signal	AM	C	24.6
			PM	C	31.1
7	Seventh Street / Ashby Avenue	Signal	AM	D	46.5
			PM	D	50.9
8	Christie Avenue / Powell Street	Signal	AM	C	24.1
			PM	**E**	**57.9**
9	I-80 EB Ramps / Powell Street	Signal	AM	C	25.6
			PM	D	46.7
10	Frontage Road / Powell Street	Signal	AM	B	19.5
			PM	B	15.7
11	Frontage Road / I-80 WB Ramps	Signal	AM	B	15.2
			PM	C	23.8

Source: DMJM Harris, 2008.
Bold indicates intersections operating at unacceptable conditions.
[a] Analyzed for worst-approach.

Table 17: Existing Conditions Roadway Segment Levels of Service

No.	Intersection	Direction	Existing Conditions			
			AM Peak Hour		PM Peak Hour	
			LOS	v/c	LOS	v/c
1	**I-80** from University Avenue to Powell Street	EB	C	0.54	E	0.94
		WB	**F**	**1.17**	D	0.77
2	**I-80** from Powell Street to I-580 Junction	EB	E	0.94	D	0.84
		WB	D	0.77	C	0.57
3	**Powell Street** from I-80 to Hollis Street	EB	B	0.41	B	0.47
		WB	C	0.70	C	0.63
4	**Powell Street** from Hollis Street to San Pablo Avenue	EB	A	0.20	B	0.42
		WB	B	0.37	B	0.35
5	**Ashby Avenue** from I-80 to San Pablo Avenue	EB	C	0.60	B	0.46
		WB	B	0.41	C	0.52
6	**San Pablo Avenue** from Ashby Avenue to Powell Street	NB	B	0.36	C	0.65
		SB	B	0.39	C	0.51
7	**San Pablo Avenue** from Powell Street to 40th Street	NB	B	0.43	C	0.70
		SB	B	0.47	C	0.61

Source: DMJM Harris, 2008.
Bold indicates segments operating at unacceptable conditions.

All study roadway segments currently operate at acceptable conditions, with the exception of WB I-80 between University Avenue and Powell Street in the AM peak hour, which operates at LOS F.

Project Trip Generation. Trip generation estimates are based on rates from the *Trip Generation, 7th Edition*, the industry standard for land-use based trip generation. Rates presented are average rates based on trip generation survey counts conducted at existing facilities. For the purposes of this analysis, the flexible space and live/work units have been analyzed as full units—i.e., no reductions have been taken and, therefore, any calculations presented here will represent a "worse-case" scenario. In reality, a live/work unit is expected to generate less vehicle trips than a typical unit because work trips have been eliminated.

Reductions were taken to account for the mixed-use nature of the project, since the proximity of the residential and retail uses facilitates some internal trip capture, as opposed to stand-alone residential and retail uses. Additional reductions were taken to account for trips generated by existing uses at the project site which would be removed with project construction.

It should be noted that the Trip Generation Manual typically provides both a weighted average rate and a regression equation with which to calculate the trips generated by each land use. Generally, in cases where the sample size for a particular land use is 20 or greater and where the coefficient of determination is greater than or equal to 0.75, the regression equation is used to determine that land use's trip generation.[25] In cases where the sample size is less than 20 sites and where the coefficient of determination is less than 0.75, the weighted average is used to determine the trip generation.

The trip generation rates and equations used for the analysis of the proposed project are presented in Table 18. The project trip generation calculations are presented in Table 19.

Table 18: Trip Generation Rates and Equations

ITE Land Use Code	Daily	AM Peak Hour	PM Peak Hour
Apartment (220)	T = 6.01(X) + 150.35	T = 0.49(X) +3.73	T = 0.55(X) +17.65
Retail[a] (814 / 820)	T = 42.94(X)	ln(T) = 0.60 ln(X) + 2.29	T = 2.71(X)
General Light Industrial[b] (110)	T = 6.97(X)	T = 0.92(X)	T = 0.92(X)
Warehousing[b] (150)	T = 4.96(X)	T = 0.45(X)	T = 0.47(X)
General Office[b] (710)	T = 11.01(X)	T = 1.55(X)	T = 1.49(X)
Research and Development Center[b] (760)	T = 8.11(X)	T = 1.24(X)	T = 1.08(X)

Source: ITE, *Trip Generation Manual, 7th Edition*, 2003.
T = Number of trips
X = Units of land use; for Land Use 220 this corresponds to dwelling units (DU); for Land Use 150, 814, and 820 this corresponds to KSF (1,000 square feet) gross floor area
[a] For daily and AM peak hour, Shopping Center Land Use 820 (1,000 Square Feet) rates and equations used. For PM peak hour, Specialty Retail Land Use 814 (1,000 Square Feet) rates and equations used.
[b] For existing uses to be removed only. General Light Industrial Land Use 110 (1,000 Square Feet); Warehousing Land Use 150 (1,000 Square Feet); General Office Land Use 710 (1,000 Square Feet); Research and Development Center Land Use 760 (1,000 Square Feet).

As noted by Table 19, the proposed project is expected to generate approximately 720 daily trips, with 12 trips during the AM peak hour, and 32 trips during the PM peak hour. Based on similar traffic studies approved by the City of Emeryville, it is conservatively estimated that approximately 5 percent of project trips would likely be on transit. Information compiled for this area from the U.S. Census suggests a higher level of transit usage for residents. Assuming this mode share, the proposed project would generate approximately 7 transit trips in the AM peak hour and 8 transit trips in the PM peak hour.

[25] The coefficient of determination (R^2) is an estimate of the accuracy of the fit of the regression equation.

Table 19: Project Trip Generation

Land Use	Size	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Apartment (220)	177	DU	1,214	18	72	90	75	40	115
Retail (814 / 820)	10.516	KSF	452	19	21	40	16	13	29
Transit Reduction (5%)			-15	-2	-5	-7	-5	-3	-8
Mixed Use Reduction (Apartments)	177	DU	-67	-2	-2	-4	-1	-1	-2
Mixed Use Reduction (Retail)	10.516	KSF	-57	-2	-2	-4	-1	-1	-2
Existing To Be Removed (General Light Industrial)	22.112	KSF	-154	-18	-2	-20	-2	-18	-20
Existing To Be Removed (Warehousing)	44.225	KSF	-219	-16	-4	-20	-5	-16	-21
Existing To Be Removed (General Office)	22.708	KSF	-250	-31	-4	-35	-6	-28	-34
Existing To Be Removed (Research and Development Center)	22.708	KSF	-184	-23	-5	-28	-4	-21	-25
Total			**720**	**-58**	**68**	**12**	**66**	**-36**	**32**

Source: DMJM Harris, 2008.

Project Trip Distribution and Assignment. The project's trip distribution pattern was developed using information from the ACCMA travel demand model. The project trip distribution pattern is illustrated in Figure 14 and summarized below:

- 21 percent to/from I-580 East / I-880 South;
- 20 percent to/from I-80 East;
- 17 percent to/from I-80 West;
- 10 percent to/from Adeline Street (north of project site);
- 9 percent to/from San Pablo Avenue (south of project site);
- 9 percent to/from San Pablo Avenue (north of project site);
- 8 percent to/from Alcatraz Avenue (east of project site); and
- 6 percent to/from Powell Street (west of project site).

A copy of the travel demand model plot used to determine this pattern is included in Appendix A. The project-generated AM and PM peak hour turning movement volumes are shown in Figure 15.

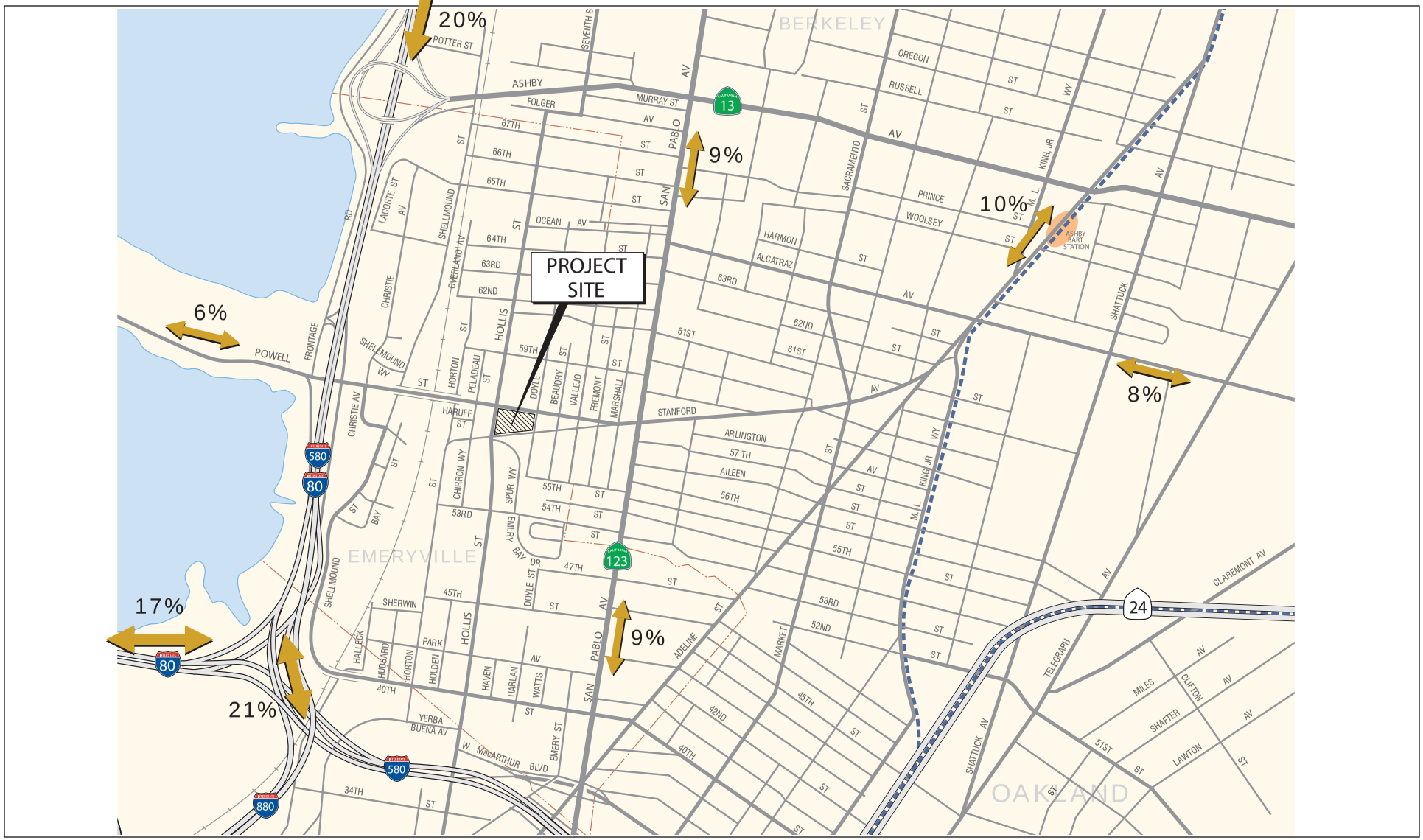

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FIGURE 14

Papermill Building Mixed-Use Project IS/MND

Project Trip Distribution

NOT TO SCALE

SOURCE: DMJM HARRIS/AECOM, 2008

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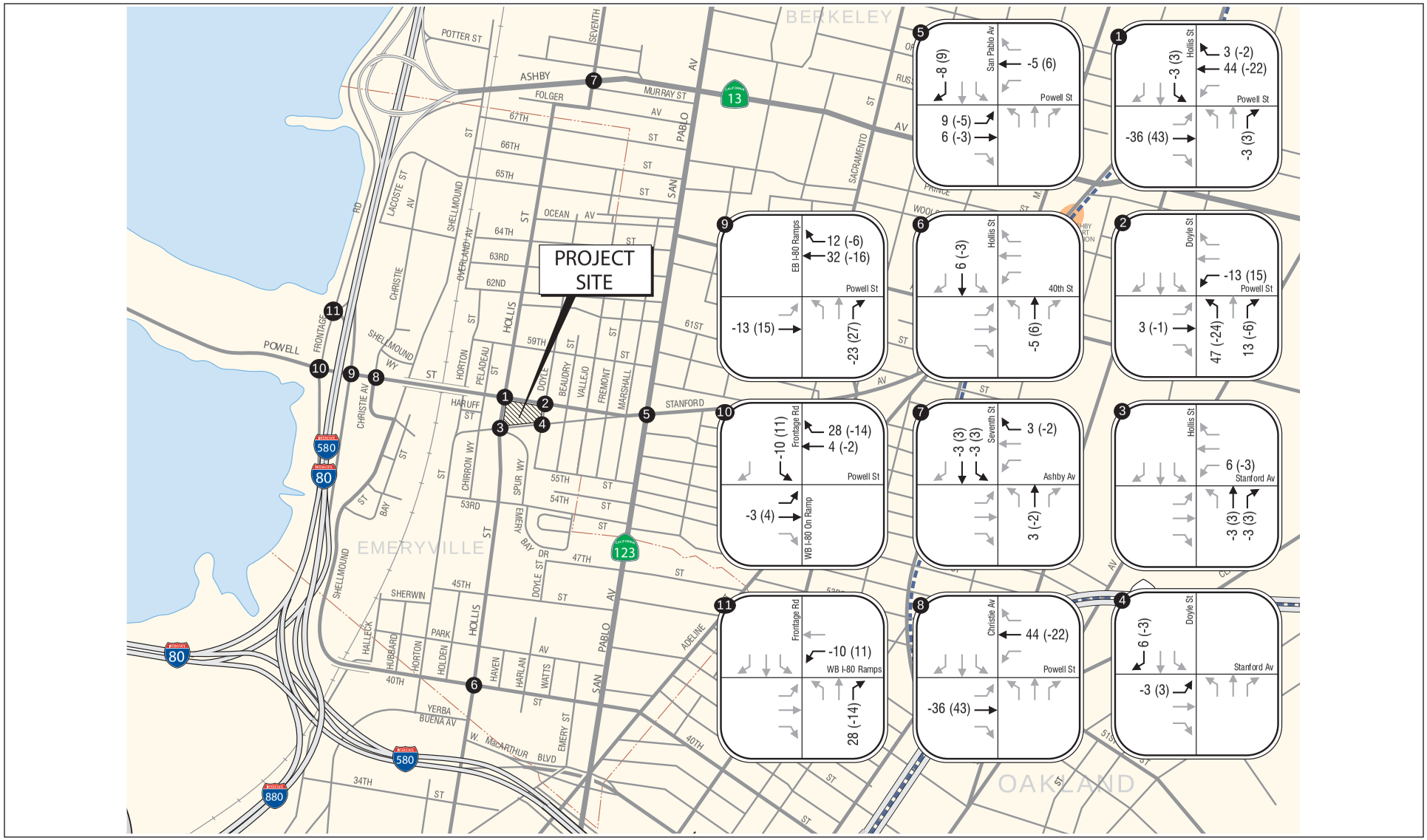

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FIGURE 15

NOT TO SCALE

Papermill Building Mixed-Use Project IS/MND

Project Traffic Volumes

AM(PM) Peak Hour

SOURCE: DMJM HARRIS/AECOM, 2008

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Significance Criteria. For the purposes of this analysis, thresholds of significance from the City of Emeryville were used to determine if the project would result in a significant impact.

The City of Emeryville defines the acceptable level of service for intersections as LOS D. A significant project impact would result if any of the following conditions occur:

- The addition of project traffic degrades an intersection currently operating at LOS D or better to LOS E or LOS F;
- The addition of project traffic degrades an intersection currently operating at LOS E to LOS F;
- The addition of project traffic causes the average vehicle delay to increase by more than four (4) seconds at an intersection operating at LOS E or LOS F;
- The project would cause a roadway segment on the Metropolitan Transportation System to operate at LOS F or would increase the V/C ratio by more than five (5) percent for a roadway segment that would operate at LOS F without the project;
- The project would cause a substantial increase in hazards due to a design feature or incompatible land uses;
- Inadequate emergency access;
- Inadequate parking capacity;
- If construction traffic from the project, though temporary, would substantially affect traffic flow and circulation, parking, and pedestrian safety;
- The project would cause a fundamental conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle routes); or,
- The project would generate added transit ridership that would increase the average ridership on AC Transit lines by five (5) percent at bus stops where the average load factor with the project in place would exceed 125 percent over a peak thirty minute period; increase the peak hour average ridership on BART by five (5) percent where the passenger volume would exceed the standing capacity of BART trains; or increase the peak hour average ridership at a BART station by five (5) percent where average waiting time at fare gates would exceed 1 minute.

Existing plus Project Conditions Traffic Volumes. Project-generated traffic was added to the Existing Conditions traffic volumes to derive Existing plus Project Conditions traffic volumes. The resulting AM and PM peak hour turning movement volumes are shown in Figure 16.

Existing plus Project Conditions Intersection Level of Service. The resulting AM and PM peak hour intersection LOS for the eleven study intersections are shown in Table 20. As shown in the table, the project is expected to slightly increase delays at most intersections. For some intersections such as Hollis Street / Powell Street (AM), I-80 EB Ramps / Powell Street (PM), and Frontage Road / I-80 WB Ramps (PM), average delay is expected to decrease slightly because the project is adding vehicles to better-performing movements and improving the intersection average delay.

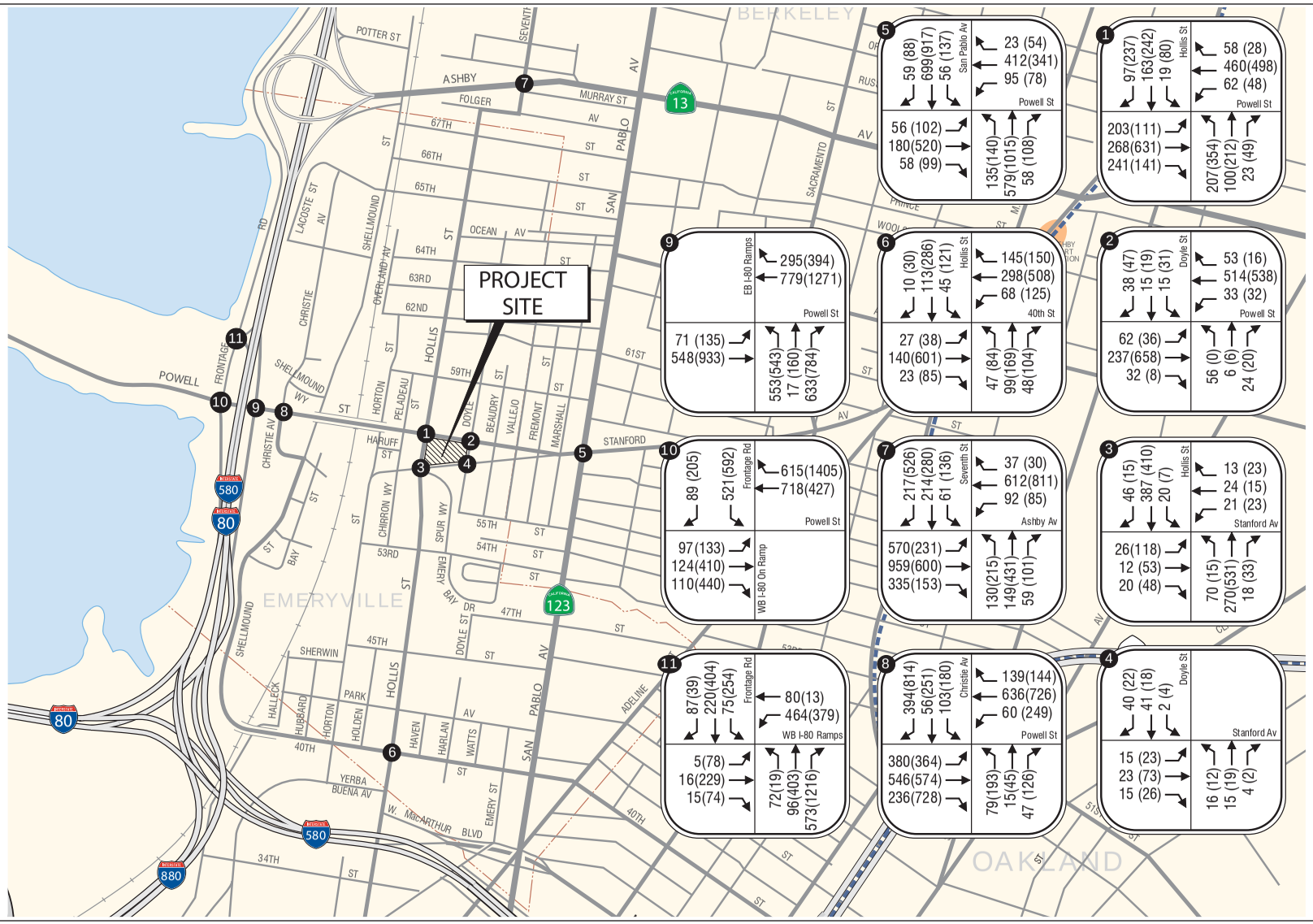

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FIGURE 16

NOT TO SCALE

Papermill Building Mixed-Use Project IS/MND

Existing Plus Project Traffic Volumes

AM(PM) Peak Hour

SOURCE: DMJM HARRIS/AECOM, 2008

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Table 20: Existing plus Project Conditions Levels of Service

No.	Intersection	Traffic Control	Peak Hour	Existing Conditions		Existing plus Project Conditions	
				LOS	Delay	LOS	Delay
1	Hollis Street / Powell Street	Signal	AM	D	39.1	D	40.2
			PM	D	50.5	D	50.2
2	Doyle Street / Powell Street[a]	Two-Way Stop	AM	C	19.7	D	24.8
			PM	C	24.2	D	26.7
3	Hollis Street / Stanford Avenue	Signal	AM	A	4.6	A	4.6
			PM	A	7.1	A	7.1
4	Doyle Street / Stanford Avenue	All-Way Stop	AM	A	7.3	A	7.3
			PM	A	7.6	A	7.7
5	San Pablo Avenue / Stanford Avenue	Signal	AM	C	28.9	C	29.1
			PM	D	36.9	D	37.3
6	Hollis Street / 40th Street	Signal	AM	C	24.6	C	24.7
			PM	C	31.1	C	31.1
7	Seventh Street / Ashby Avenue	Signal	AM	D	46.5	D	46.5
			PM	D	50.9	D	51.1
8	Christie Avenue / Powell Street	Signal	AM	C	24.1	C	26.6
			PM	**E**	**57.9**	**E**	**58.1**
9	I-80 EB Ramps / Powell Street	Signal	AM	C	25.6	C	24.9
			PM	D	46.7	D	50.1
10	Frontage Road / Powell Street	Signal	AM	B	19.5	B	19.5
			PM	B	15.7	B	18.4
11	Frontage Road / I-80 WB Ramps	Signal	AM	B	15.2	B	14.9
			PM	C	23.8	C	23.9

Source: DMJM Harris, 2008.
[a] Analyzed for worst-approach.
Bold indicates intersections operating at unacceptable conditions.
Average delay is expected to decrease for some intersections because project is expected to remove trips from high-delayed movements and add trips to low-delayed movements.

The intersection of Christie Street / Powell Street operates at LOS E in the PM peak hour under both Existing Conditions and Existing plus Project Conditions. The increase in average delay as a result of project traffic is below the four-second threshold of significance in the PM peak hour. Therefore, the project would not cause a significant impact at this intersection and no mitigation measures are required.

Peak hour traffic signal warrants were evaluated at the intersections of Doyle Street / Powell Street and Doyle Street / Stanford Avenue. However, neither intersection was found to warrant signalization under either Existing Conditions or Existing plus Project Conditions.

Existing plus Project Conditions Roadway Segment Level of Service. The Existing plus Project AM and PM peak hour roadway segment LOS for the study roadway segments are summarized in Table 21. As shown in the table, most study roadway segments are expected to operate at acceptable conditions, even with the addition of project traffic. I-80 from University Avenue to Powell Street (WB AM) is expected to operate at unacceptable conditions under Existing plus Project Conditions. However, he increase in v/c ratio as a result of project traffic is less than the five-percent threshold of significance. Therefore, the project is not expected to cause significant impacts to operations on this roadway segment and no mitigation measures are required.

Construction Period Impacts. During the construction period, temporary and intermittent transportation impacts would result from truck movements as well as construction worker trips to and from the project site. The construction-related traffic would result in temporary congestion on project area streets because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles. Given the proximity of the I-80 / I-580 freeway ramps, use of local roadways would be limited. Truck traffic that occurs during the peak commute hours (7:00-9:00 AM and 4:00-6:00 PM) could result in degraded levels of service and higher delays at local intersections than during off-peak hours. Additionally, parking for construction workers would temporarily increase parking occupancy levels in the area.

It is also important to note that high volumes of trucks with heavy loads could have an adverse impact on the condition of streets and highways. Heavy trucks create a disproportionate impact to roadway pavement conditions, particularly at intersections, where the effects of acceleration/deceleration can be noticeable. The project would be subject to the following City of Emeryville Standard Conditions of Approval for Construction; no additional mitigation would be required:

> The project applicant and construction contractor shall meet with the City of Emeryville Public Works Agency and other appropriate City of Emeryville agencies and staff to determine traffic management strategies to reduce, to the maximum extent feasible, traffic congestion and the effects of parking demand by construction workers during construction of the project and other nearby projects that could be simultaneously under construction. The project applicant shall develop a construction management plan for review and approval by the City of Emeryville. The plan shall include at least the following items and requirements:
>
> - A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak traffic hours, detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes;
> - Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur;
> - Location of construction staging areas for materials, equipment, and vehicles (must be located on the project site);

Table 21: Existing plus Project Conditions Roadway Segment Levels of Service

No.	Intersection	Direction	Existing Conditions		Existing Plus Project Conditions	
			LOS	v/c	LOS	v/c
AM Peak Hour						
1	**I-80** from University Avenue to Powell Street	EB	C	0.54	C	0.54
		WB	**F**	**1.17**	**F**	**1.17**
2	**I-80** from Powell Street to I-580 Junction	EB	E	0.94	E	0.94
		WB	D	0.77	D	0.77
3	**Powell Street** from I-80 to Hollis Street	EB	B	0.41	B	0.41
		WB	C	0.70	D	0.73
4	**Powell Street** from Hollis Street to San Pablo Avenue	EB	A	0.20	A	0.20
		WB	B	0.37	B	0.37
5	**Ashby Avenue** from I-80 to San Pablo Avenue	EB	C	0.60	C	0.60
		WB	B	0.41	B	0.41
6	**San Pablo Avenue** from Ashby Avenue to Powell Street	NB	B	0.36	B	0.37
		SB	B	0.39	B	0.39
7	**San Pablo Avenue** from Powell Street to 40th Street	NB	B	0.43	B	0.43
		SB	B	0.47	B	0.48
PM Peak Hour						
1	**I-80** from University Avenue to Powell Street	EB	E	0.94	E	0.95
		WB	D	0.77	D	0.77
2	**I-80** from Powell Street to I-580 Junction	EB	D	0.84	D	0.84
		WB	C	0.57	C	0.57
3	**Powell Street** from I-80 to Hollis Street	EB	B	0.47	B	0.49
		WB	C	0.63	C	0.63
4	**Powell Street** from Hollis Street to San Pablo Avenue	EB	B	0.42	B	0.42
		WB	B	0.35	B	0.36
5	**Ashby Avenue** from I-80 to San Pablo Avenue	EB	B	0.46	B	0.47
		WB	C	0.52	C	0.52
6	**San Pablo Avenue** from Ashby Avenue to Powell Street	NB	C	0.65	C	0.66
		SB	C	0.51	C	0.51
7	**San Pablo Avenue** from Powell Street to 40th Street	NB	C	0.70	C	0.71
		SB	C	0.61	C	0.61

Source: DMJM Harris, 2008**; Bold** indicates segments operating at unacceptable conditions.

- A process for responding to, and tracking, complaints pertaining to construction activity, including identification of an onsite complaint manager. The manager shall determine the cause of the complaints and shall take prompt action to correct the problem. The Planning Department shall be informed who the Manager is prior to the issuance of the first permit issued by Building Services;
- Provision for accommodation of pedestrian flow;
- Provision for parking management and spaces for all construction workers to ensure that construction workers do not park in on-street spaces; and
- Identification of haul routes for movement of construction vehicles that would minimize impacts on vehicular and pedestrian traffic, circulation and safety; and provision for monitoring surface streets used for truck haul routes so that any damage and debris or loss of expected life to the public street attributable to the haul trucks can be identified and corrected by the project applicant.

b) *Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?* ***(Potentially Significant Unless Mitigation Incorporated)***

Future Year Projections. 2030 Cumulative Conditions traffic volumes were forecast using the most recent version of the ACCMA travel demand model. The travel demand forecasting model is based on the ACCMA regional travel demand model, with refinements to the volume forecasts within the City of Emeryville to allow for more accurate representation of projected travel demand within the city limit. The model was calibrated and validated to Spring 2007 travel conditions (the most up-to-date conditions possible using available land use data) within Emeryville.

The City of Emeryville approved the Marketplace Redevelopment project on August 5, 2008. The EIR prepared and certified for this project included a number of mitigation measures that included street widening and reconfiguration and signal timing modifications for intersections on Powell Street, 40th Street, and Christie Avenue. These improvements are assumed for the Cumulative scenario. No other planned roadway improvements were identified in the vicinity of the project site.

Cumulative Conditions Traffic Volumes. Growth factors between the model's base year (2005) and future year (2030) were calculated for each intersection approach. Growth factors ranged from 1.29 for local streets to 1.73 for I-80. These growth factors were applied to Existing Conditions traffic volumes to derive Cumulative Conditions traffic volumes. The resulting Cumulative Conditions AM and PM peak hour volumes at the eleven study intersections are shown in Figure 17.

Cumulative Conditions Intersection Levels of Service. Intersection LOS calculations for the Cumulative scenario assumed intersection geometries and control after the proposed improvements. The resulting AM and PM peak hour intersection LOS for the eleven study intersections are shown in Table 22. As shown, many study intersections are expected to operate poorly in at least one peak hour, including the intersections of Hollis Street / Powell Street, Doyle Street / Powell Street, San Pablo Avenue / Stanford Avenue, Seventh Street / Ashby Avenue, Christie Avenue / Powell Street, I-80 EB Ramps / Powell Street, and Frontage Road / I-80 WB Ramps.

The intersection of Doyle Street / Powell Street was found to satisfy peak hour traffic signal warrants in Cumulative Conditions. The intersection of Doyle Street / Stanford Avenue would not satisfy peak hour traffic signal warrants in Cumulative Conditions.

Cumulative Conditions Roadway Segment Level of Service. The AM and PM peak hour roadway segment LOS for the study roadway segments is summarized in Table 23. As shown in the table, most study roadway segments are expected to operate at unacceptable conditions in Cumulative Conditions. In particular, traffic volumes on key arterials such as Powell Street and San Pablo Avenue are expected to exceed their available capacity in the future.

Cumulative plus Project Conditions Traffic Volumes. The traffic generated by the proposed project was added to the Cumulative Conditions traffic volumes to derive the Cumulative plus Project Conditions traffic volumes. Figure 18 presents Cumulative plus Project Conditions AM and PM peak hour turning movement volumes at the eleven study intersections.

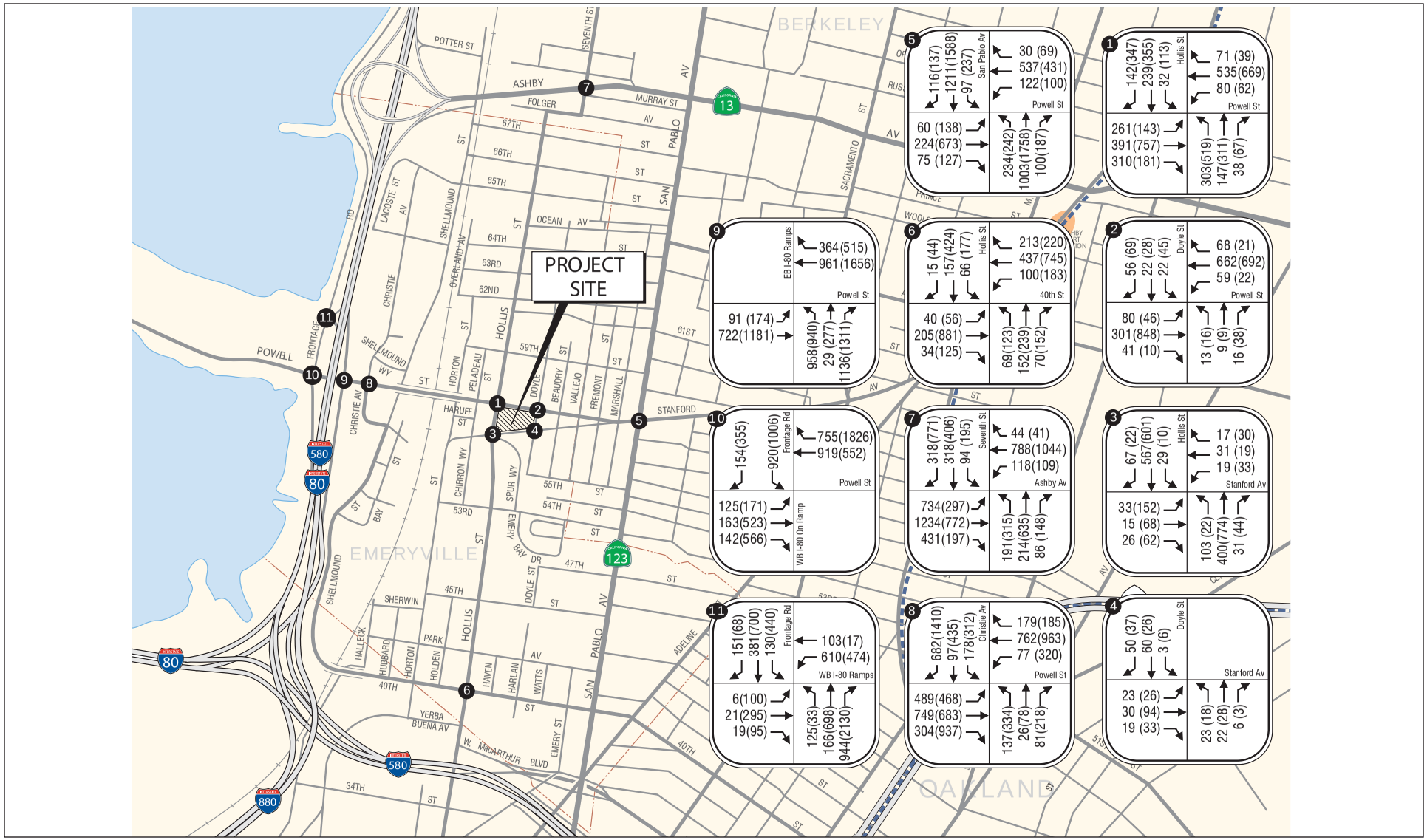
Cumulative plus Project Conditions Intersection Level of Service. The resulting AM and PM peak hour intersection LOS for the eleven study intersections are shown in Table 24.

As shown in Table 24, the project is expected to slightly increase delays at most study intersections. Intersections which would already perform poorly in Cumulative Conditions would continue to operate poorly with the addition of project-related traffic. For Intersection #5 (San Pablo Avenue / Stanford Avenue (AM)), Intersection #6 (Hollis Street / 40th Street (PM)), Intersection #9 (I-80 EB Ramps / Powell Street (AM)) and Intersection #11 (Frontage Road / I-80 WB Ramps (AM)), average delay is expected to decrease slightly because the project is adding vehicles to better-performing movements and improving the intersection average delay.

Cumulative plus Project Conditions Intersection Impacts and Mitigation Measures. The following intersections are expected to operate at unacceptable conditions under Cumulative plus Project Conditions:

- Intersection #1: Hollis Street / Powell Street (AM and PM);
- Intersection #2: Doyle Street / Powell Street (AM and PM);
- Intersection #5: San Pablo Avenue / Stanford Avenue (AM and PM);
- Intersection #7: Seventh Street / Ashby Avenue (AM and PM);
- Intersection #8: Christie Avenue / Powell Street (PM);
- Intersection #9: I-80 EB Ramps / Powell Street (PM); and
- Intersection #11: Frontage Road / I-80 WB Ramps (PM).

Intersection #1: Hollis Street / Powell Street (AM and PM). The intersection of Hollis Street / Powell Street operates at LOS F in both the AM and PM peak hours under both Cumulative Conditions and Cumulative plus Project Conditions. The increase in average delay as a result of project traffic is below the four-second threshold of significance in both peak hours. Therefore, the project would not contribute to a significant cumulative impact at this intersection.



LSA

FIGURE 17

NOT TO SCALE

Papermill Building Mixed-Use Project IS/MND

Cumulative Traffic Volumes

AM(PM) Peak Hour

SOURCE: DMJM HARRIS/AECOM, 2008

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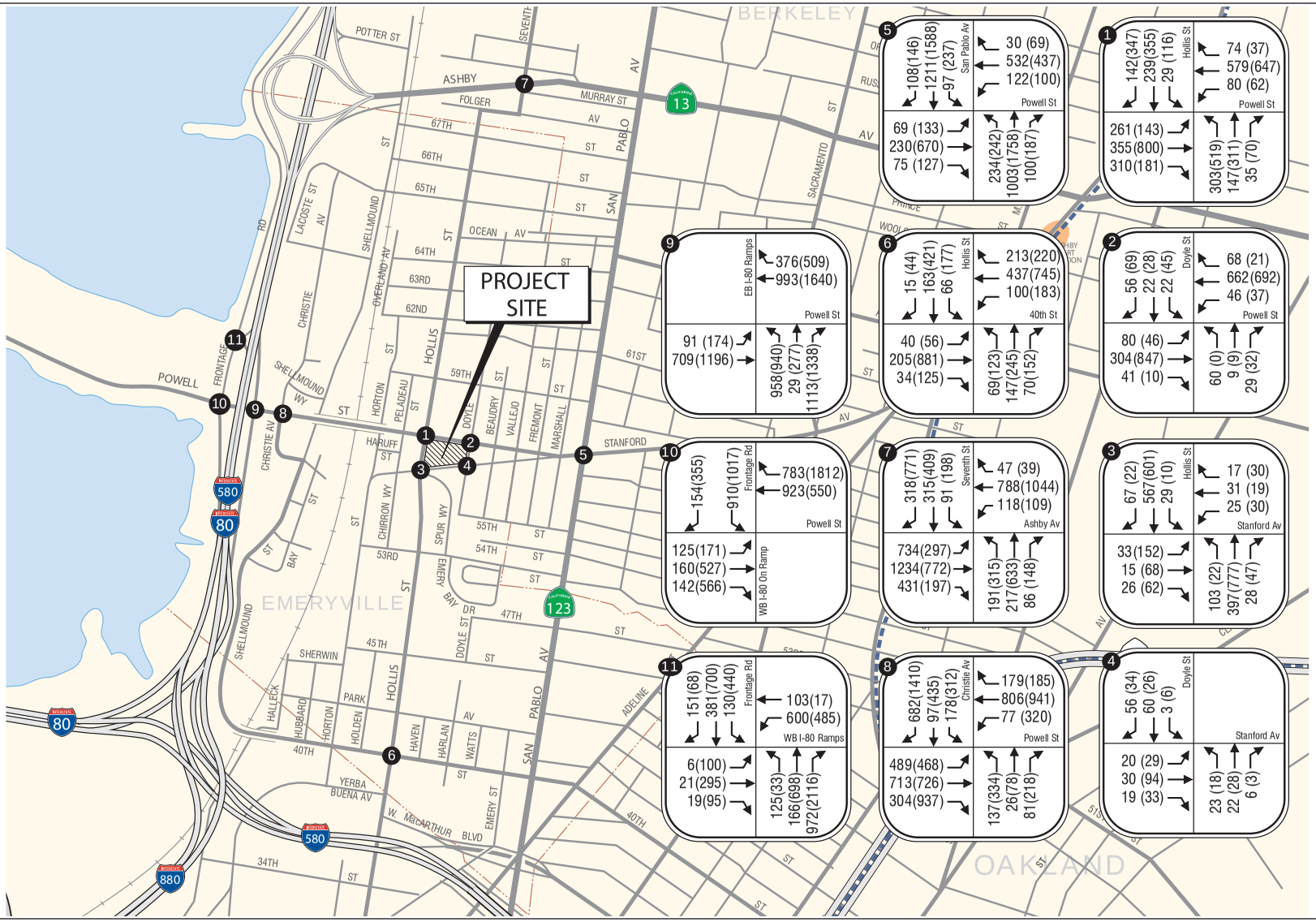

LSA

FIGURE 18

NOT TO SCALE

Papermill Building Mixed-Use Project IS/MND

Cumulative Plus Project Traffic Volumes

AM(PM) Peak Hour

SOURCE: DMJM HARRIS/AECOM, 2008

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Table 22: Cumulative Conditions Intersection Levels of Service

No.	Intersection	Traffic Control	Peak Hour	Cumulative Conditions	
				LOS	Delay
1	Hollis Street / Powell Street	Signal	AM	**F**	**>80.0**
			PM	**F**	**>80.0**
2	Doyle Street / Powell Street[a]	Two-Way Stop	AM	**E**	**41.0**
			PM	**F**	**>50.0**
3	Hollis Street / Stanford Avenue	Signal	AM	A	6.0
			PM	A	8.9
4	Doyle Street / Stanford Avenue	All-Way Stop	AM	A	7.6
			PM	A	7.9
5	San Pablo Avenue / Stanford Avenue	Signal	AM	**E**	**57.0**
			PM	**F**	**>80.0**
6	Hollis Street / 40th Street	Signal	AM	C	26.6
			PM	D	53.4
7	Seventh Street / Ashby Avenue	Signal	AM	**F**	**>80.0**
			PM	**F**	**>80.0**
8	Christie Avenue / Powell Street	Signal	AM	C	27.4
			PM	**F**	**>80.0**
9	I-80 EB Ramps / Powell Street	Signal	AM	D	48.7
			PM	**F**	**>80.0**
10	Frontage Road / Powell Street	Signal	AM	C	32.5
			PM	D	50.5
11	Frontage Road / I-80 WB Ramps	Signal	AM	C	32.2
			PM	**F**	**>80.0**

Source: DMJM Harris, 2008.
[a] Analyzed for worst-approach.
Bold indicates intersections operating at unacceptable conditions.

Table 23: Cumulative Conditions Roadway Segment Levels of Service

No.	Intersection	Direction	Cumulative Conditions			
			AM Peak Hour		PM Peak Hour	
			LOS	v/c	LOS	v/c
1	**I-80** from University Avenue to Powell Street	EB	C	0.68	**F**	**1.13**
		WB	**F**	**1.28**	C	0.64
2	**I-80** from Powell Street to I-580 Junction	EB	C	0.53	E	0.96
		WB	**F**	**1.33**	C	0.67
3	**Powell Street** from I-80 to Hollis Street	EB	**F**	**1.00**	**F**	**1.45**
		WB	**F**	**1.02**	**F**	**1.78**
4	**Powell Street** from Hollis Street to San Pablo Avenue	EB	A	0.26	C	0.55
		WB	B	0.48	B	0.46
5	**Ashby Avenue** from I-80 to San Pablo Avenue	EB	**F**	**1.33**	C	0.70
		WB	D	0.81	**F**	**1.27**
6	**San Pablo Avenue** from Ashby Avenue to Powell Street	NB	C	0.61	**F**	**1.09**
		SB	D	0.79	**F**	**1.09**
7	**San Pablo Avenue** from Powell Street to 40th Street	NB	D	0.74	**F**	**1.22**
		SB	D	0.78	**F**	**1.01**

Source: DMJM Harris, 2008.
Bold indicates segments operating at unacceptable conditions.

Table 24: Cumulative plus Project Conditions Intersection Levels of Service

No.	Intersection	Traffic Control	Peak Hour	Cumulative Conditions		Cumulative plus Project Conditions	
				LOS	Delay	LOS	Delay
1	Hollis Street / Powell Street	Signal	AM	**F**	**>80.0**	**F**	**>80.0**
			PM	**F**	**>80.0**	**F**	**>80.0**
2	Doyle Street / Powell Street[a]	Two-Way Stop	AM	**E**	**41.0**	**F**	**>50.0**
			PM	**F**	**>50.0**	**F**	**>50.0**
3	Hollis Street / Stanford Avenue	Signal	AM	A	6.0	A	6.0
			PM	A	8.9	A	8.9
4	Doyle Street / Stanford Avenue	All-Way Stop	AM	A	7.6	A	7.6
			PM	A	7.9	A	8.1
5	San Pablo Avenue / Stanford Avenue	Signal	AM	**E**	**57.0**	**E**	**56.0**
			PM	**F**	**>80.0**	**F**	**>80.0**
6	Hollis Street / 40th Street	Signal	AM	C	26.6	C	26.7
			PM	D	53.4	D	52.9
7	Seventh Street / Ashby Avenue	Signal	AM	**F**	**>80.0**	**F**	**>80.0**
			PM	**F**	**>80.0**	**F**	**>80.0**
8	Christie Avenue / Powell Street	Signal	AM	C	27.4	C	27.7
			PM	**F**	**>80.0**	**F**	**>80.0**
9	I-80 EB Ramps / Powell Street	Signal	AM	D	48.7	D	46.1
			PM	**F**	**>80.0**	**F**	**>80.0**
10	Frontage Road / Powell Street	Signal	AM	C	32.5	D	35.8
			PM	D	50.5	D	49.6
11	Frontage Road / I-80 WB Ramps	Signal	AM	C	32.2	C	31.6
			PM	**F**	**>80.0**	**F**	**>80.0**

Source: DMJM Harris, 2008.
[a] Analyzed for worst-approach.
Bold indicates intersections operating at unacceptable conditions.
Average delay is expected to decrease for some intersections because project is expected to remove trips from high-delayed movements and add trips to low-delayed movements.

Intersection #2: Doyle Street / Powell Street (AM and PM). The project causes the intersection of Doyle Street / Powell Street to degrade from LOS E to LOS F in the AM peak hour. In the PM peak hour, the intersection is expected to operate at LOS F with or without the addition of project traffic, but the project causes average delay to increase by more than the four-second threshold of significance. Therefore, the project would contribute to a significant cumulative impact at this intersection. The intersection also satisfies peak hour traffic signal warrants for the PM peak hour under Cumulative plus Project Conditions. Implementation of the following mitigation measure would reduce the project's contribution to cumulative impacts at this intersection to a less-than-significant level:

> Mitigation Measure TRAFFIC-1: The City shall signalize the intersection at Doyle and Powell Streets, when traffic conditions warrant. Because this impact can be attributed to existing traffic in the area, as well as traffic from approved, planned, and potential development in and around Emeryville, the project sponsor shall pay for a portion of the cost of signalization, proportionate to the project's contribution to cumulative impacts at the intersection. In the Cumulative plus Project scenario, project traffic represents 13.7 percent of the total cumulative growth at this intersection in the AM peak hour and less than one percent of the total cumulative growth at this intersection in the PM peak hour.

Intersection #5: San Pablo Avenue / Stanford Avenue (AM and PM). The intersection of San Pablo Avenue / Stanford Avenue is expected to operate at LOS E in the AM peak hour and at LOS F in the PM peak hour, under both Cumulative Conditions and Cumulative plus Project Conditions. The increase in average delay as a result of project traffic is below the four-second threshold of significance in both peak hours. Therefore, the project would not contribute to a significant cumulative impact at this intersection and no mitigation measures are required.

Intersection #7: Seventh Street / Ashby Avenue (AM and PM). The intersection of Seventh Street / Ashby Avenue operates at LOS F in both the AM and PM peak hours under both Cumulative Conditions and Cumulative plus Project Conditions. The increase in average delay as a result of project traffic is below the four-second threshold of significance in both peak hours. Therefore, the project would not contribute to a significant cumulative impact at this intersection and no mitigation measures are required.

Intersection #8: Christie Avenue / Powell Street (PM). The intersection of Christie Street / Powell Street operates at LOS F in the PM peak hour under both Cumulative Conditions and Cumulative plus Project Conditions. The increase in average delay as a result of project traffic is below the four-second threshold of significance in both peak hours. Therefore, the project would not contribute to a significant cumulative impact at this intersection and no mitigation measures are required.

Intersection #9: I-80 EB Ramps / Powell Street (PM). The intersection of I-80 EB Ramps / Powell Street operates at LOS F in the PM peak hour under both Cumulative Conditions and Cumulative plus Project Conditions. The increase in average delay as a result of project traffic is below the four-second threshold of significance. Therefore, the project would not contribute to a significant cumulative impact at this intersection and no mitigation measures are required.

Intersection #11: Frontage Road / I-80 WB Ramps (PM). The intersection of Frontage Road / I-80 WB Ramps is expected to operate at LOS F in the PM peak hour under both Cumulative Conditions and Cumulative plus Project Conditions. The increase in average delay as a result of project traffic is below the four-second threshold of significance in both peak hours. Therefore, the project would not contribute to a significant cumulative impact at this intersection and no mitigation measures are required.

In addition to the intersection of Doyle Street / Powell Street, peak hour traffic signal warrants were evaluated at the intersection of Doyle Street / Stanford Avenue. However, the intersection was not found to warrant signalization under Cumulative plus Project Conditions.

Cumulative plus Project Conditions Roadway Segment Levels of Service. The Cumulative plus Project AM and PM peak hour roadway segment LOS for the study roadway segments are summarized in Table 25. As shown in the table, the project is expected to slightly increase the v/c ratio for all study roadway segments. The following roadway segments are expected to operate at unacceptable conditions under Cumulative plus Project Conditions:

- Roadway Segment #1: I-80 from University Avenue to Powell Street (WB AM and EB PM);
- Roadway Segment #2: I-80 from Powell Street to I-580 Junction (WB AM);
- Roadway Segment #3: Powell Street from I-80 to Hollis Street (EB/WB AM and EB/WB PM);
- Roadway Segment #5: Ashby Avenue from I-80 to San Pablo Avenue (EB AM and WB PM);
- Roadway Segment #6: San Pablo Avenue from Ashby Avenue to Powell Street (NB/SB PM); and
- Roadway Segment #7: San Pablo Avenue from Powell Street to 40th Street (NB/SB PM).

However, the project would not cause an increase in v/c ratio at any intersection that exceeds the 5 percent threshold and therefore, the project is not expected to cause significant impacts to operations on roadway segments in the project area.

Table 25: Cumulative plus Project Conditions Roadway Segment Levels of Service

No.	Intersection	Direction	Cumulative Conditions		Cumulative plus Project Conditions	
			LOS	v/c	LOS	v/c
AM Peak Hour						
1	**I-80** from University Avenue to Powell Street	EB	C	0.68	C	0.68
		WB	**F**	**1.28**	**F**	**1.28**
2	**I-80** from Powell Street to I-580 Junction	EB	C	0.53	C	0.53
		WB	**F**	**1.33**	**F**	**1.34**
3	**Powell Street** from I-80 to Hollis Street	EB	**F**	**1.00**	**F**	**1.00**
		WB	**F**	**1.02**	**F**	**1.05**
4	**Powell Street** from Hollis Street to San Pablo Avenue	EB	A	0.26	A	0.26
		WB	B	0.48	B	0.48
5	**Ashby Avenue** from I-80 to San Pablo Avenue	EB	**F**	**1.33**	**F**	**1.33**
		WB	D	0.81	D	0.81
6	**San Pablo Avenue** from Ashby Avenue to Powell Street	NB	C	0.61	C	0.61
		SB	D	0.79	D	0.79
7	**San Pablo Avenue** from Powell Street to 40th Street	NB	D	0.74	D	0.75
		SB	D	0.78	D	0.79
PM Peak Hour						
1	**I-80** from University Avenue to Powell Street	EB	**F**	**1.13**	**F**	**1.13**
		WB	C	0.64	C	0.64
2	**I-80** from Powell Street to I-580 Junction	EB	E	0.96	E	0.97
		WB	C	0.67	C	0.67
3	**Powell Street** from I-80 to Hollis Street	EB	**F**	**1.45**	**F**	**1.48**
		WB	**F**	**1.78**	**F**	**1.78**
4	**Powell Street** from Hollis Street to San Pablo Avenue	EB	C	0.55	C	0.55
		WB	B	0.46	B	0.46
5	**Ashby Avenue** from I-80 to San Pablo Avenue	EB	C	0.70	C	0.71
		WB	**F**	**1.27**	**F**	**1.27**
6	**San Pablo Avenue** from Ashby Avenue to Powell Street	NB	**F**	**1.09**	**F**	**1.09**
		SB	**F**	**1.09**	**F**	**1.10**
7	**San Pablo Avenue** from Powell Street to 40th Street	NB	**F**	**1.22**	**F**	**1.22**
		SB	**F**	**1.01**	**F**	**1.01**

Source: DMJM Harris, 2008.
Bold indicates segments operating at unacceptable conditions.

*c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? (**No Impact**)*

The proposed project would not result in a change in air traffic patterns, nor would it result in any substantial safety risks associated with aviation.

*d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? **(Less-than-Significant Impact)***

The project does not include design features that would increase circulation hazards in the area. The layout of the proposed driveways and parking garage would not create hazards to pedestrians, bicycles, or drivers. The project proposes one driveway mid-block on Powell Street and an additional driveway mid-block on Doyle Street. Due to the existing median, the driveway on Powell Street would be "right in, right out," meaning left turns into and out of the driveway would not be possible. This configuration not only reduces delays for people attempting to exit the driveway but also avoids safety issues in a configuration where left turns are permitted. The driveway on Doyle Street allows is not expected to result in significant safety impacts as Doyle Street is a minor street. In addition, the proposed project would result in development or residential and retail uses in the neighborhood; these land uses would be compatible with existing uses and would not create hazards.

*e) Result in inadequate emergency access? **(Less-than-Significant Impact)***

The Emeryville General Plan designates I-80/I-580 as "general evacuation routes" and San Pablo Avenue as an earthquake evacuation route. Powell Street is also a designated flood and earthquake evacuation route. The proposed project would not permanently restrict vehicular, pedestrian, or bicycle access within or in the vicinity of the project site, including on these designated emergency routes.

*f) Result in inadequate parking capacity? **(Less-than-Significant Impact)***

On-street parking is not allowed along Powell and Hollis Street adjacent to the proposed site. However, on-street parking is allowed along Doyle Street next to the proposed site. The project would include a below-ground, off-street parking garage with 256 parking stalls (188 spaces for the residential units, 42 designated guest spaces, 13 spaces for retail, 13 spaces for live-work/flex space, and an additional 4 spaces), plus 26 tandem stalls. Vehicles would enter and exit the project's parking garage by using the proposed driveways located on Powell Street and Doyle Street.

Parking. The State Court of Appeals has held that parking is not part of the permanent physical environment, that parking conditions change over time as people change their travel patterns, and that unmet parking demand created by a project need not be considered a significant environmental impact under CEQA unless it would cause significant secondary effects.[26] Parking supply/demand varies by time of day, day of week, and seasonally. As parking demand increases faster than the supply, parking prices rise to reach equilibrium between supply and demand. Decreased availability and increased costs result in changes to people's mode and pattern of travel. However, the City of Emeryville wants to ensure that the project's provision of additional parking spaces along with measures to lessen

[26] San Franciscans Upholding the Downtown Plan v. the City and County of San Francisco (2002) 102 Cal.App.4th 656.

parking demand (by encouraging the use of non-auto travel modes) would result in minimal adverse effects to project occupants and visitors, and that any secondary effects (such as effects on air quality due to drivers searching for parking spaces) would be minimized. As such, although not required by CEQA, parking conditions are evaluated in this document.

Parking deficits may be associated with secondary physical environmental impacts, such as air quality and noise effects, caused by congestion resulting from drivers circling as they look for a parking space. However, the absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, shuttles, taxis, bicycles or travel by foot), may induce drivers to shift to other modes of travel, or change their overall travel habits.

Although the phenomenon of cars circling and looking for a parking space in areas of limited supply is a potential secondary effect, it is typically only a temporary condition, often offset by a reduction in vehicle trips by others who are aware of constrained parking conditions in a given area. Hence, any secondary environmental impacts that might result from a shortfall in parking in the vicinity of the proposed project are considered less than significant.

This study evaluates if the project's estimated parking demand would be met by the project's proposed parking supply or by the existing parking supply within a reasonable walking distance of the project site.

Parking Analysis. A consideration when evaluating the project's proposed parking supply is how it compares to City of Emeryville Planning Code requirements for off-street parking. It should be noted that code requirements are not used to identify parking impacts; parking supply versus estimated parking demand (discussed below) is used to identify potential impacts.

The project would include covered ground-floor parking and a below-ground, off-street parking garage with 256 parking stalls and 26 tandem stalls. Vehicles would enter and exit the project's parking facilities using the driveways located on Powell Street and Doyle Street. As shown in Table 26, which summarizes the number of code-required and proposed parking spaces, the Planning Code requires that the project provide a total of 275 off-street parking spaces. Since the project is proposing a total of 282 spaces, the project satisfies Planning Code requirements.

Table 26: Parking Code Requirements

Land Use	Unit	Amount	Code	Spaces (Code) *Resident / Visitor*	Spaces (Proposed)
Apartment	DU	169		188 / 43	
Studio	DU	*18*	1 space per DU 1 visitor space per 4 DU	*18 / 4.5*	
1-bedroom	DU	*114*	1 space per DU 1 visitor space per 4 DU	*114 / 28.5*	
2-bedroom	DU	*32*	1.5 space per DU 1 visitor space per 4 DU	*48 / 8*	
3-bedroom	DU	*5*	1.5 space per DU 1 visitor space per 4 DU	*8 / 2*	
Flexible Space Units	DU	3	1.5 space per DU	12	
Live/Work Units	DU	5	1.5 space per DU		
Commercial Retail	SF	10,516	1 space per 333 SF	32	
Subtotal				**232 / 43**	**256 + 26 tandem**
Total				**276**	**282**

Source: City of Emeryville Municipal Code 9-4.55 and 9-4.58; DMJM Harris, 2008.

According to ITE national statistics compiled in the *Parking Generation Manual*, land uses similar in size and type to the proposed project would create a demand for 213 parking spaces for the residential uses and 40 parking spaces for the retail uses. The number of parking spaces provided by the project would meet the parking demand suggested by national ITE statistics. Table 27 summarizes the estimated vehicle parking demand for the proposed project based on ITE rates.

Table 27: ITE Parking Demand

Land Use	Size	Parking Rates	Parking Demand	Spaces (Proposed)
Low/Mid-Rise Apartment (221)	177 DU	1.20 stalls per DU	213	282
Retail (820)	10,516 SF	3.76 per 1,000 SF	40	--
Total			**253**	**282**

Source: ITE, *Parking Generation Manual, 3rd Edition*; DMJM Harris, 2008.

Existing levels of on-street parking were surveyed in an area bounded by 59th Street to the north, 53rd Street to the south, Horton Street to the west, and Beaudry Street to the east. In general, on-street parking in the vicinity of the project site consists of parallel parking spaces, with few restrictions outside of four-hour time periods from 8:00 AM and 12:00 AM on the first and third Thursday of each month for street sweeping. Although there are surface parking lots in the vicinity of the project, none of these are open to the public.

An on- and off-street parking survey conducted during the summer of 2008 during the weekday evening period (7:00 PM to 9:00 PM, the peak period of project parking occupancy) and weekend midday period (10:00 AM to 12:00 PM). The results of this parking survey are summarized in Table 28**.**

Table 28: On-Street and Off-Street Parking

Time	Parking Occupancy	
	Off-Street	On-Street
Weekday (7:00 PM to 9:00 PM)	20%	60%
Weekend (10:00 AM to 12:00 PM)	None open to the public in survey area	67%

Source: DMJM Harris, 2008.

As indicated in Table 28, that there is considerable on-street parking capacity available in the vicinity of the project. Parking occupancy in the study area was approximately 60-70 percent for the weekday evening and weekend midday periods.

The proposed project would provide 282 parking spaces. Since the project is required to provide 40 spaces for the retail uses, at least two of these spaces must meet American with Disabilities Act (ADA) requirements.

The City of Emeryville has specific requirements for parking stall size and limits the amount of compact spaces allowed. The City of Emeryville allows no more than 60 percent of the total spaces to be designated compact. Table 29 provides the dimension requirements for regular and compact spaces for the City of Emeryville. All proposed on-site spaces must meet these design requirements or obtain a variance from the City of Emeryville Planning Department.

Table 29: Required Parking Stall Dimensions

Dimension	Required Dimensions (ft)	
	Regular Stalls	Compact Stalls
Width	8.5	7.5
Depth	18	16

Source: City of Emeryville Municipal Code 9-4.55; DMJM Harris, 2008.

According to the City of Emeryville Municipal Code Title 9, Section 9-4.55, project maneuvering aisles necessary for access into and out of required parking spaces shall have a minimum width of 22 feet. All proposed maneuvering aisles must meet this requirement or obtain a variance from the Planning Department.

Loading Impacts. Loading demand requirements are specified in Title 9, Section 9-4.55.8 of the City of Emeryville Municipal Code. The City of Emeryville does not require loading berths for the proposed residential or commercial land uses.

g) Conflict with adopted polices, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)? ***(Less-than-Significant Impact)***

The project would not conflict with adopted policies, plans or programs supporting alternative transportation, as discussed below.

Bicycle and Pedestrian Facilities. Bikeway facilities are typically classified as Class I, Class II, or Class III. A Class I bikeway (bike path) provides a completely separate right-of-way for the exclusive use of bicycles and pedestrians. A Class II bikeway (bike lane) provides exclusive usage for bicyclists with "BIKE LANE" markings and solid white striping on the roadway. Typically, striped bike lanes are 5 to 6 feet wide. A Class III bikeway (bike route) is a signed roadway where bicyclists must share the road with vehicles; pavement markings are typically not installed.

In the vicinity of the project, Class II facilities are currently provided on 40th Street / Shellmound Street west of San Pablo Avenue and Powell Street west of Frontage Road. A Class I facility is provided parallel to Frontage Road along the waterfront as part of the San Francisco Bay Trail, a continuous recreational bicycle path along the entire edge of the Bay. An additional Class I facility extends north of Ocean Avenue at Doyle Street, cutting diagonally to 67th Street and eventually continuing to Ninth Street. Class III facilities are also provided on 47th Street, and additional routes are provided through existing open on- and off-street parking facilities such as the paved path extending north of 53rd Street to the intersection of Hollis Street / Stanford Avenue.

Sidewalks are provided along all streets in the vicinity of the project site. Sidewalks directly adjacent to the project site are eight- to ten-feet wide and all four intersections directly adjacent to the project site have crosswalks on all legs. All sidewalks and crosswalks in the vicinity of the project site currently provide for a safe and pedestrian-friendly environment.

Planned Bicycle and Pedestrian Facility Improvements. The City of Emeryville's *Bicycle and Pedestrian Plan (1998-2010)* details the following improvements to the bikeway network in the vicinity of the project site:

- Implement a Class II facility (bike lanes) on Adeline Street from the Oakland border to 40th Street;
- Implement a Class III facility (bike route) on 40th Street between San Pablo Avenue and Adeline Street;
- Implement a Class II facility on 40th Street between Adeline Street and the Oakland border;
- Work with the City of Oakland to extend the Class II facilities on 40th Street to the MacArthur BART station; and
- Install bicycle detectors for existing signals on 40th Street at San Pablo Avenue, Adeline Street, Hollis Street, Emery Street and Horton Street.

Bicycle and Pedestrian Facility Impacts. As detailed above, there are existing bikeways along some major streets in the vicinity of the project site, including 40th Street / Shellmound Street. Additional Class III facilities scattered in the project area should also help to encourage bicycling among residents and visitors of the project. Together, these facilities provide a generally safe environment for bicyclists, despite high traffic volumes on many key roadways such as 40th Street and Powell Street.

Existing bicycle traffic on these facilities was observed to be low, with all of the facilities operating under capacity. Therefore, the current facilities are expected to adequately accommodate the increase in bicycle trips as a result of the project. In addition, the project would include no features which would be unsafe to bicycle travel. Therefore, no significant adverse impacts to bicycle activity were identified and no mitigation measures are necessary.

Sidewalk widths adjacent to the project site are eight to ten feet in width and crosswalks are provided at all adjacent intersections, allowing for safe pedestrian circulation. Although the project would add additional pedestrians to local streets and sidewalks, existing pedestrian facilities should adequately handle the increase in sidewalk traffic. In addition, the project would include no features which would be unsafe for pedestrian travel. Therefore, no significant adverse impacts to pedestrian activity were identified and no mitigation measures are necessary.

Transit Facilities. AC Transit provides local and regional bus and transit service within Alameda and Contra Costa Counties and between the East Bay and San Francisco's Transbay Terminal. The nearest AC Transit routes to the project site are local routes 19, 57, 72, and 72M; transbay routes C, CB, and F; and Rapid route 72R.

In addition to AC Transit, nearby transit service is provided by the Emery Go Round, a free shuttle service funded by commercial property owners in the City-wide transportation business improvement district. The Emery Go Round has several routes serving the MacArthur BART station and various destinations within Emeryville, including Bay Street, Powell Street Plaza, the Emeryville Public Market, and the Emeryville Amtrak Station. Most routes run on 12 minute headways during the peak hour and 15-20 minute headways at other times. The closest stop to the Project site is located at Horton Street / Stanford Avenue.

Existing transit services in the vicinity of the project are summarized in Table 30. Figure 19 illustrates the existing transit network.

In addition to the local and regional bus services shown in Table 22, regional heavy rail service is provided by BART, which has stations at Martin Luther King Jr. Way / 40th Street (MacArthur BART) and Martin Luther King Jr. Way / Adeline Street (Ashby BART), both within bicycling distance. Bus service to and from MacArthur BART is provided by Emery Go Round shuttles and AC Transit line 57. Bus service to and from Ashby BART is provided by AC Transit line F.

Three BART lines serve MacArthur BART (Richmond – Millbrae, Pittsburg/Bay Point – SFO, and Richmond – Fremont) and two lines serve Ashby BART (Richmond – Millbrae and Richmond – Fremont). Weekday midday and peak hour frequencies on these lines are every 15 minutes, except for the Pittsburg/Bay Point – SFO line, which runs every 5-10 minutes during the weekday peak periods. The Richmond – Millbrae line does not run weekday or Saturday evenings, and does not run at all on Sundays.

Additional long-haul train service is provided by Amtrak's Capitol Corridor, which connects to San Jose in the south and Martinez, Fairfield, Davis, and Sacramento in the north. The Emeryville Amtrak Station is located at Horton Street / 59th Street and is within walking distance of the project site.

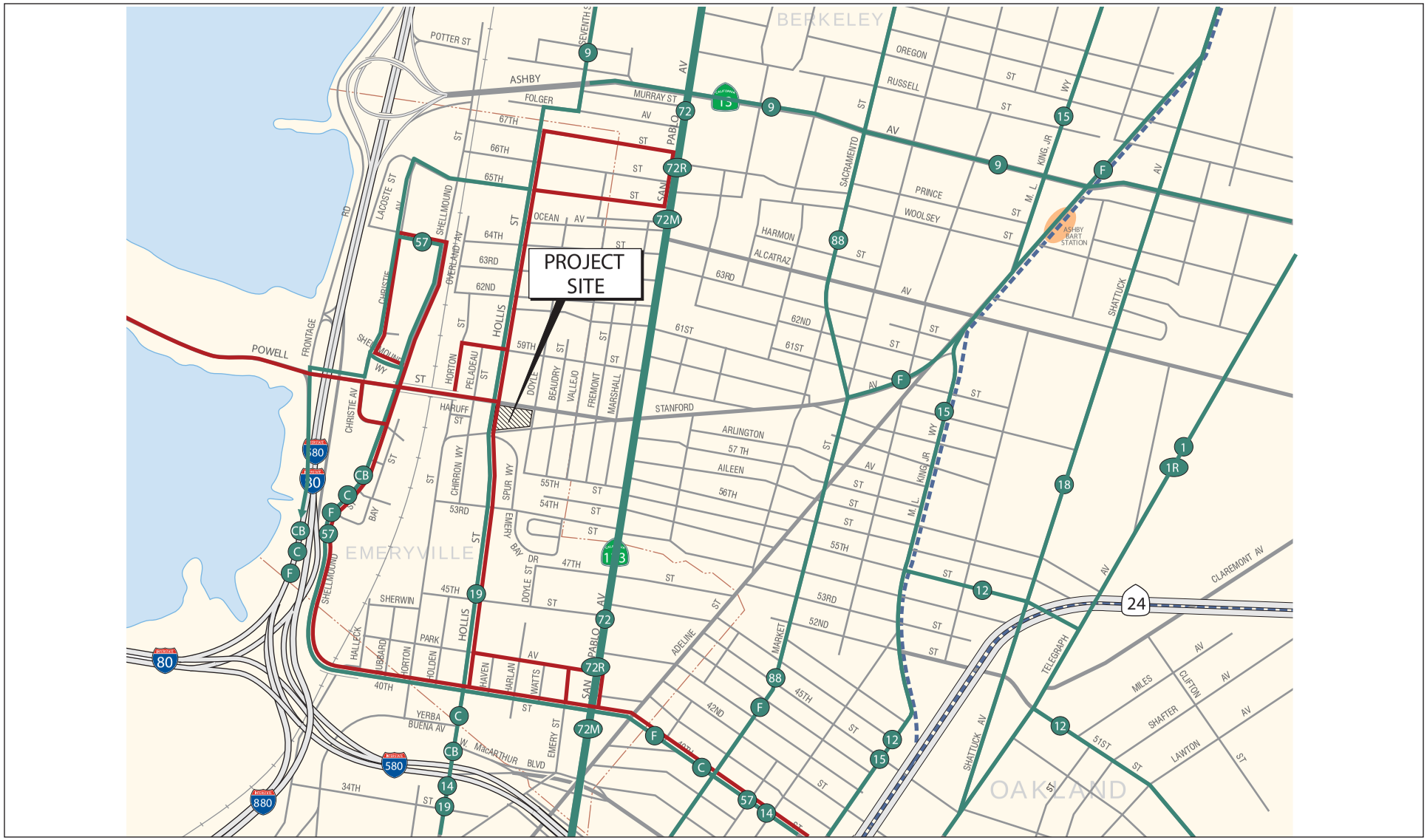
Table 30: Existing Transit Network

Line	Route	Service Frequencies (minutes)		
		Weekday Peak	Weekday Off-peak	Weekend
19 Hollis	From Downtown Berkeley to Fruitvale via Hollis St. and Alameda	30	30	30
57 MacArthur	From Emeryville Amtrak to Eastmont Transit Center via MacArthur BART and MacArthur Blvd.	12	12	15
72 San Pablo Avenue	From Hilltop Mall to Jack London Square via San Pablo Ave.	30	30	30
72M Macdonald	From Point Richmond to Jack London Sq. via San Pablo Ave.	30	30	30
72R San Pablo Rapid	From Contra Costa College to Jack London Sq. via San Pablo Ave.	12	12	--
C Moraga Avenue[a]	From Piedmont to San Francisco via Emeryville	30	--	--
CB Broadway Terrace	From Piedmont to San Francisco via Broadway	30	--	--
F Adeline	From Berkeley to San Francisco via Shattuck Ave. and Adeline Ave.	30	30	30
Emery Go Round	Various	12	15-20	30-40

Source: AC Transit, 2008; Emery Go Round, 2008.
[a] Peak direction only.

Planned Transit Facility Improvements. There are no planned transit improvements in the immediate vicinity of the project site.

Transit Facility Impacts. As mentioned earlier, the proposed project is expected to generate approximately 7 transit trips during the AM peak hour and 8 transit trips during the PM peak hour. Transit trip distribution was developed based on the project trip distribution shown in Figure 19. These trips were then assigned to the various transit routes in the vicinity of the project site. Results are summarized in Table 31.



LSA

FIGURE 19

Papermill Building Mixed-Use Project IS/MND

Existing Transit Network

SOURCE: DMJM HARRIS/AECOM, 2008

I:\CEM0703 Papermill\Figures\Fig_19.ai (5/25/08)

Back of Figure 19

Table 31: Project Peak Hour Transit Trips

Destination	Peak Hour Trips		Transit Routes
	AM	PM	
Downtown Oakland	2	2	19, 72, 72M, 72R
San Francisco	1	2	C, CB, F
Berkeley	1	1	F, 19
Hayward / Fremont	1	1	BART (via 57, EM)
Emeryville	1	1	EM
Albany / El Cerrito / Richmond	1	1	72, 72M, 72R
Total	**7**	**8**	

Source: DMJM Harris, 2008.

As shown in Table 31, only a minimal increase in transit ridership is expected as a result of the proposed project, with most trips heading to or coming from Downtown Oakland and San Francisco. Given the frequent transit service to these destinations and excess capacity on transit vehicles currently serving the area, however, it is not likely that the proposed project would cause significant loading problems for transit vehicles. The additional vehicular traffic generated by the project may cause small delays to transit vehicles on Hollis Street.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	❒	❒	■	❒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❒	❒	■	❒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❒	❒	■	❒

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	❒	❒	■	❒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	❒	❒	■	❒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	❒	❒	■	❒
g) Comply with federal, State, and local statutes and regulations related to solid waste?	❒	❒	■	❒

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? ***(Less-than-Significant Impact)***

The project site is currently served by utility infrastructure, including sanitary sewer and water lines. Minor modifications to these lines would be made to enable the existing sanitary sewer infrastructure to convey wastewater away from the project site. The increase in residential and employee population that would result from the project would incrementally increase the amount of wastewater generated on the project site.

For the purposes of this analysis, wastewater generation is assumed to be approximately 90 percent of total water usage (the 10 percent differential includes consumed water and water used for irrigation). According to the Public Policy Institute of California, per capita water use in California is 232 gallons per day.[27] Implementation of the project would increase the local population by 290 residents and 21 employees. Therefore, a rough estimate of the project's anticipated water demand is 72,152 gallons per day (311 persons x 232 gallon per day); expected daily wastewater generation would be 64,936 gallons per day (90 percent of 72,152).

This increase in demand for wastewater treatment would comprise a small portion of the wastewater treated by East Bay Municipal Utility District's (EBMUD's) Wastewater Treatment Plant (WWTP) in Oakland (which has an average annual daily flow of approximately 80 million gallons a day (mgd)). The WWTP has a primary treatment capacity of 320 mgd and a secondary treatment capacity of 168 mgd.[28] The additional wastewater generated by the project represents far less than one percent of the

[27] Public Policy Institute of California, 2006. *Water Supply and Quality*. September.

[28] East Bay Municipal Utility District (EBMUD), 2008. Wastewater Treatment. Website: www.ebmud.com/wastewater/treatment/. March.

secondary treatment capacity of the WWTP and would not exceed the remaining secondary or primary treatment capacity at the plant. The wastewater would contain typical household and commercial wastes in concentrations that are routinely treated by the WWTP. As such, the project would not cause an exceedance of the Regional Water Quality Control Board's treatment standards.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? ***(Less-than-Significant Impact)***

Water treatment and wastewater treatment are provided to Emeryville by EBMUD. As noted in Section XVI.a, the project site is currently served by sanitary sewer and water lines. Minor connections to these existing lines would be required to serve new structures on the project site.

Based on per capita water demand rates, the proposed project would require approximately 72,152 gallons of water per day and would generate approximately 64,936 gallons of wastewater per day. The most current EBMUD Urban Water Management Plan (2005) has projected that water demand will increase to approximately 232 mgd in 2030.[29] The increased demand that would result from the proposed project is less than one percent of this anticipated demand. Therefore, water could be supplied to the project via existing and planned entitlements.

As noted in Section XVI.a, EBMUD's WWTP has an average daily flow of 80 mgd and a primary and secondary treatment capacity of 320 mgd and 168 mgd, respectively. The proposed project would generate far less than once percent of the secondary treatment capacity of the WWTP and would not exceed the remaining secondary or primary treatment capacity at the plant. In addition, the local sanitary sewer subbasin has adequate capacity to accommodate flows generated by the proposed project. Therefore, increased water demand and wastewater generated by the proposed project would not require the construction of new water or wastewater treatment facilities, or the expansion of existing facilities.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? ***(Less-than-Significant Impact)***

The nearest surface water to the project site is the San Francisco Bay, located approximately 2,600 feet west of the site. Surface flow direction is to the west towards the Bay.

Under existing conditions, almost 100 percent of the project site is covered with impervious surfaces. After project implementation, the amount of impervious surface cover would incrementally decrease, which would incrementally reduce storm water runoff from the project site. This reduction in runoff would be achieved through the installation of a park and two courtyards. All three areas would contain lawns, planted areas, and other pervious ground cover. Because the project would incrementally reduce stormwater runoff, it would not require the construction or expansion of storm water facilities.

[29] East Bay Municipal Utility District, 2005. *Urban Water Management Plan*. November.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? ***(Less-than-Significant Impact)***

Refer to Section XVI.b.

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? ***(Less-than-Significant Impact)***

Refer to Section XV.b.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? ***(Less-than-Significant Impact)***

Waste generation rates for multi-family residential uses and commercial/retail uses are maintained by the California Integrated Waste Management Board (CIWMB). According to CIWMB, the typical solid waste generation rate for a resident of Emeryville is 2 pounds per resident per day.[30] The employee waste generation rate for an employee of Emeryville is 4.6 pounds per employee per day.[31] These generation rates estimate the total amount of waste created and include all discarded materials, whether or not they are later recycled or disposed in a landfill. Therefore, the 290 new residents and 21 new employees would be expected to generate an additional 676 pounds per day of solid waste; a portion of this waste would be recycled per the City's policies that encourage recycling at businesses and condominium and apartment buildings.[32]

Most non-hazardous solid waste generated in Emeryville is collected and disposed of by Waste Management of Alameda County. Waste from the City is collected and transported to the Davis Street Transfer Station in San Leandro. At the Davis Street Transfer Station, waste is transported for disposal at the Altamont Landfill and Resource Recovery Facility (ALRRF) in eastern Alameda County, approximately 35 miles southeast of the project site. Both the Davis Street Transfer Station and the ALRRF are owned and operated by Waste Management of Alameda County.

The Altamont Landfill is permitted to receive 6,000 tons of waste a day. The amount of solid waste generated by the proposed project represents substantially less than 1 percent of the daily permitted waste intake at the Altamont Landfill. Therefore, the Altamount Landfill has adequate capacity to accommodate waste generated by the proposed project.

g) Comply with federal, State, and local statutes and regulations related to solid waste? ***(Less-than-Significant Impact)***

The following discussion summarizes waste reduction regulations that apply to projects in Emeryville:

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[30] California Integrated Waste Management Board, 2008. Jurisdiction Profiles. Website: http://www.ciwmb.ca.gov/Profiles/Juris/. March.

[31] Ibid.

[32] Emeryville, City of, 2008. *Recycling and Disposal Guide for Multi-Units, Condos and Apartments*. Website: www.ci.emeryville.ca.us/community/pdf/mf_brochure.pdf. June 3.

California Integrated Waste Management Act (AB 939). State-mandated solid waste diversion goals are established in the California Integrated Waste Management Act (AB 939), including source reduction, composting, and recycling. AB 939 required all municipalities in the State to divert at least 50 percent of their waste streams by 2000. Source reduction, which is given the highest priority, is defined as the act of reducing the amount of solid waste generated by waste producers. Recycling and composting are given the next highest priority. AB 939 specifies that all other waste that is not diverted be properly and safely disposed of in a landfill or through incineration.

Alameda County Measure D. Approved by voters in 1990, Measure D established the Alameda County Source Reduction and Recycling Board to coordinate the creation of the Alameda County Source Reduction and Recycling Plan. This plan established a countywide goal of achieving a 75 percent solid waste diversion rate from landfills by the year 2010.

Emeryville Municipal Code Title 6, Chapter 4. To further ensure that waste is reduced, Emeryville Municipal Code Title 6, Chapter 4, Collection of Solid Waste and Recyclables, provides additional standards for solid waste collection and recycling Citywide. This ordinance provides regulations addressing the placement of solid waste and recycling receptacles, the quantity and size of recycling receptacles, and establishes performance standards for recycling service providers.

The project would comply with the State and local solid waste statutes and regulations and therefore would have a less-than-significant impact.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	❒	■	❒	❒
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	❒	❒	■	❒

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	❒	■	❒	❒

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory? ***(Potentially Significant Unless Mitigation Incorporated)***

The proposed project site is located in an area that has been previously developed. This infill site is within an urbanized area that has little biological value. Despite the absence of biological resources on the site, the project would contribute to the degradation of water quality by storm water runoff, which may adversely affect wildlife species that use San Francisco Bay. Implementation of Mitigation Measures HYD-1a and HYD-1b would reduce this impact to a less-than-significant level. The project site does not contain important examples of California history of prehistory.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.) ***(Less-than-Significant Impact)***

The proposed project would result in the redevelopment of an urban infill site. The site is located close to transit, shopping, and job centers in Emeryville, and is already served by utility infrastructure. These characteristics of the project site would reduce the possible cumulative effects the project may have in combination with other planned development in Emeryville and surrounding communities. The impacts of the proposed project are individually limited and not cumulatively considerable.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? ***(Potentially Significant Unless Mitigation Incorporated)***

The project could have substantial adverse effects on human beings through: air quality degradation during the construction period (including potential exposure to lead and asbestos); placing people at risk from seismic and soils hazards; and creating substantial noise during the construction period. Implementation of Mitigation Measures AIR-1, AIR-2, GEO-1, HAZ-1, NOISE-1, and NOISE-2 would reduce these impacts to less-than-significant levels.

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APPENDIX A

TRANSPORTATION DATA

EMERYVILLE PAPERMILL ENVIRONMENTAL INITIAL STUDY: MITIGATED NEGATIVE DECLARATION

TECHNICAL APPENDIX

TECHNICAL APPENDIX A

INTERSECTION TURNING MOVEMENT SUMMARY

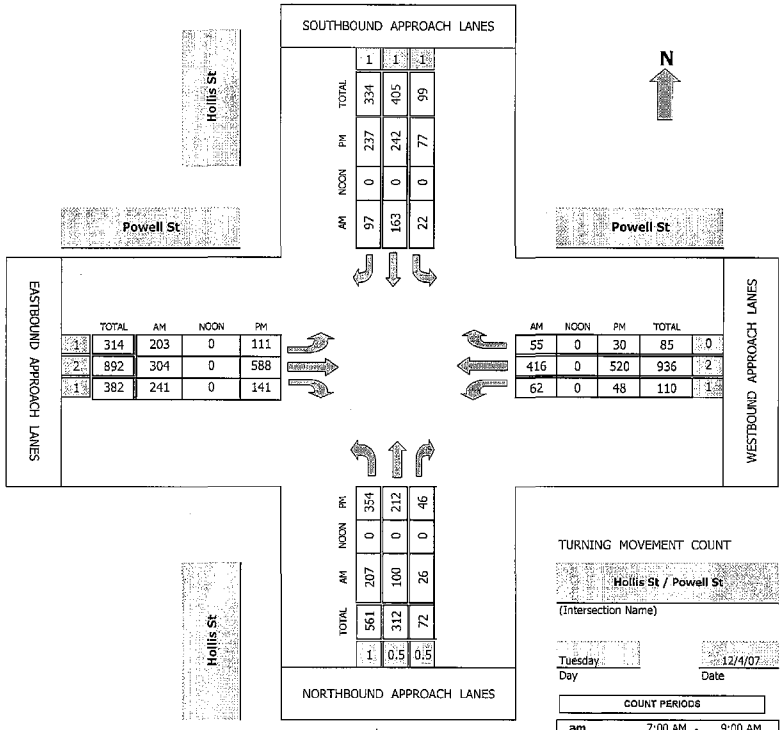
Intersection Turning Movement

Prepared by:

National Data & Surveying Services

TMC Summary of Hollis St/Powell St

Project #: 07-7535-001



	TOTAL	AM	NOON	PM
1	1	1	1	
TOTAL	334	405	99	
PM	237	242	77	
NOON	0	0	0	
AM	97	163	22	

	TOTAL	AM	NOON	PM
1	314	203	0	111
2	892	304	0	588
1	382	241	0	141

	AM	NOON	PM	TOTAL
0	55	0	30	85
2	416	0	520	936
1	62	0	48	110

	TOTAL	AM	NOON	PM
PM	354	212	46	
NOON	0	0	0	
AM	207	100	26	
TOTAL	561	312	72	
	1	0.5	0.5	

TURNING MOVEMENT COUNT

Hollis St / Powell St
(Intersection Name)

Tuesday — Day
12/4/07 — Date

COUNT PERIODS		
am	7:00 AM -	9:00 AM
noon	-	
pm	4:00 PM -	6:00 PM

CONTROL: Signalized

AM PEAK HOUR	800 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	500 PM

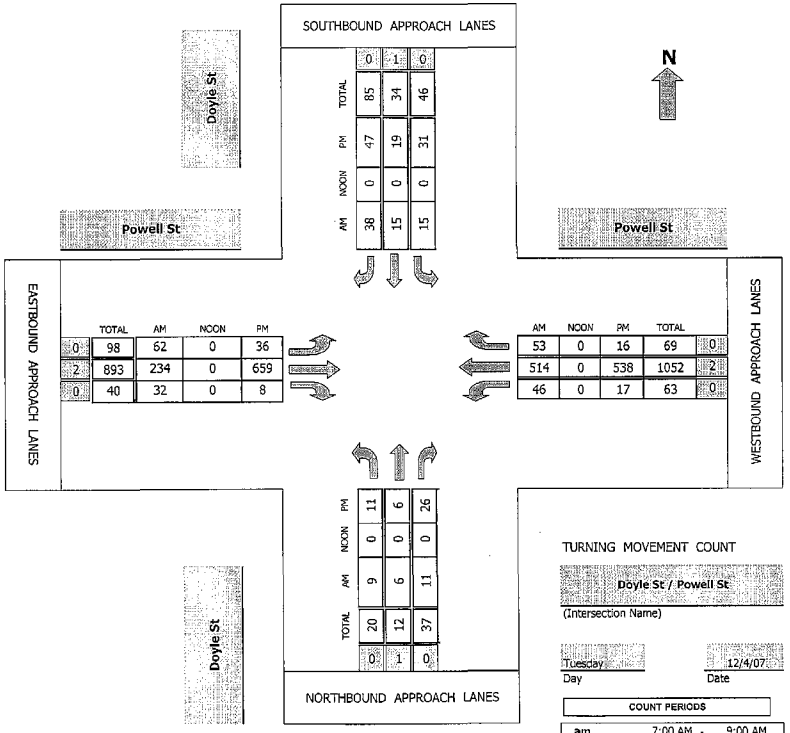
Intersection Turning Movement

Prepared by:

National Data & Surveying Services

TMC Summary of Doyle St/Powell St

Project #: 07-7535-002



	TOTAL	AM	NOON	PM
0	1	1	0	
TOTAL	85	34	46	
PM	47	19	31	
NOON	0	0	0	
AM	38	15	15	

	TOTAL	AM	NOON	PM
0	98	62	0	36
2	893	234	0	659
0	40	32	0	8

	AM	NOON	PM	TOTAL
0	53	0	16	69
2	514	0	538	1052
0	46	0	17	63

	TOTAL	AM	NOON	PM
PM	11	6	26	
NOON	0	0	0	
AM	9	6	11	
TOTAL	20	12	37	
	0	1	0	

TURNING MOVEMENT COUNT

Doyle St / Powell St
(Intersection Name)

Tuesday — Day
12/4/07 — Date

COUNT PERIODS		
am	7:00 AM -	9:00 AM
noon	-	
pm	4:00 PM -	6:00 PM

CONTROL: 2-Way Stop Sign (N/S)

AM PEAK HOUR	800 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	500 PM

Intersection Turning Movement

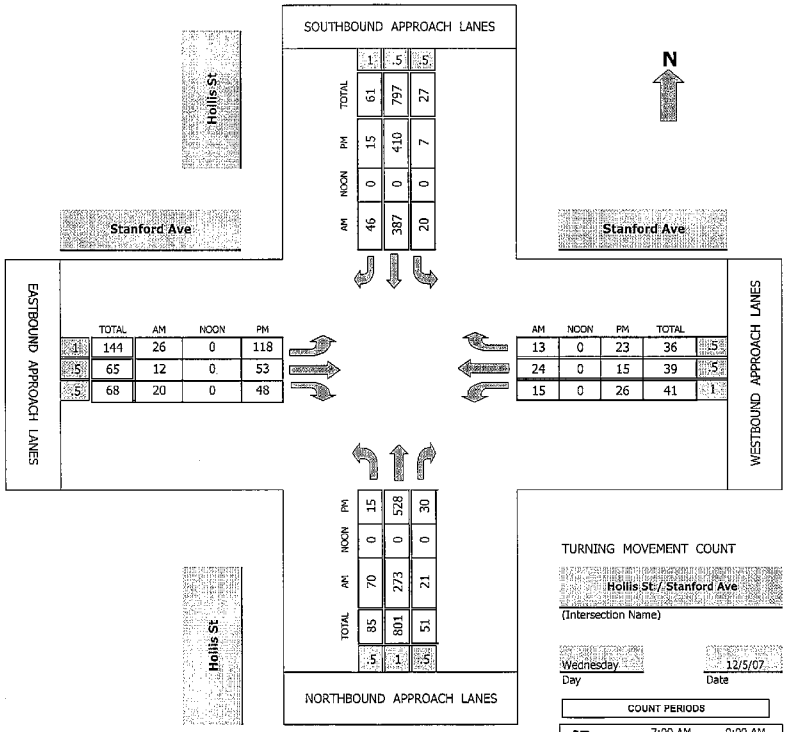
Prepared by:

NDS

National Data & Surveying Services

TMC Summary of Hollis St/Stanford Ave

Project #: 07-7535-003



	AM	NOON	PM	TOTAL
1	46	0	15	61
5	387	0	410	797
5	20	0	7	27

	TOTAL	AM	NOON	PM
1	144	26	0	118
5	65	12	0	53
5	68	20	0	48

	AM	NOON	PM	TOTAL
13	0	23	36	5
24	0	15	39	5
15	0	26	41	1

	AM	NOON	PM	TOTAL
5	70	0	15	85
1	801	0	528	801
5	21	0	30	51

TURNING MOVEMENT COUNT

Hollis St / Stanford Ave
(Intersection Name)

Wednesday — Day
12/5/07 — Date

COUNT PERIODS			
am	7:00 AM	-	9:00 AM
noon		-	
pm	4:00 PM	-	6:00 PM

CONTROL: Signalized

AM PEAK HOUR	800 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	445 PM

Intersection Turning Movement

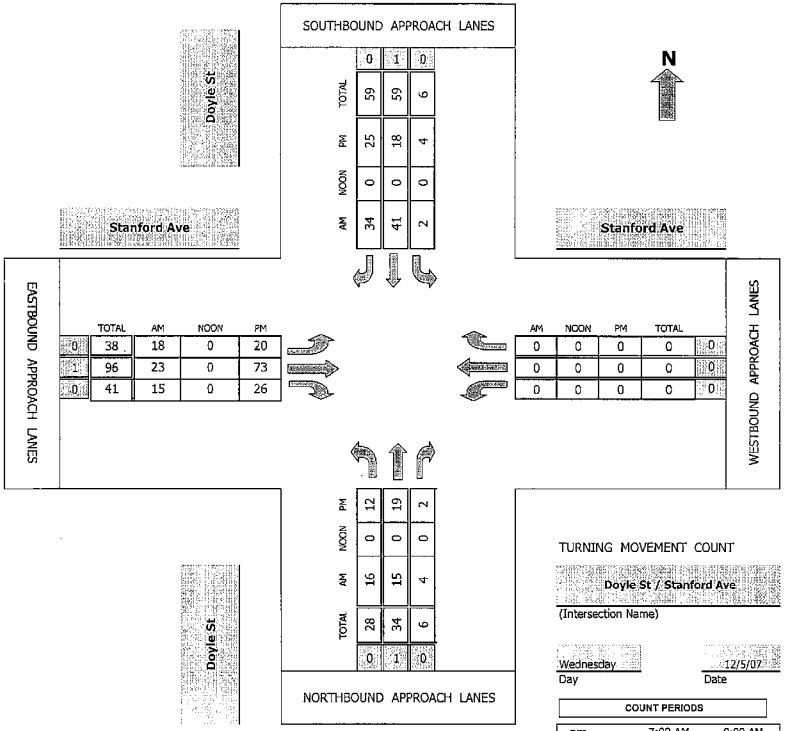
Prepared by:

NDS

National Data & Surveying Services

TMC Summary of Doyle St/Stanford Ave

Project #: 07-7535-004



	AM	NOON	PM	TOTAL
0	34	0	25	59
1	41	0	18	59
0	2	0	4	6

	TOTAL	AM	NOON	PM
0	38	18	0	20
1	96	23	0	73
0	41	15	0	26

	AM	NOON	PM	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

	AM	NOON	PM	TOTAL
0	16	0	12	28
1	15	0	19	34
0	4	0	2	6

TURNING MOVEMENT COUNT

Doyle St / Stanford Ave
(Intersection Name)

Wednesday — Day
12/5/07 — Date

COUNT PERIODS			
am	7:00 AM	-	9:00 AM
noon		-	
pm	4:00 PM	-	6:00 PM

CONTROL: 3-Way Stop Sign (N/S/E)

AM PEAK HOUR	800 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	430 PM

Intersection Turning Movement

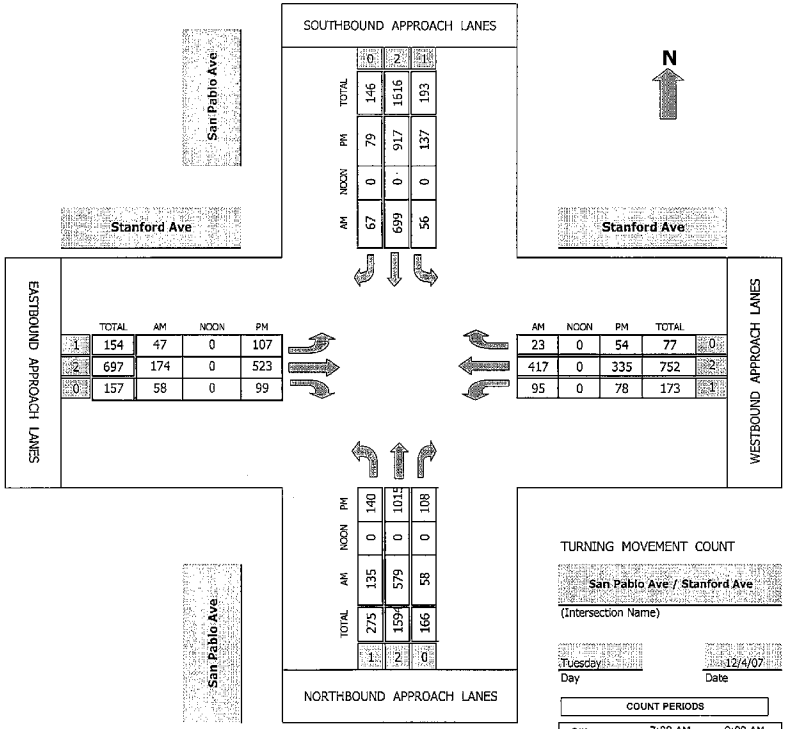
Prepared by:

NDS

National Data & Surveying Services

TMC Summary of San Pablo Ave/Stanford Ave

Project #: 07-7535-005



	TOTAL	AM	NOON	PM
1	154	47	0	107
2	697	174	0	523
0	157	58	0	99

	AM	NOON	PM	TOTAL	
	23	0	54	77	0
	417	0	335	752	2
	95	0	78	173	1

	0	2	1
TOTAL	146	1616	193
PM	79	917	137
NOON	0	0	0
AM	67	699	56

	1	2	0
TOTAL	275	1594	166
AM	135	579	58
NOON	0	0	0
PM	140	1015	108

TURNING MOVEMENT COUNT

San Pablo Ave / Stanford Ave
(Intersection Name)

Tuesday — Day
12/4/07 — Date

COUNT PERIODS		
am	7:00 AM -	9:00 AM
noon	-	
pm	4:00 PM -	6:00 PM

CONTROL: Signalized

AM PEAK HOUR	800 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	430 PM

Intersection Turning Movement

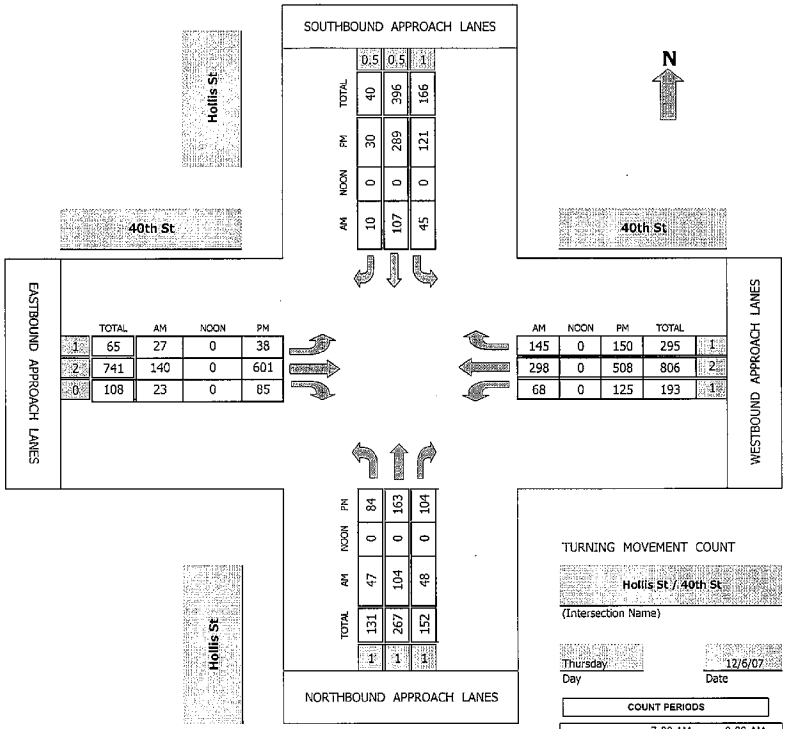
Prepared by:

NDS

National Data & Surveying Services

TMC Summary of Hollis St/40th St

Project #: 07-7535-006



	TOTAL	AM	NOON	PM
1	65	27	0	38
2	741	140	0	601
0	108	23	0	85

	AM	NOON	PM	TOTAL	
	145	0	150	295	1
	298	0	508	806	2
	68	0	125	193	1

	0.5	0.5	1
TOTAL	40	396	166
PM	30	289	121
NOON	0	0	0
AM	10	107	45

	1	1	1
TOTAL	131	267	152
AM	47	104	48
NOON	0	0	0
PM	84	163	104

TURNING MOVEMENT COUNT

Hollis St / 40th St
(Intersection Name)

Thursday — Day
12/6/07 — Date

COUNT PERIODS		
am	7:00 AM -	9:00 AM
noon	-	
pm	4:00 PM -	6:00 PM

CONTROL: Signalized

AM PEAK HOUR	800 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	415 PM

Intersection Turning Movement

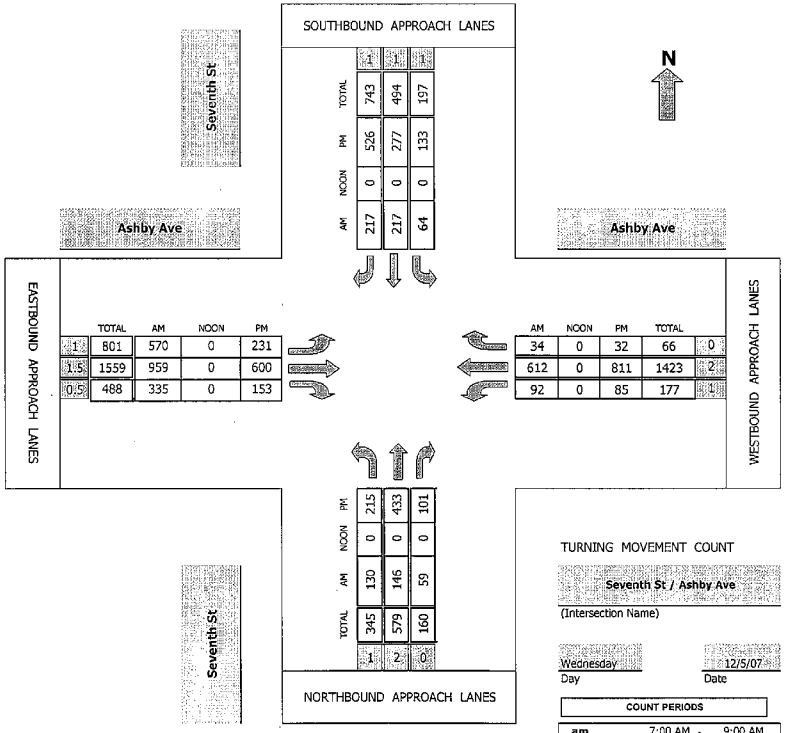
Prepared by:

NDS

National Data & Surveying Services

TMC Summary of Seventh St/Ashby Ave

Project #: 07-7535-007



TURNING MOVEMENT COUNT

Seventh St / Ashby Ave
(Intersection Name)

Wednesday — Day
12/5/07 — Date

COUNT PERIODS		
am	7:00 AM -	9:00 AM
noon	-	
pm	4:00 PM -	6:00 PM

CONTROL: Signalized

AM PEAK HOUR	800 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	445 PM

Intersection Turning Movement

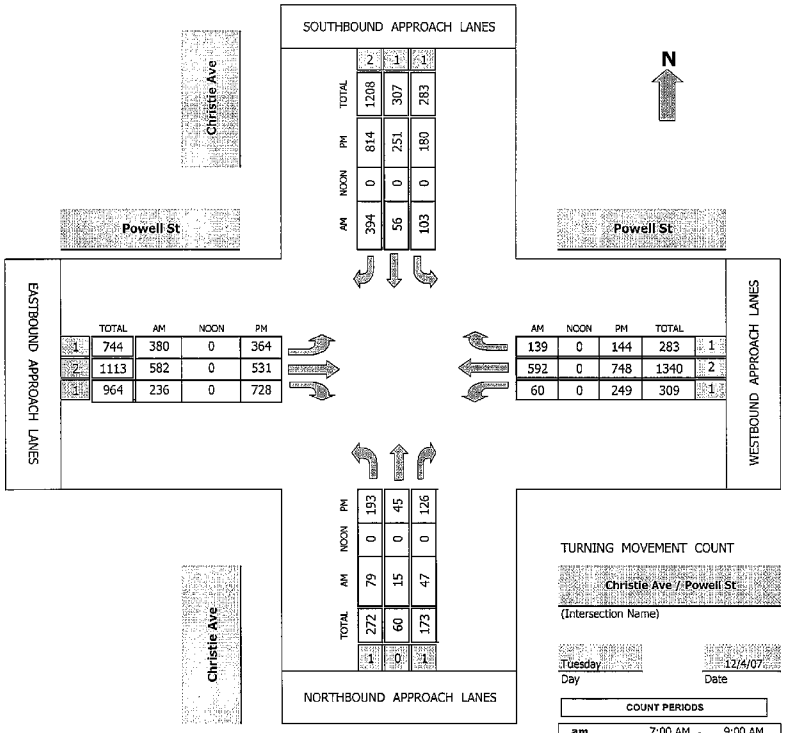
Prepared by:

NDS

National Data & Surveying Services

TMC Summary of Christie Ave/Powell St

Project #: 07-7535-008



TURNING MOVEMENT COUNT

Christie Ave / Powell St
(Intersection Name)

Tuesday — Day
12/4/07 — Date

COUNT PERIODS		
am	7:00 AM -	9:00 AM
noon	-	
pm	4:00 PM -	6:00 PM

CONTROL: 0

AM PEAK HOUR	800 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	445 PM

Intersection Turning Movement

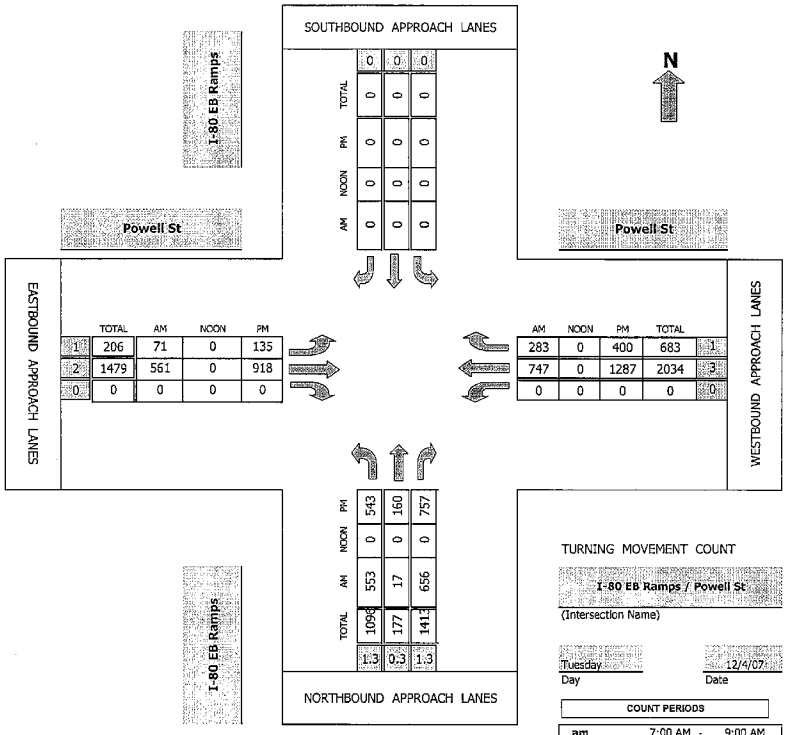
Prepared by:

NDS

National Data & Surveying Services

TMC Summary of I-80 EB Ramps/Powell St

Project #: 07-7535-009



	AM	NOON	PM	TOTAL
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0

	TOTAL	AM	NOON	PM
1	206	71	0	135
2	1479	561	0	918
0	0	0	0	0

AM	NOON	PM	TOTAL	
283	0	400	683	1
747	0	1287	2034	3
0	0	0	0	0

	AM	NOON	PM	TOTAL
	543	0	160	757
	553	0	0	656
	1096	0	177	1413
	1.3	0.3	1.3	

TURNING MOVEMENT COUNT

I-80 EB Ramps / Powell St
(Intersection Name)

Tuesday — Day
12/4/07 — Date

COUNT PERIODS		
am	7:00 AM -	9:00 AM
noon	-	
pm	4:00 PM -	6:00 PM

CONTROL: Signalized

AM PEAK HOUR	800 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	500 PM

Intersection Turning Movement

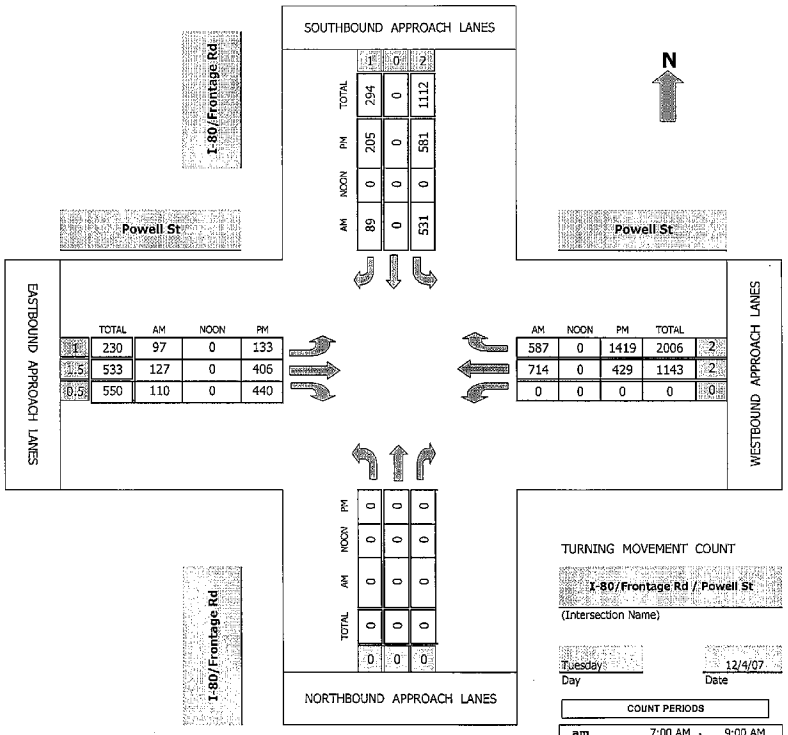
Prepared by:

NDS

National Data & Surveying Services

TMC Summary of I-80/Frontage Rd/Powell St

Project #: 07-7535-010



	AM	NOON	PM	TOTAL
	1	0	2	
	294	0	1112	
	205	0	581	
	0	0	0	
	89	0	531	

	TOTAL	AM	NOON	PM
1	230	97	0	133
1.5	533	127	0	406
0.5	550	110	0	440

AM	NOON	PM	TOTAL	
587	0	1419	2006	2
714	0	429	1143	2
0	0	0	0	0

	AM	NOON	PM	TOTAL
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0

TURNING MOVEMENT COUNT

I-80/Frontage Rd / Powell St
(Intersection Name)

Tuesday — Day
12/4/07 — Date

COUNT PERIODS		
am	7:00 AM -	9:00 AM
noon	-	
pm	4:00 PM -	6:00 PM

CONTROL: Signalized;

AM PEAK HOUR	800 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	445 PM

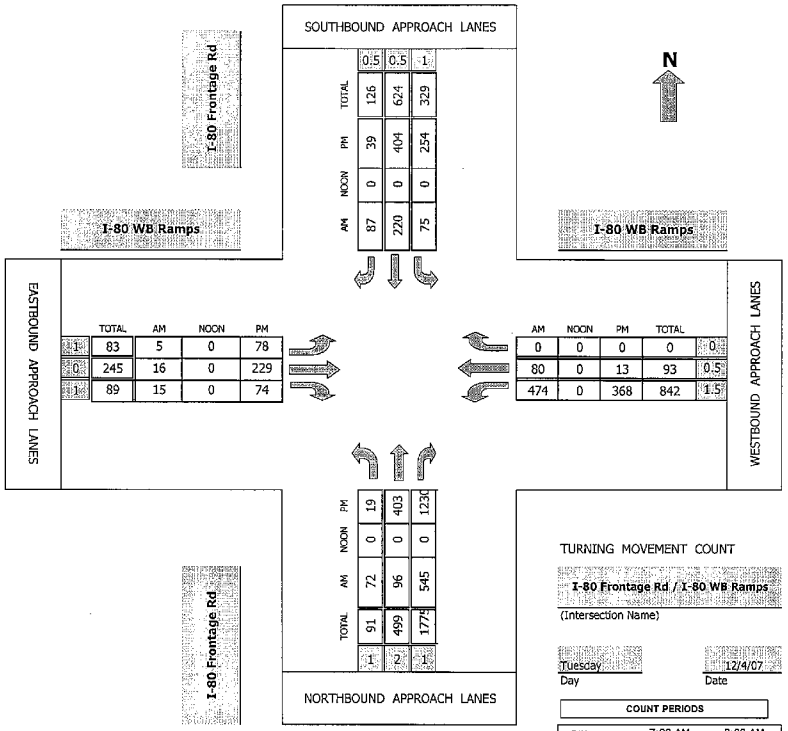
Intersection Turning Movement

Prepared by:

National Data & Surveying Services

TMC Summary of I-80 Frontage Rd/I-80 WB Ramps

Project #: 07-7535-011



	TOTAL	AM	NOON	PM
0.5	126	87	0	39
0.5	624	220	0	404
1	329	75	0	254

	TOTAL	AM	NOON	PM
1	83	5	0	78
0	245	16	0	229
1	89	15	0	74

	AM	NOON	PM	TOTAL
0	0	0	0	0
0.5	80	0	13	93
1.5	474	0	368	842

	TOTAL	AM	NOON	PM
1	91	72	0	19
2	499	96	0	403
1	1775	545	0	1230

TURNING MOVEMENT COUNT

I-80 Frontage Rd / I-80 WB Ramps
(Intersection Name)

Tuesday — Day

12/4/07 — Date

COUNT PERIODS			
am	7:00 AM	-	9:00 AM
noon		-	
pm	4:00 PM	-	6:00 PM

CONTROL: Signalized

AM PEAK HOUR	800 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	445 PM

TECHNICAL APPENDIX B

LEVEL OF SERVICE CALCULATION WORKSHEETS

EXISTING AM PEAK HOUR CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	203	304	241	62	416	55	207	100	26	22	163	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3304		1770	3477		1770	1805		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.40	1.00		0.67	1.00	1.00
Satd. Flow (perm)	1770	3304		1770	3477		753	1805		1244	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	226	338	268	69	462	61	230	111	29	24	181	108
RTOR Reduction (vph)	0	177	0	0	17	0	0	19	0	0	0	74
Lane Group Flow (vph)	226	429	0	69	506	0	230	121	0	24	181	34
Turn Type	Prot			Prot			pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases							2			6		6
Actuated Green, G (s)	4.6	16.2		2.2	13.8		12.7	12.7		10.5	10.5	15.1
Effective Green, g (s)	4.6	16.2		2.2	13.8		12.7	12.7		10.5	10.5	15.1
Actuated g/C Ratio	0.10	0.34		0.05	0.29		0.27	0.27		0.22	0.22	0.32
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	171	1122		82	1006		260	481		280	410	634
v/s Ratio Prot	c0.13	0.13		0.04	c0.15		c0.05	0.07		0.00	c0.10	0.01
v/s Ratio Perm							c0.18			0.02		0.02
v/c Ratio	1.32	0.38		0.84	0.50		0.88	0.25		0.09	0.44	0.05
Uniform Delay, d1	21.6	12.0		22.6	14.1		16.9	13.8		14.8	16.1	11.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	179.6	0.2		50.7	0.4		27.9	0.3		0.1	0.8	0.0
Delay (s)	201.1	12.2		73.3	14.5		44.8	14.0		14.9	16.8	11.4
Level of Service	F	B		E	B		D	B		B	B	B
Approach Delay (s)		63.5			21.3			33.1			14.8	
Approach LOS		E			C			C			B	

Intersection Summary			
HCM Average Control Delay	39.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	47.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	62	234	32	46	514	53	9	6	11	15	15	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	69	260	36	48	541	56	10	7	12	17	17	42
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		525										
pX, platoon unblocked												
vC, conflicting volume	597			296			833	1109	148	949	1099	298
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	597			296			833	1109	148	949	1099	298
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			96			95	96	99	91	91	94
cM capacity (veh/h)	976			1263			210	186	872	190	189	698

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	199	166	319	326	29	76
Volume Left	69	0	48	0	10	17
Volume Right	0	36	0	56	12	42
cSH	976	1700	1263	1700	297	319
Volume to Capacity	0.07	0.10	0.04	0.19	0.10	0.24
Queue Length 95th (ft)	6	0	3	0	8	23
Control Delay (s)	3.6	0.0	1.5	0.0	18.4	19.7
Lane LOS	A		A		C	C
Approach Delay (s)	1.9		0.7		18.4	19.7
Approach LOS					C	C

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	12	20	15	24	13	70	273	21	20	387	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	1.00
Frt	1.00	0.91		1.00	0.95			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1770	1687		1770	1767			3475			1821	1552
Flt Permitted	0.87	1.00		0.87	1.00			0.84			0.98	1.00
Satd. Flow (perm)	1620	1687		1620	1767			2932			1783	1552
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	13	22	17	27	14	78	303	23	22	430	51
RTOR Reduction (vph)	0	19	0	0	12	0	0	5	0	0	0	16
Lane Group Flow (vph)	29	16	0	17	29	0	0	399	0	0	452	35
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	5	5
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	4.6	4.6		4.6	4.6			26.9			26.9	26.9
Effective Green, g (s)	4.6	4.6		4.6	4.6			26.9			26.9	26.9
Actuated g/C Ratio	0.12	0.12		0.12	0.12			0.68			0.68	0.68
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	189	196		189	206			1997			1214	1057
v/s Ratio Prot		0.01			0.02							
v/s Ratio Perm	c0.02			0.01				0.14			c0.25	0.02
v/c Ratio	0.15	0.08		0.09	0.14			0.20			0.37	0.03
Uniform Delay, d1	15.7	15.6		15.6	15.7			2.3			2.7	2.1
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	0.4	0.2		0.2	0.3			0.2			0.9	0.1
Delay (s)	16.1	15.7		15.8	16.0			2.6			3.6	2.1
Level of Service	B	B		B	B			A			A	A
Approach Delay (s)		15.9			15.9			2.6			3.4	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	4.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	39.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	18	23	15	0	0	0	16	15	4	2	41	34
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	26	17	0	0	0	18	17	4	2	46	38

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	62	39	86
Volume Left (vph)	20	18	2
Volume Right (vph)	17	4	38
Hadj (s)	-0.06	0.06	-0.23
Departure Headway (s)	4.1	4.2	3.8
Degree Utilization, x	0.07	0.05	0.09
Capacity (veh/h)	850	836	915
Control Delay (s)	7.4	7.4	7.2
Approach Delay (s)	7.4	7.4	7.2
Approach LOS	A	A	A

Intersection Summary

Delay	7.3		
HCM Level of Service	A		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	47	174	58	95	417	23	135	579	58	56	699	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.99		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3407		1770	3511		1770	3491		1770	3493	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3407		1770	3511		1770	3491		1770	3493	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.96	0.96	0.96
Adj. Flow (vph)	52	193	64	106	463	26	148	636	64	58	728	70
RTOR Reduction (vph)	0	35	0	0	0	0	0	6	0	0	6	0
Lane Group Flow (vph)	52	222	0	106	489	0	148	694	0	58	792	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.2	17.5		10.3	20.6		12.4	48.6		7.6	43.8	
Effective Green, g (s)	7.2	17.5		10.3	20.6		12.4	48.6		7.6	43.8	
Actuated g/C Ratio	0.07	0.18		0.10	0.21		0.12	0.49		0.08	0.44	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	127	596		182	723		219	1697		135	1530	
v/s Ratio Prot	0.03	0.07		c0.06	c0.14		c0.08	0.20		0.03	c0.23	
v/s Ratio Perm												
v/c Ratio	0.41	0.37		0.58	0.68		0.68	0.41		0.43	0.52	
Uniform Delay, d1	44.4	36.4		42.8	36.6		41.9	16.5		44.1	20.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	0.4		4.7	2.5		8.0	0.7		2.2	1.3	
Delay (s)	46.5	36.8		47.5	39.1		49.9	17.2		46.3	21.7	
Level of Service	D	D		D	D		D	B		D	C	
Approach Delay (s)		38.4			40.6			22.9			23.3	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	28.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	140	23	68	298	145	47	104	48	45	107	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3463		1770	3366		1770	1863	1583	1770	1839	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3463		1770	3366		1770	1863	1583	1770	1839	
Peak-hour factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	30	156	26	72	317	154	52	116	53	50	119	11
RTOR Reduction (vph)	0	9	0	0	36	0	0	0	46	0	4	0
Lane Group Flow (vph)	30	173	0	72	435	0	52	116	7	50	126	0
Bus Blockages (#/hr)	0	0	0	0	0	5	0	0	0	0	0	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	4.9	54.7		8.2	58.0		7.2	13.9	13.9	7.2	13.9	
Effective Green, g (s)	4.9	54.7		8.2	58.0		7.2	13.9	13.9	7.2	13.9	
Actuated g/C Ratio	0.05	0.55		0.08	0.58		0.07	0.14	0.14	0.07	0.14	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
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)	87	1894		145	1952		127	259	220	127	256	
v/s Ratio Prot	0.02	0.05		c0.04	c0.13		c0.03	0.06		0.03	c0.07	
v/s Ratio Perm									0.00			
v/c Ratio	0.34	0.09		0.50	0.22		0.41	0.45	0.03	0.39	0.49	
Uniform Delay, d1	46.0	10.8		43.9	10.1		44.4	39.5	37.2	44.3	39.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.4	0.1		2.7	0.3		2.1	1.2	0.1	2.0	1.5	
Delay (s)	48.4	10.9		46.6	10.4		46.5	40.8	37.3	46.3	41.3	
Level of Service	D	B		D	B		D	D	D	D	D	
Approach Delay (s)		16.2			15.2			41.3			42.7	
Approach LOS		B			B			D			D	

Intersection Summary

HCM Average Control Delay	24.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	570	959	335	92	612	34	130	146	59	64	217	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.99		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3402		1770	3511		1770	3386		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3402		1770	3511		1770	3386		1770	1863	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	600	1009	353	98	651	36	144	162	66	71	241	241
RTOR Reduction (vph)	0	25	0	0	4	0	0	46	0	0	0	101
Lane Group Flow (vph)	600	1337	0	98	683	0	144	182	0	71	241	140
Turn Type	Prot			Prot			Split			Split		pm+ov
Protected Phases	7	4		3	8		2	2		6	6	7
Permitted Phases												6
Actuated Green, G (s)	30.1	41.9		9.2	21.0		13.3	13.3		15.0	15.0	45.1
Effective Green, g (s)	30.1	41.9		9.2	21.0		13.3	13.3		15.0	15.0	45.1
Actuated g/C Ratio	0.32	0.44		0.10	0.22		0.14	0.14		0.16	0.16	0.47
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	558	1494		171	773		247	472		278	293	815
v/s Ratio Prot	c0.34	c0.39		0.06	0.19		c0.08	0.05		0.04	c0.13	0.05
v/s Ratio Perm												0.03
v/c Ratio	1.08	0.90		0.57	0.88		0.58	0.38		0.26	0.82	0.17
Uniform Delay, d1	32.6	24.7		41.2	36.0		38.5	37.3		35.3	38.9	14.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	59.9	7.3		4.6	11.7		3.5	0.5		0.5	16.8	0.1
Delay (s)	92.6	32.1		45.8	47.7		41.9	37.9		35.8	55.7	14.5
Level of Service	F	C		D	D		D	D		D	E	B
Approach Delay (s)		50.6			47.5			39.4			35.2	
Approach LOS		D			D			D			D	

Intersection Summary

HCM Average Control Delay	46.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	95.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	380	582	236	60	592	139	79	15	47	103	56	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.91	0.91	1.00	0.95	1.00	0.95	0.95	1.00		1.00	0.88
Frt	1.00	0.99	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00		0.97	1.00
Satd. Flow (prot)	3433	3371	1441	1770	3539	1583	1681	1711	1583		1804	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00		0.97	1.00
Satd. Flow (perm)	3433	3371	1441	1770	3539	1583	1681	1711	1583		1804	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	422	647	262	67	658	154	88	17	52	108	59	415
RTOR Reduction (vph)	0	2	119	0	0	94	0	0	47	0	0	264
Lane Group Flow (vph)	422	671	117	67	658	60	52	53	5	0	167	151
Turn Type	Prot		pm+ov	Prot		Perm	Split		Perm	Split		pm+ov
Protected Phases	7	4	2	3	8		2	2		6	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	18.8	40.9	49.6	16.8	38.9	38.9	8.7	8.7	8.7		17.6	36.4
Effective Green, g (s)	18.8	40.9	49.6	16.8	38.9	38.9	8.7	8.7	8.7		17.6	36.4
Actuated g/C Ratio	0.19	0.41	0.50	0.17	0.39	0.39	0.09	0.09	0.09		0.18	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	645	1379	715	297	1377	616	146	149	138		318	1126
v/s Ratio Prot	c0.12	c0.20	0.01	0.04	c0.19		0.03	c0.03			c0.09	0.03
v/s Ratio Perm			0.07			0.04			0.00			0.03
v/c Ratio	0.65	0.49	0.16	0.23	0.48	0.10	0.36	0.36	0.03		0.53	0.13
Uniform Delay, d1	37.6	21.8	13.8	36.0	22.9	19.4	43.0	43.0	41.8		37.4	21.3
Progression Factor	0.95	0.46	1.21	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.2	1.1	0.1	0.4	1.2	0.3	1.5	1.5	0.1		1.6	0.1
Delay (s)	38.0	11.0	16.8	36.4	24.1	19.7	44.5	44.5	41.9		39.0	21.3
Level of Service	D	B	B	D	C	B	D	D	D		D	C
Approach Delay (s)		20.6			24.3			43.6			26.4	
Approach LOS		C			C			D			C	

Intersection Summary

HCM Average Control Delay	24.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	561	0	0	747	283	553	17	656	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.91			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.90	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (prot)	1770	5085			5085	1583	1681	1507	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (perm)	1770	5085			5085	1583	1681	1507	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	79	623	0	0	812	308	614	19	729	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	159	0	69	171	0	0	0
Lane Group Flow (vph)	79	623	0	0	812	149	473	383	266	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Actuated Green, G (s)	6.3	58.8			48.5	48.5	33.2	33.2	33.2			
Effective Green, g (s)	6.3	58.8			48.5	48.5	33.2	33.2	33.2			
Actuated g/C Ratio	0.06	0.59			0.48	0.48	0.33	0.33	0.33			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	112	2990			2466	768	558	500	499			
v/s Ratio Prot	c0.04	0.12			c0.16		c0.28	0.25				
v/s Ratio Perm						0.09			0.18			
v/c Ratio	0.71	0.21			0.33	0.19	0.85	0.77	0.53			
Uniform Delay, d1	45.9	9.7			15.8	14.6	31.0	29.9	27.1			
Progression Factor	0.73	3.00			0.62	0.39	1.00	1.00	1.00			
Incremental Delay, d2	17.1	0.1			0.3	0.5	11.4	6.9	1.1			
Delay (s)	50.6	29.1			10.1	6.3	42.5	36.8	28.2			
Level of Service	D	C			B	A	D	D	C			
Approach Delay (s)		31.6			9.1			36.0			0.0	
Approach LOS		C			A			D			A	

Intersection Summary

HCM Average Control Delay	25.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	127	110	0	714	587	0	0	0	531	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0				4.0		4.0
Lane Util. Factor	1.00	0.95			0.91	0.91				0.97		1.00
Frt	1.00	0.93			0.97	0.85				1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (prot)	1770	3292			3284	1441				3433		1583
Flt Permitted	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (perm)	1770	3292			3284	1441				3433		1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	101	132	115	0	793	652	0	0	0	590	0	99
RTOR Reduction (vph)	0	36	0	0	16	0	0	0	0	0	0	76
Lane Group Flow (vph)	101	211	0	0	986	443	0	0	0	590	0	23
Turn Type	Prot					Free				custom		custom
Protected Phases	7	4			8					6		6
Permitted Phases						Free				6		6
Actuated Green, G (s)	12.8	68.7			51.9	100.0				23.3		23.3
Effective Green, g (s)	12.8	68.7			51.9	100.0				23.3		23.3
Actuated g/C Ratio	0.13	0.69			0.52	1.00				0.23		0.23
Clearance Time (s)	4.0	4.0			4.0					4.0		4.0
Vehicle Extension (s)	3.0	3.0			3.0					3.0		3.0
Lane Grp Cap (vph)	227	2262			1704	1441				800		369
v/s Ratio Prot	c0.06	0.06			c0.30					c0.17		0.01
v/s Ratio Perm						0.31						
v/c Ratio	0.44	0.09			0.58	0.31				0.74		0.06
Uniform Delay, d1	40.3	5.2			16.5	0.0				35.5		29.8
Progression Factor	1.00	1.00			0.93	1.00				1.00		1.00
Incremental Delay, d2	1.4	0.1			1.3	0.5				3.6		0.1
Delay (s)	41.7	5.3			16.6	0.5				39.1		29.9
Level of Service	D	A			B	A				D		C
Approach Delay (s)		15.9			11.7			0.0			37.8	
Approach LOS		B			B			A			D	

Intersection Summary

HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	16	15	474	80	0	72	96	545	75	220	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1681	1709		1770	3539	1583	1770	1783	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1681	1709		1770	3539	1583	1770	1783	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	6	18	17	527	89	0	77	103	586	82	242	96
RTOR Reduction (vph)	0	0	16	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	6	18	1	306	310	0	77	103	586	82	325	0
Turn Type	Split		Perm	Split			Prot		Free	Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						Free			
Actuated Green, G (s)	3.2	3.2	3.2	18.1	18.1		6.6	18.1	62.2	6.8	18.3	
Effective Green, g (s)	3.2	3.2	3.2	18.1	18.1		6.6	18.1	62.2	6.8	18.3	
Actuated g/C Ratio	0.05	0.05	0.05	0.29	0.29		0.11	0.29	1.00	0.11	0.29	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
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)	91	96	81	489	497		188	1030	1583	194	525	
v/s Ratio Prot	0.00	0.01		c0.18	0.18		0.04	0.03		0.05	c0.18	
v/s Ratio Perm			0.00						c0.37			
v/c Ratio	0.07	0.19	0.01	0.63	0.62		0.41	0.10	0.37	0.42	0.62	
Uniform Delay, d1	28.1	28.3	28.0	19.1	19.1		26.0	16.1	0.0	25.9	18.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.9	0.1	2.5	2.4		1.5	0.0	0.7	1.5	2.2	
Delay (s)	28.4	29.2	28.1	21.6	21.5		27.4	16.1	0.7	27.4	21.1	
Level of Service	C	C	C	C	C		C	B	A	C	C	
Approach Delay (s)		28.6			21.6			5.4			22.3	
Approach LOS		C			C			A			C	

Intersection Summary

HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	62.2	Sum of lost time (s)	4.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

LEVEL OF SERVICE CALCULATION WORKSHEETS

EXISTING PM PEAK HOUR CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	588	141	48	520	30	354	212	46	77	242	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3436		1770	3511		1770	1813		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.34	1.00		0.58	1.00	1.00
Satd. Flow (perm)	1770	3436		1770	3511		626	1813		1088	1863	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	122	646	155	53	578	33	393	236	51	86	269	263
RTOR Reduction (vph)	0	33	0	0	7	0	0	15	0	0	0	23
Lane Group Flow (vph)	122	768	0	53	604	0	393	272	0	86	269	240
Turn Type	Prot			Prot			pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases							2			6		6
Actuated Green, G (s)	4.0	16.7		1.5	14.2		15.9	15.9		14.2	14.2	18.2
Effective Green, g (s)	4.0	16.7		1.5	14.2		15.9	15.9		14.2	14.2	18.2
Actuated g/C Ratio	0.08	0.32		0.03	0.27		0.30	0.30		0.27	0.27	0.35
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	135	1095		51	951		277	550		325	505	671
v/s Ratio Prot	0.07	c0.22		0.03	c0.17		c0.11	0.15		0.01	c0.14	0.03
v/s Ratio Perm							c0.32			0.06		0.12
v/c Ratio	0.90	0.70		1.04	0.63		1.42	0.49		0.26	0.53	0.36
Uniform Delay, d1	24.0	15.7		25.4	16.8		18.1	15.0		15.1	16.3	12.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	49.2	2.1		137.6	1.4		208.4	0.7		0.4	1.1	0.3
Delay (s)	73.2	17.7		163.0	18.2		226.4	15.7		15.6	17.4	13.1
Level of Service	E	B		F	B		F	B		B	B	B
Approach Delay (s)		25.0			29.8			137.5			15.3	
Approach LOS		C			C			F			B	

Intersection Summary			
HCM Average Control Delay	50.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	36	659	8	17	538	16	11	6	26	31	19	47
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.97	0.97	0.97	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	38	686	8	18	555	16	12	7	29	34	21	52
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		525										
pX, platoon unblocked				0.90			0.90	0.90	0.90	0.90	0.90	
vC, conflicting volume	571			695			1141	1372	347	1048	1368	286
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	571			435			931	1188	48	828	1184	286
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			98			92	96	97	84	87	93
cM capacity (veh/h)	998			1008			159	159	908	213	160	711

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	381	352	295	294	48	108
Volume Left	38	0	18	0	12	34
Volume Right	0	8	0	16	29	52
cSH	998	1700	1008	1700	317	293
Volume to Capacity	0.04	0.21	0.02	0.17	0.15	0.37
Queue Length 95th (ft)	3	0	1	0	13	41
Control Delay (s)	1.2	0.0	0.7	0.0	18.4	24.2
Lane LOS	A		A		C	C
Approach Delay (s)	0.6		0.3		18.4	24.2
Approach LOS					C	C

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	53	48	26	15	23	15	528	30	7	410	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	1.00
Frt	1.00	0.93		1.00	0.91			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	1.00
Satd. Flow (prot)	1770	1731		1770	1694			3507			1861	1583
Flt Permitted	0.73	1.00		0.68	1.00			0.94			0.99	1.00
Satd. Flow (perm)	1358	1731		1276	1694			3311			1845	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.90	0.90	0.90
Adj. Flow (vph)	131	59	53	29	17	26	16	568	32	8	456	17
RTOR Reduction (vph)	0	41	0	0	20	0	0	6	0	0	0	7
Lane Group Flow (vph)	131	71	0	29	23	0	0	610	0	0	464	10
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	8.7	8.7		8.7	8.7			22.0			22.0	22.0
Effective Green, g (s)	8.7	8.7		8.7	8.7			22.0			22.0	22.0
Actuated g/C Ratio	0.22	0.22		0.22	0.22			0.57			0.57	0.57
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	305	389		287	381			1882			1049	900
v/s Ratio Prot		0.04			0.01							
v/s Ratio Perm	c0.10			0.02				0.18			c0.25	0.01
v/c Ratio	0.43	0.18		0.10	0.06			0.32			0.44	0.01
Uniform Delay, d1	12.9	12.1		11.9	11.8			4.4			4.8	3.6
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.0	0.2		0.2	0.1			0.5			1.4	0.0
Delay (s)	13.8	12.4		12.1	11.9			4.9			6.2	3.6
Level of Service	B	B		B	B			A			A	A
Approach Delay (s)		13.2			11.9			4.9			6.1	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	38.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	20	73	26	0	0	0	12	19	2	4	18	25
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	22	81	29	0	0	0	13	21	2	4	20	28

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	132	37	52
Volume Left (vph)	22	13	4
Volume Right (vph)	29	2	28
Hadj (s)	-0.06	0.07	-0.27
Departure Headway (s)	4.0	4.3	4.0
Degree Utilization, x	0.15	0.04	0.06
Capacity (veh/h)	872	800	876
Control Delay (s)	7.7	7.5	7.2
Approach Delay (s)	7.7	7.5	7.2
Approach LOS	A	A	A

Intersection Summary			
Delay	7.6		
HCM Level of Service	A		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	523	99	78	335	54	140	1015	108	137	917	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3455		1770	3465		1770	3488		1770	3497	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3455		1770	3465		1770	3488		1770	3497	
Peak-hour factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.97	0.97	0.97
Adj. Flow (vph)	114	556	105	87	372	60	156	1128	120	141	945	81
RTOR Reduction (vph)	0	15	0	0	13	0	0	8	0	0	6	0
Lane Group Flow (vph)	114	646	0	87	419	0	156	1240	0	141	1020	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	10.5	23.6		8.5	21.6		11.8	40.5		11.4	40.1	
Effective Green, g (s)	10.5	23.6		8.5	21.6		11.8	40.5		11.4	40.1	
Actuated g/C Ratio	0.10	0.24		0.08	0.22		0.12	0.40		0.11	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	186	815		150	748		209	1413		202	1402	
v/s Ratio Prot	c0.06	c0.19		0.05	0.12		c0.09	c0.36		0.08	0.29	
v/s Ratio Perm												
v/c Ratio	0.61	0.79		0.58	0.56		0.75	0.88		0.70	0.73	
Uniform Delay, d1	42.8	35.9		44.0	35.0		42.7	27.5		42.6	25.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.9	5.3		5.4	0.9		13.5	8.0		10.0	3.3	
Delay (s)	48.7	41.2		49.4	35.9		56.2	35.5		52.7	28.7	
Level of Service	D	D		D	D		E	D		D	C	
Approach Delay (s)		42.3			38.1			37.8			31.6	
Approach LOS		D			D			D			C	

Intersection Summary

HCM Average Control Delay	36.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	601	85	125	508	150	84	163	104	121	289	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3473		1770	3418		1770	1863	1583	1770	1837	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3473		1770	3418		1770	1863	1583	1770	1837	
Peak-hour factor, PHF	0.97	0.97	0.97	0.93	0.93	0.93	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	620	88	134	546	161	93	181	116	134	321	33
RTOR Reduction (vph)	0	10	0	0	22	0	0	0	90	0	4	0
Lane Group Flow (vph)	39	698	0	134	685	0	93	181	26	134	350	0
Bus Blockages (#/hr)	0	0	0	0	0	5	0	0	0	0	0	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	5.3	39.1		11.6	45.4		8.7	22.3	22.3	11.0	24.6	
Effective Green, g (s)	5.3	39.1		11.6	45.4		8.7	22.3	22.3	11.0	24.6	
Actuated g/C Ratio	0.05	0.39		0.12	0.45		0.09	0.22	0.22	0.11	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
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)	94	1358		205	1552		154	415	353	195	452	
v/s Ratio Prot	0.02	c0.20		c0.08	0.20		0.05	0.10		c0.08	c0.19	
v/s Ratio Perm									0.02			
v/c Ratio	0.41	0.51		0.65	0.44		0.60	0.44	0.07	0.69	0.77	
Uniform Delay, d1	45.8	23.2		42.3	18.6		44.0	33.4	30.7	42.8	35.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.0	1.4		7.3	0.9		6.5	0.7	0.1	9.6	8.1	
Delay (s)	48.8	24.6		49.6	19.6		50.5	34.2	30.8	52.5	43.2	
Level of Service	D	C		D	B		D	C	C	D	D	
Approach Delay (s)		25.9			24.3			37.1			45.8	
Approach LOS		C			C			D			D	

Intersection Summary

HCM Average Control Delay	31.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	231	600	153	85	811	32	215	433	101	133	277	526
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3431		1770	3519		1770	3439		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3431		1770	3519		1770	3439		1770	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	246	638	163	92	882	35	234	471	110	143	298	566
RTOR Reduction (vph)	0	18	0	0	3	0	0	20	0	0	0	58
Lane Group Flow (vph)	246	783	0	92	914	0	234	561	0	143	298	508
Turn Type	Prot			Prot			Split			Split		pm+ov
Protected Phases	7	4		3	8		2	2		6	6	7
Permitted Phases												6
Actuated Green, G (s)	19.3	31.8		8.6	21.1		17.4	17.4		16.1	16.1	35.4
Effective Green, g (s)	19.3	31.8		8.6	21.1		17.4	17.4		16.1	16.1	35.4
Actuated g/C Ratio	0.21	0.35		0.10	0.23		0.19	0.19		0.18	0.18	0.39
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	380	1214		169	826		343	666		317	334	694
v/s Ratio Prot	0.14	0.23		0.05	c0.26		0.13	c0.16		0.08	c0.16	c0.16
v/s Ratio Perm												0.16
v/c Ratio	0.65	0.64		0.54	1.11		0.68	0.84		0.45	0.89	0.73
Uniform Delay, d1	32.2	24.3		38.8	34.4		33.7	34.9		33.0	36.1	23.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.8	1.2		3.6	64.7		5.5	9.5		1.0	24.4	4.0
Delay (s)	36.0	25.5		42.3	99.1		39.2	44.4		34.0	60.5	27.2
Level of Service	D	C		D	F		D	D		C	E	C
Approach Delay (s)		28.0			93.9			42.9			38.0	
Approach LOS		C			F			D			D	

Intersection Summary

HCM Average Control Delay	50.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	89.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	364	531	728	249	748	144	193	45	126	180	251	814
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.91	0.91	1.00	0.95	1.00	0.95	0.95	1.00		1.00	0.88
Frt	1.00	0.94	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00		0.98	1.00
Satd. Flow (prot)	3433	3194	1441	1770	3539	1583	1681	1716	1583		1825	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00		0.98	1.00
Satd. Flow (perm)	3433	3194	1441	1770	3539	1583	1681	1716	1583		1825	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	383	559	766	262	787	152	214	50	140	189	264	857
RTOR Reduction (vph)	0	83	165	0	0	114	0	0	122	0	0	81
Lane Group Flow (vph)	383	828	249	262	787	38	131	133	18	0	453	776
Turn Type	Prot		pm+ov	Prot		Perm	Split		Perm	Split		pm+ov
Protected Phases	7	4	2	3	8		2	2		6	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	18.6	22.8	35.9	21.0	25.2	25.2	13.1	13.1	13.1		27.1	45.7
Effective Green, g (s)	18.6	22.8	35.9	21.0	25.2	25.2	13.1	13.1	13.1		27.1	45.7
Actuated g/C Ratio	0.19	0.23	0.36	0.21	0.25	0.25	0.13	0.13	0.13		0.27	0.46
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	639	728	517	372	892	399	220	225	207		495	1385
v/s Ratio Prot	0.11	c0.26	0.06	0.15	c0.22		c0.08	0.08			c0.25	0.10
v/s Ratio Perm			0.11			0.02			0.01			0.17
v/c Ratio	0.60	1.14	0.48	0.70	0.88	0.10	0.60	0.59	0.09		0.92	0.56
Uniform Delay, d1	37.3	38.6	24.8	36.6	36.0	28.7	41.0	40.9	38.2		35.3	19.8
Progression Factor	1.25	1.31	1.96	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.3	75.6	0.6	6.0	12.3	0.5	4.3	4.1	0.2		21.5	0.5
Delay (s)	48.0	126.3	49.2	42.6	48.3	29.1	45.2	45.0	38.4		56.8	20.3
Level of Service	D	F	D	D	D	C	D	D	D		E	C
Approach Delay (s)		90.1			44.6			42.8			32.9	
Approach LOS		F			D			D			C	

Intersection Summary

HCM Average Control Delay	57.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	918	0	0	1287	400	543	160	757	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.91			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.50	1.00	0.91	0.85			
Flt Protected	0.70	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	1304	5085			5085	931	1681	1541	1504			
Flt Permitted	0.70	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	1304	5085			5085	931	1681	1541	1504			
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.98	0.98	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	147	998	0	0	1313	408	572	168	797	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	212	0	50	67	0	0	0
Lane Group Flow (vph)	147	998	0	0	1313	196	515	478	427	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Actuated Green, G (s)	5.5	57.5			48.0	48.0	34.5	34.5	34.5			
Effective Green, g (s)	5.5	57.5			48.0	48.0	34.5	34.5	34.5			
Actuated g/C Ratio	0.06	0.57			0.48	0.48	0.34	0.34	0.34			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	72	2924			2441	447	580	532	519			
v/s Ratio Prot	c0.11	0.20			c0.26		0.31	c0.31				
v/s Ratio Perm						0.21			0.28			
v/c Ratio	2.04	0.34			0.54	0.44	0.89	0.90	0.82			
Uniform Delay, d1	47.2	11.2			18.2	17.1	30.9	31.1	29.9			
Progression Factor	0.71	1.43			0.88	2.46	1.00	1.00	1.00			
Incremental Delay, d2	510.0	0.3			0.6	2.2	15.3	17.8	10.1			
Delay (s)	543.5	16.4			16.6	44.4	46.2	48.9	40.1			
Level of Service	F	B			B	D	D	D	D			
Approach Delay (s)		84.1			23.2			45.1			0.0	
Approach LOS		F			C			D			A	

Intersection Summary

HCM Average Control Delay	46.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	406	440	0	429	1419	0	0	0	581	0	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0				4.0		4.0
Lane Util. Factor	1.00	0.95			0.91	0.91				0.97		1.00
Frt	1.00	0.92			0.91	0.85				1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (prot)	1770	3263			3083	1441				3433		1583
Flt Permitted	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (perm)	1770	3263			3083	1441				3433		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.92	0.92	1.00	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	140	427	463	0	466	1419	0	0	0	646	0	228
RTOR Reduction (vph)	0	149	0	0	230	0	0	0	0	0	0	170
Lane Group Flow (vph)	140	741	0	0	946	709	0	0	0	646	0	58
Turn Type	Prot					Free				custom		custom
Protected Phases	7	4			8							
Permitted Phases						Free				6		6
Actuated Green, G (s)	16.0	66.5			46.5	100.0				25.5		25.5
Effective Green, g (s)	16.0	66.5			46.5	100.0				25.5		25.5
Actuated g/C Ratio	0.16	0.66			0.46	1.00				0.26		0.26
Clearance Time (s)	4.0	4.0			4.0					4.0		4.0
Vehicle Extension (s)	3.0	3.0			3.0					3.0		3.0
Lane Grp Cap (vph)	283	2170			1434	1441				875		404
v/s Ratio Prot	0.08	0.23			c0.31							
v/s Ratio Perm						c0.49				c0.19		0.04
v/c Ratio	0.49	0.34			0.66	0.49				0.74		0.14
Uniform Delay, d1	38.3	7.3			20.6	0.0				34.2		28.8
Progression Factor	1.00	1.00			0.55	1.00				1.00		1.00
Incremental Delay, d2	1.4	0.4			1.9	0.9				3.3		0.2
Delay (s)	39.7	7.7			13.1	0.9				37.5		29.0
Level of Service	D	A			B	A				D		C
Approach Delay (s)		12.0			8.5			0.0			35.3	
Approach LOS		B			A			A			D	

Intersection Summary

HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	229	74	368	13	0	19	403	1230	254	404	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	0.96		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1681	1691		1770	3539	1583	1770	1838	
Flt Permitted	0.95	1.00	1.00	0.95	0.96		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1681	1691		1770	3539	1583	1770	1838	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	87	254	82	409	14	0	20	433	1323	279	444	43
RTOR Reduction (vph)	0	0	65	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	87	254	17	213	210	0	20	433	1323	279	484	0
Turn Type	Split		Perm	Split			Prot		Free	Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						Free			
Actuated Green, G (s)	15.9	15.9	15.9	15.4	15.4		2.6	17.7	77.5	12.5	27.6	
Effective Green, g (s)	15.9	15.9	15.9	15.4	15.4		2.6	17.7	77.5	12.5	27.6	
Actuated g/C Ratio	0.21	0.21	0.21	0.20	0.20		0.03	0.23	1.00	0.16	0.36	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
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)	363	382	325	334	336		59	808	1583	285	655	
v/s Ratio Prot	0.05	0.14		0.13	0.12		0.01	0.12		0.16	0.26	
v/s Ratio Perm			0.01						c0.84			
v/c Ratio	0.24	0.66	0.05	0.64	0.62		0.34	0.54	0.84	0.98	0.74	
Uniform Delay, d1	25.7	28.3	24.7	28.5	28.4		36.6	26.3	0.0	32.4	21.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	4.3	0.1	4.0	3.6		3.4	0.7	5.4	46.9	4.4	
Delay (s)	26.1	32.7	24.8	32.5	32.0		40.0	27.0	5.4	79.3	26.2	
Level of Service	C	C	C	C	C		D	C	A	E	C	
Approach Delay (s)		29.8			32.2			11.0			45.5	
Approach LOS		C			C			B			D	

Intersection Summary

HCM Average Control Delay	23.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	77.5	Sum of lost time (s)	0.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

LEVEL OF SERVICE CALCULATION WORKSHEETS

CUMULATIVE (YEAR 2030) AM PEAK HOUR CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	261	391	310	80	535	71	303	147	38	32	239	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3304		1770	3477		1770	1805		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.31	1.00		0.63	1.00	1.00
Satd. Flow (perm)	1770	3304		1770	3477		578	1805		1172	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	290	434	344	89	594	79	337	163	42	36	266	158
RTOR Reduction (vph)	0	247	0	0	18	0	0	17	0	0	0	26
Lane Group Flow (vph)	290	531	0	89	655	0	337	188	0	36	266	132
Turn Type	Prot			Prot			pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases							2			6		6
Actuated Green, G (s)	4.0	13.5		3.2	12.7		16.9	16.9		14.8	14.8	18.8
Effective Green, g (s)	4.0	13.5		3.2	12.7		16.9	16.9		14.8	14.8	18.8
Actuated g/C Ratio	0.08	0.26		0.06	0.25		0.33	0.33		0.29	0.29	0.37
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	137	866		110	857		282	592		359	535	701
v/s Ratio Prot	c0.16	0.16		0.05	c0.19		c0.09	0.10		0.00	c0.14	0.01
v/s Ratio Perm							c0.30			0.03		0.07
v/c Ratio	2.12	0.61		0.81	0.76		1.20	0.32		0.10	0.50	0.19
Uniform Delay, d1	23.8	16.7		23.8	18.0		16.8	13.0		13.5	15.3	11.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	526.3	1.3		33.8	4.1		117.1	0.3		0.1	0.7	0.1
Delay (s)	550.1	18.0		57.7	22.1		133.9	13.3		13.6	16.0	11.3
Level of Service	F	B		E	C		F	B		B	B	B
Approach Delay (s)		162.5			26.3			88.3			14.2	
Approach LOS		F			C			F			B	

Intersection Summary			
HCM Average Control Delay	87.5	HCM Level of Service	F
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	51.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	80	301	41	59	662	68	13	9	16	22	22	56
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	89	334	46	62	697	72	14	10	18	24	24	62
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		525										
pX, platoon unblocked												
vC, conflicting volume	768			380			1082	1428	190	1225	1415	384
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	768			380			1082	1428	190	1225	1415	384
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	89			95			87	91	98	78	79	90
cM capacity (veh/h)	841			1175			115	113	820	109	116	614

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	256	213	411	420	42	111
Volume Left	89	0	62	0	14	24
Volume Right	0	46	0	72	18	62
cSH	841	1700	1175	1700	179	207
Volume to Capacity	0.11	0.13	0.05	0.25	0.24	0.54
Queue Length 95th (ft)	9	0	4	0	22	71
Control Delay (s)	4.1	0.0	1.7	0.0	31.2	41.0
Lane LOS	A		A		D	E
Approach Delay (s)	2.3		0.8		31.2	41.0
Approach LOS					D	E

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

Cumulative AM Peak
3: Stanford Ave & Hollis St.

Emeryville Papermill
7/9/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	15	26	19	31	17	103	400	31	29	567	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	1.00
Frt	1.00	0.91		1.00	0.95			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1770	1687		1770	1763			3475			1821	1552
Flt Permitted	0.72	1.00		0.73	1.00			0.77			0.96	1.00
Satd. Flow (perm)	1346	1687		1354	1763			2718			1758	1552
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	37	17	29	21	34	19	114	444	34	32	630	74
RTOR Reduction (vph)	0	24	0	0	16	0	0	6	0	0	0	27
Lane Group Flow (vph)	37	22	0	21	37	0	0	586	0	0	662	47
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	5	5
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	6.1	6.1		6.1	6.1			25.1			25.1	25.1
Effective Green, g (s)	6.1	6.1		6.1	6.1			25.1			25.1	25.1
Actuated g/C Ratio	0.16	0.16		0.16	0.16			0.64			0.64	0.64
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	209	263		211	274			1740			1126	994
v/s Ratio Prot		0.01			0.02							
v/s Ratio Perm	c0.03			0.02				0.22			c0.38	0.03
v/c Ratio	0.18	0.08		0.10	0.13			0.34			0.59	0.05
Uniform Delay, d1	14.4	14.2		14.2	14.3			3.2			4.1	2.6
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	0.4	0.1		0.2	0.2			0.5			2.3	0.1
Delay (s)	14.8	14.3		14.4	14.5			3.8			6.3	2.7
Level of Service	B	B		B	B			A			A	A
Approach Delay (s)		14.5			14.5			3.8			6.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	6.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	39.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Cumulative AM Peak
4: Stanford Ave & Doyle Street

Emeryville Papermill
7/9/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	23	30	19	0	0	0	23	22	6	3	60	50
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	26	33	21	0	0	0	26	24	7	3	67	56

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	80	57	126
Volume Left (vph)	26	26	3
Volume Right (vph)	21	7	56
Hadj (s)	-0.06	0.05	-0.23
Departure Headway (s)	4.2	4.3	3.9
Degree Utilization, x	0.09	0.07	0.14
Capacity (veh/h)	816	817	897
Control Delay (s)	7.7	7.6	7.5
Approach Delay (s)	7.7	7.6	7.5
Approach LOS	A	A	A

Intersection Summary

Delay	7.6		
HCM Level of Service	A		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	224	75	122	537	30	234	1003	100	97	1211	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.99		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3406		1770	3511		1770	3491		1770	3493	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3406		1770	3511		1770	3491		1770	3493	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.96	0.96	0.96
Adj. Flow (vph)	67	249	83	136	597	33	257	1102	110	101	1261	121
RTOR Reduction (vph)	0	34	0	0	0	0	0	7	0	0	7	0
Lane Group Flow (vph)	67	298	0	136	630	0	257	1205	0	101	1375	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.9	20.0		11.1	23.2		17.7	44.1		8.8	35.2	
Effective Green, g (s)	7.9	20.0		11.1	23.2		17.7	44.1		8.8	35.2	
Actuated g/C Ratio	0.08	0.20		0.11	0.23		0.18	0.44		0.09	0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	140	681		196	815		313	1540		156	1230	
v/s Ratio Prot	0.04	0.09		c0.08	c0.18		c0.15	0.35		0.06	c0.39	
v/s Ratio Perm												
v/c Ratio	0.48	0.44		0.69	0.77		0.82	0.78		0.65	1.12	
Uniform Delay, d1	44.1	35.1		42.8	35.9		39.6	23.9		44.1	32.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.5		10.2	4.6		15.7	4.0		8.9	64.4	
Delay (s)	46.6	35.5		53.0	40.5		55.3	27.9		53.0	96.8	
Level of Service	D	D		D	D		E	C		D	F	
Approach Delay (s)		37.4			42.7			32.7			93.8	
Approach LOS		D			D			C			F	

Intersection Summary

HCM Average Control Delay	57.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	205	34	100	437	213	69	152	70	66	157	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3463		1770	3365		1770	1863	1583	1770	1838	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3463		1770	3365		1770	1863	1583	1770	1838	
Peak-hour factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	44	228	38	106	465	227	77	169	78	73	174	17
RTOR Reduction (vph)	0	10	0	0	40	0	0	0	65	0	4	0
Lane Group Flow (vph)	44	256	0	106	652	0	77	169	13	73	187	0
Bus Blockages (#/hr)	0	0	0	0	0	5	0	0	0	0	0	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	5.5	48.3		11.2	54.0		8.2	16.4	16.4	8.1	16.3	
Effective Green, g (s)	5.5	48.3		11.2	54.0		8.2	16.4	16.4	8.1	16.3	
Actuated g/C Ratio	0.06	0.48		0.11	0.54		0.08	0.16	0.16	0.08	0.16	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
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)	97	1673		198	1817		145	306	260	143	300	
v/s Ratio Prot	0.02	0.07		c0.06	c0.19		c0.04	0.09		0.04	c0.10	
v/s Ratio Perm									0.01			
v/c Ratio	0.45	0.15		0.54	0.36		0.53	0.55	0.05	0.51	0.62	
Uniform Delay, d1	45.8	14.4		41.9	13.1		44.1	38.4	35.2	44.0	39.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.3	0.2		2.8	0.6		3.7	2.2	0.1	3.1	4.0	
Delay (s)	49.1	14.6		44.7	13.7		47.8	40.6	35.3	47.1	43.0	
Level of Service	D	B		D	B		D	D	D	D	D	
Approach Delay (s)		19.5			17.8			41.0			44.1	
Approach LOS		B			B			D			D	

Intersection Summary

HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	734	1234	431	118	788	44	191	214	86	94	318	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.99		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3402		1770	3511		1770	3387		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3402		1770	3511		1770	3387		1770	1863	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	773	1299	454	126	838	47	212	238	96	104	353	353
RTOR Reduction (vph)	0	27	0	0	4	0	0	45	0	0	0	60
Lane Group Flow (vph)	773	1726	0	126	881	0	212	289	0	104	353	293
Turn Type	Prot			Prot			Split			Split		pm+ov
Protected Phases	7	4		3	8		2	2		6	6	7
Permitted Phases												6
Actuated Green, G (s)	30.0	37.7		12.3	20.0		15.5	15.5		16.0	16.0	46.0
Effective Green, g (s)	30.0	37.7		12.3	20.0		15.5	15.5		16.0	16.0	46.0
Actuated g/C Ratio	0.31	0.39		0.13	0.21		0.16	0.16		0.16	0.16	0.47
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	545	1315		223	720		281	538		290	306	812
v/s Ratio Prot	c0.44	c0.51		0.07	0.25		c0.12	0.09		0.06	c0.19	0.11
v/s Ratio Perm												0.07
v/c Ratio	1.42	1.31		0.57	1.22		0.75	0.54		0.36	1.15	0.36
Uniform Delay, d1	33.8	29.9		40.1	38.8		39.2	37.7		36.2	40.8	16.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	198.9	146.2		3.3	112.8		10.9	1.0		0.8	99.7	0.3
Delay (s)	232.6	176.1		43.3	151.6		50.1	38.7		37.0	140.5	16.7
Level of Service	F	F		D	F		D	D		D	F	B
Approach Delay (s)		193.4			138.1			43.2			73.2	
Approach LOS		F			F			D			E	

Intersection Summary

HCM Average Control Delay	145.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	97.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	104.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	489	749	304	77	762	179	137	26	81	178	97	682
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.91	0.97	0.95	1.00	0.95	0.95	1.00	0.95	0.95	0.88
Frt	1.00	0.99	0.85	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	0.97	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3433	3370	1441	3433	3539	1583	1681	1711	1583	1681	1743	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3433	3370	1441	3433	3539	1583	1681	1711	1583	1681	1743	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	543	832	338	86	847	199	152	29	90	187	102	718
RTOR Reduction (vph)	0	2	152	0	0	131	0	0	80	0	0	151
Lane Group Flow (vph)	543	864	152	86	847	68	90	91	10	142	147	567
Turn Type	Prot		pm+ov	Prot		Perm	Split		Perm	Split		pm+ov
Protected Phases	7	4	2	3	8		2	2		6	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	21.5	38.9	50.0	16.8	34.2	34.2	11.1	11.1	11.1	17.2	17.2	38.7
Effective Green, g (s)	21.5	38.9	50.0	16.8	34.2	34.2	11.1	11.1	11.1	17.2	17.2	38.7
Actuated g/C Ratio	0.22	0.39	0.50	0.17	0.34	0.34	0.11	0.11	0.11	0.17	0.17	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	738	1311	721	577	1210	541	187	190	176	289	300	1190
v/s Ratio Prot	c0.16	c0.26	0.02	0.03	c0.24		c0.05	0.05		0.08	0.08	c0.10
v/s Ratio Perm			0.08			0.04			0.01			0.10
v/c Ratio	0.74	0.66	0.21	0.15	0.70	0.13	0.48	0.48	0.06	0.49	0.49	0.48
Uniform Delay, d1	36.6	25.1	14.0	35.5	28.5	22.6	41.7	41.7	39.8	37.4	37.4	23.0
Progression Factor	0.81	0.50	2.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	1.8	0.1	0.1	3.4	0.5	1.9	1.9	0.1	1.3	1.3	0.3
Delay (s)	32.4	14.4	29.2	35.6	31.8	23.1	43.7	43.6	39.9	38.8	38.7	23.3
Level of Service	C	B	C	D	C	C	D	D	D	D	D	C
Approach Delay (s)		22.7			30.6			42.4			27.8	
Approach LOS		C			C			D			C	

Intersection Summary

HCM Average Control Delay	27.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	91	722	0	0	961	364	958	29	1136	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.91			0.91	1.00	0.91	0.86	0.91			
Frt	1.00	1.00			1.00	0.85	1.00	0.92	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (prot)	1770	5085			5085	1583	1610	2875	1441			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (perm)	1770	5085			5085	1583	1610	2875	1441			
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	101	802	0	0	1045	396	1064	32	1262	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	206	0	106	106	0	0	0
Lane Group Flow (vph)	101	802	0	0	1045	190	606	1015	525	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Actuated Green, G (s)	4.0	56.0			48.0	48.0	36.0	36.0	36.0			
Effective Green, g (s)	4.0	56.0			48.0	48.0	36.0	36.0	36.0			
Actuated g/C Ratio	0.04	0.56			0.48	0.48	0.36	0.36	0.36			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	71	2848			2441	760	580	1035	519			
v/s Ratio Prot	c0.06	0.16			c0.21		c0.38	0.35				
v/s Ratio Perm						0.12			0.36			
v/c Ratio	1.42	0.28			0.43	0.25	1.04	1.01dr	1.01			
Uniform Delay, d1	48.0	11.5			17.0	15.4	32.0	31.7	32.0			
Progression Factor	0.61	2.56			0.82	0.85	1.00	1.00	1.00			
Incremental Delay, d2	235.8	0.2			0.4	0.6	49.6	23.2	42.3			
Delay (s)	265.3	29.6			14.5	13.6	81.6	54.9	74.3			
Level of Service	F	C			B	B	F	D	E			
Approach Delay (s)		55.9			14.2			66.9			0.0	
Approach LOS		E			B			E			A	

Intersection Summary

HCM Average Control Delay	48.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	163	142	0	919	755	0	0	0	920	0	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0				4.0		4.0
Lane Util. Factor	1.00	0.95			0.91	0.91				0.97		1.00
Frt	1.00	0.93			0.97	0.85				1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (prot)	1770	3292			3284	1441				3433		1583
Flt Permitted	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (perm)	1770	3292			3284	1441				3433		1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	130	170	148	0	1021	839	0	0	0	1022	0	171
RTOR Reduction (vph)	0	63	0	0	21	0	0	0	0	0	0	112
Lane Group Flow (vph)	130	255	0	0	1268	571	0	0	0	1022	0	59
Turn Type	Prot					Free				custom		custom
Protected Phases	7	4			8					6		6
Permitted Phases						Free				6		6
Actuated Green, G (s)	16.0	57.6			37.6	100.0				34.4		34.4
Effective Green, g (s)	16.0	57.6			37.6	100.0				34.4		34.4
Actuated g/C Ratio	0.16	0.58			0.38	1.00				0.34		0.34
Clearance Time (s)	4.0	4.0			4.0					4.0		4.0
Vehicle Extension (s)	3.0	3.0			3.0					3.0		3.0
Lane Grp Cap (vph)	283	1896			1235	1441				1181		545
v/s Ratio Prot	0.07	0.08			c0.39					c0.30		0.04
v/s Ratio Perm						c0.40						
v/c Ratio	0.46	0.13			1.03	0.40				0.87		0.11
Uniform Delay, d1	38.1	9.7			31.2	0.0				30.6		22.3
Progression Factor	1.00	1.00			0.80	1.00				1.00		1.00
Incremental Delay, d2	1.2	0.1			24.1	0.4				6.8		0.1
Delay (s)	39.3	9.9			49.0	0.4				37.5		22.4
Level of Service	D	A			D	A				D		C
Approach Delay (s)		18.4			34.1			0.0			35.3	
Approach LOS		B			C			A			D	

Intersection Summary

HCM Average Control Delay	32.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	21	19	610	103	0	125	166	944	130	381	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1681	1709		1770	3539	1583	1770	1783	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1681	1709		1770	3539	1583	1770	1783	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	7	23	21	678	114	0	134	178	1015	143	419	166
RTOR Reduction (vph)	0	0	20	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	7	23	1	393	399	0	134	178	1015	143	572	0
Turn Type	Split		Perm	Split			Prot		Free	Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						Free			
Actuated Green, G (s)	3.9	3.9	3.9	23.1	23.1		10.3	22.2	75.8	10.6	22.5	
Effective Green, g (s)	3.9	3.9	3.9	23.1	23.1		10.3	22.2	75.8	10.6	22.5	
Actuated g/C Ratio	0.05	0.05	0.05	0.30	0.30		0.14	0.29	1.00	0.14	0.30	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
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)	91	96	81	512	521		241	1036	1583	248	529	
v/s Ratio Prot	0.00	0.01		c0.23	0.23		0.08	0.05		0.08	c0.32	
v/s Ratio Perm			0.00						c0.64			
v/c Ratio	0.08	0.24	0.01	0.77	0.77		0.56	0.17	0.64	0.58	1.08	
Uniform Delay, d1	34.2	34.5	34.1	23.9	23.9		30.6	20.0	0.0	30.5	26.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	1.3	0.1	6.8	6.6		2.8	0.1	2.0	3.2	63.1	
Delay (s)	34.6	35.8	34.2	30.7	30.5		33.4	20.0	2.0	33.7	89.8	
Level of Service	C	D	C	C	C		C	C	A	C	F	
Approach Delay (s)		35.0			30.6			7.6			78.8	
Approach LOS		C			C			A			E	

Intersection Summary

HCM Average Control Delay	32.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	75.8	Sum of lost time (s)	4.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

LEVEL OF SERVICE CALCULATION WORKSHEETS

CUMULATIVE (YEAR 2030) PM PEAK HOUR CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	143	757	181	62	669	39	519	311	67	113	355	347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3437		1770	3510		1770	1814		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.30	1.00		0.52	1.00	1.00
Satd. Flow (perm)	1770	3437		1770	3510		564	1814		963	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	159	841	201	69	743	43	577	346	74	126	394	386
RTOR Reduction (vph)	0	34	0	0	7	0	0	14	0	0	0	6
Lane Group Flow (vph)	159	1008	0	69	779	0	577	406	0	126	394	380
Turn Type	Prot			Prot			pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases							2			6		6
Actuated Green, G (s)	4.0	15.5		2.3	13.8		17.2	17.2		16.3	16.3	20.3
Effective Green, g (s)	4.0	15.5		2.3	13.8		17.2	17.2		16.3	16.3	20.3
Actuated g/C Ratio	0.07	0.29		0.04	0.26		0.32	0.32		0.30	0.30	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	131	985		75	895		268	577		336	561	711
v/s Ratio Prot	0.09	c0.29		0.04	c0.22		c0.16	0.22		0.02	c0.21	0.04
v/s Ratio Perm							c0.52			0.09		0.20
v/c Ratio	1.21	1.02		0.92	0.87		2.15	0.70		0.38	0.70	0.53
Uniform Delay, d1	25.0	19.3		25.8	19.3		18.6	16.2		15.2	16.7	13.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	147.2	34.7		76.8	9.0		531.1	3.9		0.7	4.0	0.8
Delay (s)	172.2	54.0		102.6	28.3		549.7	20.1		15.9	20.7	14.0
Level of Service	F	D		F	C		F	C		B	C	B
Approach Delay (s)		69.6			34.3			326.6			17.2	
Approach LOS		E			C			F			B	

Intersection Summary			
HCM Average Control Delay	114.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	54.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	46	848	10	22	692	21	16	9	38	45	28	69
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	51	942	11	23	728	22	18	10	42	50	31	77
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		525										
pX, platoon unblocked				0.79			0.79	0.79	0.79	0.79	0.79	
vC, conflicting volume	751			953			1553	1847	477	1406	1841	375
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	751			404			1164	1537	0	978	1530	375
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			97			74	88	95	62	63	88
cM capacity (veh/h)	855			908			69	83	855	130	84	622

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	522	482	387	386	70	158
Volume Left	51	0	23	0	18	50
Volume Right	0	11	0	22	42	77
cSH	855	1700	908	1700	164	180
Volume to Capacity	0.06	0.28	0.03	0.23	0.43	0.88
Queue Length 95th (ft)	5	0	2	0	48	161
Control Delay (s)	1.6	0.0	0.8	0.0	42.4	90.7
Lane LOS	A		A		E	F
Approach Delay (s)	0.9		0.4		42.4	90.7
Approach LOS					E	F

Intersection Summary			
Average Delay	9.2		
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

Cumulative PM Peak
3: Stanford Ave & Hollis St.

Emeryville Papermill
7/9/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	152	68	62	33	19	30	22	774	44	10	601	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	1.00
Frt	1.00	0.93		1.00	0.91			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	1.00
Satd. Flow (prot)	1770	1730		1770	1692			3507			1824	1552
Flt Permitted	0.72	1.00		0.66	1.00			0.93			0.98	1.00
Satd. Flow (perm)	1345	1730		1238	1692			3282			1796	1552
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	169	76	69	37	21	33	24	860	49	11	668	24
RTOR Reduction (vph)	0	52	0	0	25	0	0	7	0	0	0	11
Lane Group Flow (vph)	169	93	0	37	29	0	0	926	0	0	679	13
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	5	5
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	9.3	9.3		9.3	9.3			21.2			21.2	21.2
Effective Green, g (s)	9.3	9.3		9.3	9.3			21.2			21.2	21.2
Actuated g/C Ratio	0.24	0.24		0.24	0.24			0.55			0.55	0.55
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	325	418		299	409			1807			989	855
v/s Ratio Prot		0.05			0.02							
v/s Ratio Perm	c0.13			0.03				0.28			c0.38	0.01
v/c Ratio	0.52	0.22		0.12	0.07			0.51			0.69	0.02
Uniform Delay, d1	12.7	11.7		11.4	11.3			5.4			6.2	3.9
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.5	0.3		0.2	0.1			1.0			3.9	0.0
Delay (s)	14.2	12.0		11.6	11.3			6.5			10.1	4.0
Level of Service	B	B		B	B			A			B	A
Approach Delay (s)		13.2			11.4			6.5			9.9	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	38.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Cumulative PM Peak
4: Stanford Ave & Doyle Street

Emeryville Papermill
7/9/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	26	94	33	0	0	0	18	28	3	6	26	37
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	29	104	37	0	0	0	20	31	3	7	29	41

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	170	54	77
Volume Left (vph)	29	20	7
Volume Right (vph)	37	3	41
Hadj (s)	-0.06	0.07	-0.27
Departure Headway (s)	4.1	4.4	4.1
Degree Utilization, x	0.19	0.07	0.09
Capacity (veh/h)	846	774	835
Control Delay (s)	8.1	7.7	7.4
Approach Delay (s)	8.1	7.7	7.4
Approach LOS	A	A	A

Intersection Summary

Delay	7.9		
HCM Level of Service	A		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

Cumulative PM Peak
5: Powell Street & San Pablo Ave

Emeryville Papermill
7/9/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	138	673	127	100	431	69	242	1758	187	237	1588	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3455		1770	3466		1770	3488		1770	3497	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3455		1770	3466		1770	3488		1770	3497	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.96	0.96	0.96
Adj. Flow (vph)	153	748	141	111	479	77	266	1932	205	247	1654	143
RTOR Reduction (vph)	0	15	0	0	0	0	0	8	0	0	6	0
Lane Group Flow (vph)	153	874	0	111	556	0	266	2129	0	247	1791	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.4	25.5		10.5	24.6		12.0	36.0		12.0	36.0	
Effective Green, g (s)	11.4	25.5		10.5	24.6		12.0	36.0		12.0	36.0	
Actuated g/C Ratio	0.11	0.26		0.10	0.25		0.12	0.36		0.12	0.36	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	202	881		186	853		212	1256		212	1259	
v/s Ratio Prot	c0.09	c0.25		0.06	0.16		c0.15	c0.61		0.14	0.51	
v/s Ratio Perm												
v/c Ratio	0.76	0.99		0.60	0.65		1.25	1.69		1.17	1.42	
Uniform Delay, d1	43.0	37.2		42.7	33.9		44.0	32.0		44.0	32.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.9	28.2		5.1	1.8		147.2	316.1		113.5	194.7	
Delay (s)	57.9	65.4		47.8	35.7		191.2	348.1		157.5	226.7	
Level of Service	E	E		D	D		F	F		F	F	
Approach Delay (s)		64.3			37.7			330.8			218.3	
Approach LOS		E			D			F			F	

Intersection Summary

HCM Average Control Delay	216.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	109.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Cumulative PM Peak
6: 40th Street & Hollis Street

Emeryville Papermill
7/9/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	881	125	183	745	220	123	239	152	177	424	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3473		1770	3418		1770	1863	1583	1770	1836	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3473		1770	3418		1770	1863	1583	1770	1836	
Peak-hour factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	62	979	139	195	793	234	137	266	169	197	471	49
RTOR Reduction (vph)	0	11	0	0	26	0	0	0	121	0	4	0
Lane Group Flow (vph)	62	1107	0	195	1001	0	137	266	48	197	516	0
Bus Blockages (#/hr)	0	0	0	0	0	5	0	0	0	0	0	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	7.7	31.4		12.2	35.9		11.1	28.4	28.4	12.0	29.3	
Effective Green, g (s)	7.7	31.4		12.2	35.9		11.1	28.4	28.4	12.0	29.3	
Actuated g/C Ratio	0.08	0.31		0.12	0.36		0.11	0.28	0.28	0.12	0.29	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
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)	136	1091		216	1227		196	529	450	212	538	
v/s Ratio Prot	0.04	c0.32		c0.11	0.29		0.08	0.14		c0.11	c0.28	
v/s Ratio Perm									0.03			
v/c Ratio	0.46	1.01		0.90	0.82		0.70	0.50	0.11	0.93	0.96	
Uniform Delay, d1	44.1	34.3		43.3	29.1		42.8	29.9	26.4	43.6	34.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.4	30.9		35.8	6.1		10.4	0.8	0.1	42.0	28.6	
Delay (s)	46.6	65.2		79.1	35.1		53.2	30.7	26.5	85.5	63.3	
Level of Service	D	E		E	D		D	C	C	F	E	
Approach Delay (s)		64.3			42.1			34.8			69.4	
Approach LOS		E			D			C			E	

Intersection Summary

HCM Average Control Delay	53.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	297	772	197	109	1044	41	315	635	148	195	406	771
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3431		1770	3519		1770	3439		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3431		1770	3519		1770	3439		1770	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	316	821	210	118	1135	45	342	690	161	210	437	829
RTOR Reduction (vph)	0	17	0	0	3	0	0	21	0	0	0	23
Lane Group Flow (vph)	316	1014	0	118	1177	0	342	831	0	210	437	806
Turn Type	Prot			Prot			Split			Split		pm+ov
Protected Phases	7	4		3	8		2	2		6	6	7
Permitted Phases												6
Actuated Green, G (s)	30.0	38.0		12.0	20.0		18.0	18.0		16.0	16.0	46.0
Effective Green, g (s)	30.0	38.0		12.0	20.0		18.0	18.0		16.0	16.0	46.0
Actuated g/C Ratio	0.30	0.38		0.12	0.20		0.18	0.18		0.16	0.16	0.46
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	531	1304		212	704		319	619		283	298	792
v/s Ratio Prot	0.18	0.30		0.07	c0.33		0.19	c0.24		0.12	c0.23	c0.31
v/s Ratio Perm												0.20
v/c Ratio	0.60	0.78		0.56	1.67		1.07	1.34		0.74	1.47	1.02
Uniform Delay, d1	29.8	27.3		41.5	40.0		41.0	41.0		40.0	42.0	27.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.8	3.0		3.1	308.5		70.9	164.4		10.0	227.4	36.6
Delay (s)	31.6	30.3		44.6	348.5		111.9	205.4		50.1	269.4	63.6
Level of Service	C	C		D	F		F	F		D	F	E
Approach Delay (s)		30.6			320.8			178.6			122.6	
Approach LOS		C			F			F			F	

Intersection Summary

HCM Average Control Delay	160.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	105.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	468	683	937	320	963	185	334	78	218	312	435	1410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.91	0.97	0.95	1.00	0.95	0.95	1.00	0.95	0.95	0.88
Frt	1.00	0.94	0.85	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	0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3193	1441	3433	3539	1583	1681	1716	1583	1681	1764	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3193	1441	3433	3539	1583	1681	1716	1583	1681	1764	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	520	759	1041	356	1070	206	371	87	242	328	458	1484
RTOR Reduction (vph)	0	86	70	0	0	145	0	0	220	0	0	5
Lane Group Flow (vph)	520	1152	492	356	1070	61	226	232	22	295	491	1479
Turn Type	Prot		pm+ov	Prot		Perm	Split		Perm	Split		pm+ov
Protected Phases	7	4	2	3	8		2	2		6	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	21.0	28.0	37.0	21.0	28.0	28.0	9.0	9.0	9.0	26.0	26.0	47.0
Effective Green, g (s)	21.0	28.0	37.0	21.0	28.0	28.0	9.0	9.0	9.0	26.0	26.0	47.0
Actuated g/C Ratio	0.21	0.28	0.37	0.21	0.28	0.28	0.09	0.09	0.09	0.26	0.26	0.47
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	721	894	533	721	991	443	151	154	142	437	459	1421
v/s Ratio Prot	0.15	c0.36	0.08	0.10	c0.30		0.13	c0.14		0.18	0.28	c0.22
v/s Ratio Perm			0.26			0.04			0.01			0.31
v/c Ratio	0.72	1.29	0.92	0.49	1.08	0.14	1.50	1.51	0.15	0.68	1.07	1.04
Uniform Delay, d1	36.8	36.0	30.1	34.8	36.0	27.0	45.5	45.5	42.0	33.2	37.0	26.5
Progression Factor	0.78	0.53	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	134.3	12.8	0.5	52.6	0.7	255.0	258.6	0.5	4.1	61.9	35.3
Delay (s)	30.5	153.5	42.3	35.3	88.6	27.6	300.5	304.1	42.5	37.3	98.9	61.8
Level of Service	C	F	D	D	F	C	F	F	D	D	F	E
Approach Delay (s)		99.0			69.3			212.5			66.6	
Approach LOS		F			E			F			E	

Intersection Summary

HCM Average Control Delay	92.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	1181	0	0	1656	515	940	277	1311	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.91			0.91	1.00	0.91	0.86	0.91			
Frt	1.00	1.00			1.00	0.50	1.00	0.92	0.85			
Flt Protected	0.70	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	1304	5085			5085	931	1610	2912	1441			
Flt Permitted	0.70	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	1304	5085			5085	931	1610	2912	1441			
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.98	0.98	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	189	1284	0	0	1690	526	989	292	1380	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	179	0	32	32	0	0	0
Lane Group Flow (vph)	189	1284	0	0	1690	347	682	1257	658	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Actuated Green, G (s)	4.0	56.0			48.0	48.0	36.0	36.0	36.0			
Effective Green, g (s)	4.0	56.0			48.0	48.0	36.0	36.0	36.0			
Actuated g/C Ratio	0.04	0.56			0.48	0.48	0.36	0.36	0.36			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	52	2848			2441	447	580	1048	519			
v/s Ratio Prot	c0.14	0.25			0.33		0.42	0.43				
v/s Ratio Perm						c0.37			c0.46			
v/c Ratio	3.63	0.45			0.69	0.78	1.18	1.25dr	1.27			
Uniform Delay, d1	48.0	12.9			20.2	21.6	32.0	32.0	32.0			
Progression Factor	0.75	2.04			0.73	0.62	1.00	1.00	1.00			
Incremental Delay, d2	1212.9	0.3			0.1	1.2	96.2	99.1	135.2			
Delay (s)	1249.2	26.7			14.9	14.7	128.2	131.1	167.2			
Level of Service	F	C			B	B	F	F	F			
Approach Delay (s)		183.6			14.8			139.7			0.0	
Approach LOS		F			B			F			A	

Intersection Summary

HCM Average Control Delay	106.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	171	523	566	0	552	1826	0	0	0	1006	0	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0				4.0		4.0
Lane Util. Factor	1.00	0.95			0.91	0.91				0.97		1.00
Frt	1.00	0.92			0.91	0.85				1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (prot)	1770	3263			3073	1441				3433		1583
Flt Permitted	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (perm)	1770	3263			3073	1441				3433		1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	178	545	590	0	613	2029	0	0	0	1118	0	394
RTOR Reduction (vph)	0	193	0	0	297	0	0	0	0	0	0	254
Lane Group Flow (vph)	178	942	0	0	1331	1014	0	0	0	1118	0	140
Turn Type	Prot					Free				custom		custom
Protected Phases	7	4			8					6		6
Permitted Phases						Free				6		6
Actuated Green, G (s)	16.0	56.5			36.5	100.0				35.5		35.5
Effective Green, g (s)	16.0	56.5			36.5	100.0				35.5		35.5
Actuated g/C Ratio	0.16	0.56			0.36	1.00				0.36		0.36
Clearance Time (s)	4.0	4.0			4.0					4.0		4.0
Vehicle Extension (s)	3.0	3.0			3.0					3.0		3.0
Lane Grp Cap (vph)	283	1844			1122	1441				1219		562
v/s Ratio Prot	0.10	0.29			c0.43					c0.33		0.09
v/s Ratio Perm						c0.70						
v/c Ratio	0.63	0.51			1.20dr	0.70				0.92		0.25
Uniform Delay, d1	39.2	13.3			31.7	0.0				30.8		22.8
Progression Factor	1.00	1.00			0.99	1.00				1.00		1.00
Incremental Delay, d2	4.3	1.0			88.2	1.4				10.8		0.2
Delay (s)	43.6	14.3			119.8	1.4				41.7		23.1
Level of Service	D	B			F	A				D		C
Approach Delay (s)		18.3			74.3			0.0			36.8	
Approach LOS		B			E			A			D	

Intersection Summary

HCM Average Control Delay	50.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	295	95	474	17	0	33	698	2130	440	700	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	0.96		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1681	1691		1770	3539	1583	1770	1838	
Flt Permitted	0.95	1.00	1.00	0.95	0.96		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1681	1691		1770	3539	1583	1770	1838	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	111	328	106	527	19	0	35	751	2290	484	769	75
RTOR Reduction (vph)	0	0	83	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	111	328	23	274	272	0	35	751	2290	484	841	0
Turn Type	Split		Perm	Split			Prot		Free	Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						Free			
Actuated Green, G (s)	19.9	19.9	19.9	19.3	19.3		4.7	23.5	90.9	12.2	31.0	
Effective Green, g (s)	19.9	19.9	19.9	19.3	19.3		4.7	23.5	90.9	12.2	31.0	
Actuated g/C Ratio	0.22	0.22	0.22	0.21	0.21		0.05	0.26	1.00	0.13	0.34	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
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)	387	408	347	357	359		92	915	1583	238	627	
v/s Ratio Prot	0.06	0.18		0.16	0.16		0.02	0.21		c0.27	0.46	
v/s Ratio Perm			0.01						c1.45			
v/c Ratio	0.29	0.80	0.07	0.77	0.76		0.38	0.82	1.45	2.03	1.34	
Uniform Delay, d1	29.6	33.7	28.1	33.7	33.6		41.7	31.7	45.5	39.4	30.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	10.9	0.1	9.5	8.8		2.6	6.0	204.6	479.6	163.9	
Delay (s)	30.0	44.6	28.2	43.2	42.4		44.3	37.7	250.0	518.9	193.9	
Level of Service	C	D	C	D	D		D	D	F	F	F	
Approach Delay (s)		38.4			42.8			195.9			312.3	
Approach LOS		D			D			F			F	

Intersection Summary

HCM Average Control Delay	193.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	90.9	Sum of lost time (s)	4.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

LEVEL OF SERVICE CALCULATION WORKSHEETS

EXISTING PLUS PROJECT AM PEAK HOUR CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	203	268	241	62	460	58	207	100	23	19	163	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3288		1770	3480		1770	1810		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.40	1.00		0.67	1.00	1.00
Satd. Flow (perm)	1770	3288		1770	3480		753	1810		1247	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	226	298	268	69	511	64	230	111	26	21	181	108
RTOR Reduction (vph)	0	178	0	0	16	0	0	17	0	0	0	72
Lane Group Flow (vph)	226	388	0	69	559	0	230	120	0	21	181	36
Turn Type	Prot			Prot			pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases							2			6		6
Actuated Green, G (s)	4.5	16.2		2.5	14.2		12.8	12.8		10.5	10.5	15.0
Effective Green, g (s)	4.5	16.2		2.5	14.2		12.8	12.8		10.5	10.5	15.0
Actuated g/C Ratio	0.09	0.34		0.05	0.30		0.27	0.27		0.22	0.22	0.31
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	166	1107		92	1027		262	482		279	407	625
v/s Ratio Prot	c0.13	0.12		0.04	c0.16		c0.05	0.07		0.00	c0.10	0.01
v/s Ratio Perm							c0.18			0.02		0.02
v/c Ratio	1.36	0.35		0.75	0.54		0.88	0.25		0.08	0.44	0.06
Uniform Delay, d1	21.8	12.0		22.5	14.2		17.0	13.9		14.9	16.3	11.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	196.5	0.2		28.6	0.6		26.4	0.3		0.1	0.8	0.0
Delay (s)	218.3	12.2		51.0	14.8		43.4	14.1		15.1	17.1	11.6
Level of Service	F	B		D	B		D	B		B	B	B
Approach Delay (s)		71.0			18.7			32.5			15.0	
Approach LOS		E			B			C			B	

Intersection Summary

HCM Average Control Delay	40.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	48.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	62	237	32	33	514	53	56	6	24	15	15	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	69	263	36	35	541	56	62	7	27	17	17	42
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		525										
pX, platoon unblocked												
vC, conflicting volume	597			299			809	1085	149	938	1075	298
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	597			299			809	1085	149	938	1075	298
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			97			72	97	97	91	92	94
cM capacity (veh/h)	976			1259			221	194	870	192	197	698

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	201	167	305	326	96	76
Volume Left	69	0	35	0	62	17
Volume Right	0	36	0	56	27	42
cSH	976	1700	1259	1700	276	326
Volume to Capacity	0.07	0.10	0.03	0.19	0.35	0.23
Queue Length 95th (ft)	6	0	2	0	37	22
Control Delay (s)	3.5	0.0	1.1	0.0	24.8	19.4
Lane LOS	A		A		C	C
Approach Delay (s)	1.9		0.5		24.8	19.4
Approach LOS					C	C

Intersection Summary

Average Delay	4.2		
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

Existing Plus Project AM Peak
3: Stanford Ave & Hollis St.

Emeryville Papermill
8/5/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	12	20	21	24	13	70	270	18	20	387	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	1.00
Frt	1.00	0.91		1.00	0.95			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1770	1687		1770	1767			3478			1821	1552
Flt Permitted	0.87	1.00		0.87	1.00			0.83			0.98	1.00
Satd. Flow (perm)	1620	1687		1620	1767			2931			1783	1552
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	13	22	23	27	14	78	300	20	22	430	51
RTOR Reduction (vph)	0	19	0	0	12	0	0	4	0	0	0	16
Lane Group Flow (vph)	29	16	0	23	29	0	0	394	0	0	452	35
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	5	5
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	4.6	4.6		4.6	4.6			26.7			26.7	26.7
Effective Green, g (s)	4.6	4.6		4.6	4.6			26.7			26.7	26.7
Actuated g/C Ratio	0.12	0.12		0.12	0.12			0.68			0.68	0.68
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	190	197		190	207			1991			1211	1054
v/s Ratio Prot		0.01			0.02							
v/s Ratio Perm	c0.02			0.01				0.13			c0.25	0.02
v/c Ratio	0.15	0.08		0.12	0.14			0.20			0.37	0.03
Uniform Delay, d1	15.6	15.5		15.5	15.6			2.3			2.7	2.1
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	0.4	0.2		0.3	0.3			0.2			0.9	0.1
Delay (s)	16.0	15.6		15.8	15.9			2.6			3.6	2.1
Level of Service	B	B		B	B			A			A	A
Approach Delay (s)		15.8			15.9			2.6			3.4	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	4.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	39.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Existing Plus Project AM Peak
4: Stanford Ave & Doyle Street

Emeryville Papermill
8/5/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	15	23	15	0	0	0	16	15	4	2	41	40
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	26	17	0	0	0	18	17	4	2	46	44
Direction, Lane #	EB 1	NB 1	SB 1									
Volume Total (vph)	59	39	92									
Volume Left (vph)	17	18	2									
Volume Right (vph)	17	4	44									
Hadj (s)	-0.08	0.06	-0.25									
Departure Headway (s)	4.1	4.2	3.8									
Degree Utilization, x	0.07	0.05	0.10									
Capacity (veh/h)	850	837	923									
Control Delay (s)	7.4	7.4	7.2									
Approach Delay (s)	7.4	7.4	7.2									
Approach LOS	A	A	A									

Intersection Summary

Delay	7.3		
HCM Level of Service	A		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	180	58	95	412	23	135	579	58	56	699	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.99		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3411		1770	3511		1770	3491		1770	3498	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3411		1770	3511		1770	3491		1770	3498	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.96	0.96	0.96
Adj. Flow (vph)	62	200	64	106	458	26	148	636	64	58	728	61
RTOR Reduction (vph)	0	33	0	0	0	0	0	6	0	0	6	0
Lane Group Flow (vph)	62	231	0	106	484	0	148	694	0	58	783	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	7.7	17.8		10.3	20.4		12.3	48.3		7.6	43.6	
Effective Green, g (s)	7.7	17.8		10.3	20.4		12.3	48.3		7.6	43.6	
Actuated g/C Ratio	0.08	0.18		0.10	0.20		0.12	0.48		0.08	0.44	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	136	607		182	716		218	1686		135	1525	
v/s Ratio Prot	0.04	0.07		c0.06	c0.14		c0.08	0.20		0.03	c0.22	
v/s Ratio Perm												
v/c Ratio	0.46	0.38		0.58	0.68		0.68	0.41		0.43	0.51	
Uniform Delay, d1	44.1	36.2		42.8	36.7		42.0	16.7		44.1	20.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.4	0.4		4.7	2.5		8.1	0.7		2.2	1.2	
Delay (s)	46.6	36.6		47.5	39.3		50.1	17.4		46.3	21.7	
Level of Service	D	D		D	D		D	B		D	C	
Approach Delay (s)		38.5			40.8			23.1			23.4	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	29.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	140	23	68	298	145	47	99	48	45	113	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3463		1770	3366		1770	1863	1583	1770	1840	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3463		1770	3366		1770	1863	1583	1770	1840	
Peak-hour factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	30	156	26	72	317	154	52	110	53	50	126	11
RTOR Reduction (vph)	0	9	0	0	36	0	0	0	45	0	3	0
Lane Group Flow (vph)	30	173	0	72	435	0	52	110	8	50	134	0
Bus Blockages (#/hr)	0	0	0	0	0	5	0	0	0	0	0	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	4.9	54.4		8.2	57.7		7.2	14.2	14.2	7.2	14.2	
Effective Green, g (s)	4.9	54.4		8.2	57.7		7.2	14.2	14.2	7.2	14.2	
Actuated g/C Ratio	0.05	0.54		0.08	0.58		0.07	0.14	0.14	0.07	0.14	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
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)	87	1884		145	1942		127	265	225	127	261	
v/s Ratio Prot	0.02	0.05		c0.04	c0.13		c0.03	0.06		0.03	c0.07	
v/s Ratio Perm									0.00			
v/c Ratio	0.34	0.09		0.50	0.22		0.41	0.42	0.03	0.39	0.51	
Uniform Delay, d1	46.0	10.9		43.9	10.3		44.4	39.1	37.0	44.3	39.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.4	0.1		2.7	0.3		2.1	1.1	0.1	2.0	1.7	
Delay (s)	48.4	11.0		46.6	10.5		46.5	40.2	37.0	46.3	41.4	
Level of Service	D	B		D	B		D	D	D	D	D	
Approach Delay (s)		16.3			15.3			40.9			42.7	
Approach LOS		B			B			D			D	

Intersection Summary

HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	570	959	335	92	612	37	130	149	59	61	214	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.99		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3402		1770	3509		1770	3388		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3402		1770	3509		1770	3388		1770	1863	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	600	1009	353	98	651	39	144	166	66	68	238	241
RTOR Reduction (vph)	0	25	0	0	4	0	0	45	0	0	0	101
Lane Group Flow (vph)	600	1337	0	98	686	0	144	187	0	68	238	140
Turn Type	Prot			Prot			Split			Split		pm+ov
Protected Phases	7	4		3	8		2	2		6	6	7
Permitted Phases												6
Actuated Green, G (s)	30.1	41.9		9.2	21.0		13.3	13.3		15.0	15.0	45.1
Effective Green, g (s)	30.1	41.9		9.2	21.0		13.3	13.3		15.0	15.0	45.1
Actuated g/C Ratio	0.32	0.44		0.10	0.22		0.14	0.14		0.16	0.16	0.47
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	558	1494		171	772		247	472		278	293	815
v/s Ratio Prot	c0.34	c0.39		0.06	0.20		c0.08	0.06		0.04	c0.13	0.05
v/s Ratio Perm												0.03
v/c Ratio	1.08	0.90		0.57	0.89		0.58	0.40		0.24	0.81	0.17
Uniform Delay, d1	32.6	24.7		41.2	36.1		38.5	37.4		35.2	38.8	14.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	59.9	7.3		4.6	12.1		3.5	0.6		0.5	15.6	0.1
Delay (s)	92.6	32.1		45.8	48.2		41.9	37.9		35.7	54.5	14.5
Level of Service	F	C		D	D		D	D		D	D	B
Approach Delay (s)		50.6			47.9			39.5			34.5	
Approach LOS		D			D			D			C	

Intersection Summary

HCM Average Control Delay	46.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	95.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	380	546	236	60	636	139	79	15	47	103	56	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.91	0.91	1.00	0.95	1.00	0.95	0.95	1.00		1.00	0.88
Frt	1.00	0.99	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00		0.97	1.00
Satd. Flow (prot)	3433	3369	1441	1770	3539	1583	1681	1711	1583		1804	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00		0.97	1.00
Satd. Flow (perm)	3433	3369	1441	1770	3539	1583	1681	1711	1583		1804	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	400	575	248	63	669	146	88	17	52	108	59	415
RTOR Reduction (vph)	0	2	113	0	0	89	0	0	47	0	0	253
Lane Group Flow (vph)	400	598	110	63	669	57	52	53	5	0	167	162
Turn Type	Prot		pm+ov	Prot		Perm	Split		Perm	Split		pm+ov
Protected Phases	7	4	2	3	8		2	2		6	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	18.0	40.0	48.7	16.8	38.8	38.8	8.7	8.7	8.7		17.5	35.5
Effective Green, g (s)	18.0	40.0	48.7	16.8	38.8	38.8	8.7	8.7	8.7		17.5	35.5
Actuated g/C Ratio	0.18	0.40	0.49	0.17	0.39	0.39	0.09	0.09	0.09		0.18	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	624	1361	709	300	1387	620	148	150	139		319	1112
v/s Ratio Prot	c0.12	0.18	0.01	0.04	c0.19		0.03	c0.03			c0.09	0.03
v/s Ratio Perm			0.06			0.04			0.00			0.03
v/c Ratio	0.64	0.44	0.15	0.21	0.48	0.09	0.35	0.35	0.03		0.52	0.15
Uniform Delay, d1	37.5	21.4	13.8	35.4	22.6	19.0	42.5	42.5	41.3		37.0	21.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.3	1.0	0.1	0.4	1.2	0.3	1.4	1.4	0.1		1.6	0.1
Delay (s)	39.8	22.4	13.9	35.7	23.8	19.3	43.9	43.9	41.4		38.5	21.6
Level of Service	D	C	B	D	C	B	D	D	D		D	C
Approach Delay (s)		26.5			23.9			43.1			26.4	
Approach LOS		C			C			D			C	

Intersection Summary

HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	99.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	548	0	0	779	295	553	17	633	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.91			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.91	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (prot)	1770	5085			5085	1583	1681	1510	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (perm)	1770	5085			5085	1583	1681	1510	1504			
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	79	609	0	0	847	321	614	19	703	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	165	0	64	178	0	0	0
Lane Group Flow (vph)	79	609	0	0	847	156	467	383	244	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Actuated Green, G (s)	6.4	59.0			48.6	48.6	33.0	33.0	33.0			
Effective Green, g (s)	6.4	59.0			48.6	48.6	33.0	33.0	33.0			
Actuated g/C Ratio	0.06	0.59			0.49	0.49	0.33	0.33	0.33			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	113	3000			2471	769	555	498	496			
v/s Ratio Prot	c0.04	0.12			c0.17		c0.28	0.25				
v/s Ratio Perm						0.10			0.16			
v/c Ratio	0.70	0.20			0.34	0.20	0.84	0.77	0.49			
Uniform Delay, d1	45.9	9.5			15.9	14.7	31.1	30.1	26.8			
Progression Factor	0.73	3.02			0.60	0.34	1.00	1.00	1.00			
Incremental Delay, d2	16.2	0.1			0.4	0.6	11.1	7.1	0.8			
Delay (s)	49.7	28.9			9.8	5.6	42.2	37.1	27.6			
Level of Service	D	C			A	A	D	D	C			
Approach Delay (s)		31.3			8.6			35.9			0.0	
Approach LOS		C			A			D			A	

Intersection Summary

HCM Average Control Delay	24.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	124	110	0	718	615	0	0	0	521	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0				4.0		4.0
Lane Util. Factor	1.00	0.95			0.91	0.91				0.97		1.00
Frt	1.00	0.93			0.97	0.85				1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (prot)	1770	3289			3276	1441				3433		1583
Flt Permitted	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (perm)	1770	3289			3276	1441				3433		1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	101	129	115	0	798	683	0	0	0	579	0	99
RTOR Reduction (vph)	0	36	0	0	19	0	0	0	0	0	0	76
Lane Group Flow (vph)	101	208	0	0	1011	451	0	0	0	579	0	23
Turn Type	Prot					Free				custom		custom
Protected Phases	7	4			8					6		6
Permitted Phases						Free				6		6
Actuated Green, G (s)	12.8	69.0			52.2	100.0				23.0		23.0
Effective Green, g (s)	12.8	69.0			52.2	100.0				23.0		23.0
Actuated g/C Ratio	0.13	0.69			0.52	1.00				0.23		0.23
Clearance Time (s)	4.0	4.0			4.0					4.0		4.0
Vehicle Extension (s)	3.0	3.0			3.0					3.0		3.0
Lane Grp Cap (vph)	227	2269			1710	1441				790		364
v/s Ratio Prot	c0.06	0.06			c0.31					c0.17		0.01
v/s Ratio Perm						0.31						
v/c Ratio	0.44	0.09			0.59	0.31				0.73		0.06
Uniform Delay, d1	40.3	5.1			16.5	0.0				35.7		30.1
Progression Factor	1.00	1.00			0.95	1.00				1.00		1.00
Incremental Delay, d2	1.4	0.1			1.3	0.5				3.5		0.1
Delay (s)	41.7	5.2			17.0	0.5				39.2		30.2
Level of Service	D	A			B	A				D		C
Approach Delay (s)		15.9			12.0			0.0			37.9	
Approach LOS		B			B			A			D	

Intersection Summary

HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	16	15	464	80	0	72	96	573	75	220	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1681	1709		1770	3539	1583	1770	1783	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1681	1709		1770	3539	1583	1770	1783	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	6	18	17	516	89	0	77	103	616	82	242	96
RTOR Reduction (vph)	0	0	16	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	6	18	1	299	306	0	77	103	616	82	325	0
Turn Type	Split		Perm	Split			Prot		Free	Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						Free			
Actuated Green, G (s)	3.2	3.2	3.2	17.7	17.7		6.6	18.0	61.6	6.7	18.1	
Effective Green, g (s)	3.2	3.2	3.2	17.7	17.7		6.6	18.0	61.6	6.7	18.1	
Actuated g/C Ratio	0.05	0.05	0.05	0.29	0.29		0.11	0.29	1.00	0.11	0.29	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
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)	92	97	82	483	491		190	1034	1583	193	524	
v/s Ratio Prot	0.00	0.01		0.18	c0.18		0.04	0.03		0.05	c0.18	
v/s Ratio Perm			0.00						c0.39			
v/c Ratio	0.07	0.19	0.01	0.62	0.62		0.41	0.10	0.39	0.42	0.62	
Uniform Delay, d1	27.8	28.0	27.7	19.0	19.1		25.7	15.9	0.0	25.6	18.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.9	0.1	2.4	2.5		1.4	0.0	0.7	1.5	2.3	
Delay (s)	28.1	28.9	27.8	21.4	21.5		27.1	15.9	0.7	27.2	21.1	
Level of Service	C	C	C	C	C		C	B	A	C	C	
Approach Delay (s)		28.3			21.5			5.2			22.3	
Approach LOS		C			C			A			C	

Intersection Summary

HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	4.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

LEVEL OF SERVICE CALCULATION WORKSHEETS

EXISTING PLUS PROJECT PM PEAK HOUR CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	631	141	48	498	28	354	212	49	81	242	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3442		1770	3511		1770	1811		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.33	1.00		0.58	1.00	1.00
Satd. Flow (perm)	1770	3442		1770	3511		621	1811		1085	1863	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	122	693	155	53	553	31	393	236	54	90	269	263
RTOR Reduction (vph)	0	31	0	0	7	0	0	16	0	0	0	26
Lane Group Flow (vph)	122	817	0	53	577	0	393	274	0	90	269	237
Turn Type	Prot			Prot			pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases							2			6		6
Actuated Green, G (s)	4.0	16.5		1.5	14.0		16.0	16.0		14.3	14.3	18.3
Effective Green, g (s)	4.0	16.5		1.5	14.0		16.0	16.0		14.3	14.3	18.3
Actuated g/C Ratio	0.08	0.32		0.03	0.27		0.31	0.31		0.27	0.27	0.35
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	135	1086		51	940		278	554		327	509	675
v/s Ratio Prot	0.07	c0.24		0.03	c0.16		c0.11	0.15		0.01	c0.14	0.03
v/s Ratio Perm							c0.32			0.06		0.12
v/c Ratio	0.90	0.75		1.04	0.61		1.41	0.49		0.28	0.53	0.35
Uniform Delay, d1	24.0	16.1		25.4	16.8		18.0	14.8		15.1	16.1	12.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	49.2	3.0		137.6	1.2		206.1	0.7		0.5	1.0	0.3
Delay (s)	73.2	19.1		163.0	18.0		224.1	15.5		15.5	17.1	12.9
Level of Service	E	B		F	B		F	B		B	B	B
Approach Delay (s)		25.9			30.0			135.5			15.1	
Approach LOS		C			C			F			B	

Intersection Summary

HCM Average Control Delay	50.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	52.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	36	658	8	32	538	16	0	6	20	31	19	47
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	40	731	9	34	566	17	0	7	22	34	21	52
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		525										
pX, platoon unblocked				0.88			0.88	0.88	0.88	0.88	0.88	
vC, conflicting volume	583			740			1229	1466	370	1113	1462	292
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	583			417			976	1247	0	844	1242	292
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			97			100	95	98	83	85	93
cM capacity (veh/h)	987			996			139	140	949	200	141	705

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	406	374	317	300	29	108
Volume Left	40	0	34	0	0	34
Volume Right	0	9	0	17	22	52
cSH	987	1700	996	1700	406	272
Volume to Capacity	0.04	0.22	0.03	0.18	0.07	0.40
Queue Length 95th (ft)	3	0	3	0	6	45
Control Delay (s)	1.3	0.0	1.2	0.0	14.5	26.7
Lane LOS	A		A		B	D
Approach Delay (s)	0.7		0.6		14.5	26.7
Approach LOS					B	D

Intersection Summary

Average Delay	2.7		
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	53	48	23	15	23	15	531	33	7	410	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	1.00
Frt	1.00	0.93		1.00	0.91			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	1.00
Satd. Flow (prot)	1770	1731		1770	1694			3504			1824	1552
Flt Permitted	0.73	1.00		0.68	1.00			0.94			0.99	1.00
Satd. Flow (perm)	1358	1731		1276	1694			3307			1807	1552
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	131	59	53	26	17	26	17	590	37	8	456	17
RTOR Reduction (vph)	0	41	0	0	20	0	0	7	0	0	0	7
Lane Group Flow (vph)	131	71	0	26	23	0	0	637	0	0	464	10
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	5	5
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	8.7	8.7		8.7	8.7			22.1			22.1	22.1
Effective Green, g (s)	8.7	8.7		8.7	8.7			22.1			22.1	22.1
Actuated g/C Ratio	0.22	0.22		0.22	0.22			0.57			0.57	0.57
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	305	388		286	380			1884			1029	884
v/s Ratio Prot		0.04			0.01							
v/s Ratio Perm	c0.10			0.02				0.19			c0.26	0.01
v/c Ratio	0.43	0.18		0.09	0.06			0.34			0.45	0.01
Uniform Delay, d1	12.9	12.2		11.9	11.8			4.5			4.8	3.6
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.0	0.2		0.1	0.1			0.5			1.4	0.0
Delay (s)	13.9	12.4		12.1	11.9			4.9			6.3	3.6
Level of Service	B	B		B	B			A			A	A
Approach Delay (s)		13.2			12.0			4.9			6.2	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	38.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	23	73	26	0	0	0	12	19	2	4	18	22
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	26	81	29	0	0	0	13	21	2	4	20	24
Direction, Lane #	EB 1	NB 1	SB 1									
Volume Total (vph)	136	37	49									
Volume Left (vph)	26	13	4									
Volume Right (vph)	29	2	24									
Hadj (s)	-0.06	0.07	-0.25									
Departure Headway (s)	4.0	4.3	4.0									
Degree Utilization, x	0.15	0.04	0.05									
Capacity (veh/h)	872	799	869									
Control Delay (s)	7.7	7.5	7.2									
Approach Delay (s)	7.7	7.5	7.2									
Approach LOS	A	A	A									

Intersection Summary

Delay	7.6		
HCM Level of Service	A		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	102	520	99	78	341	54	140	1015	108	137	917	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3454		1770	3467		1770	3488		1770	3493	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3454		1770	3467		1770	3488		1770	3493	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.96	0.96	0.96
Adj. Flow (vph)	113	578	110	87	379	60	154	1115	119	143	955	92
RTOR Reduction (vph)	0	16	0	0	0	0	0	8	0	0	7	0
Lane Group Flow (vph)	113	672	0	87	439	0	154	1226	0	143	1040	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	10.5	24.1		8.5	22.1		11.6	40.1		11.3	39.8	
Effective Green, g (s)	10.5	24.1		8.5	22.1		11.6	40.1		11.3	39.8	
Actuated g/C Ratio	0.10	0.24		0.08	0.22		0.12	0.40		0.11	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	186	832		150	766		205	1399		200	1390	
v/s Ratio Prot	c0.06	c0.19		0.05	0.13		c0.09	c0.35		0.08	0.30	
v/s Ratio Perm												
v/c Ratio	0.61	0.81		0.58	0.57		0.75	0.88		0.72	0.75	
Uniform Delay, d1	42.8	35.8		44.0	34.7		42.8	27.7		42.8	25.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.5	5.8		5.4	1.0		14.3	8.0		11.5	3.7	
Delay (s)	48.3	41.6		49.4	35.8		57.1	35.6		54.3	29.5	
Level of Service	D	D		D	D		E	D		D	C	
Approach Delay (s)		42.5			38.0			38.0			32.5	
Approach LOS		D			D			D			C	

Intersection Summary

HCM Average Control Delay	37.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	601	85	125	508	150	84	169	104	121	286	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3474		1770	3418		1770	1863	1583	1770	1836	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3474		1770	3418		1770	1863	1583	1770	1836	
Peak-hour factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	668	94	133	540	160	93	188	116	134	318	33
RTOR Reduction (vph)	0	10	0	0	22	0	0	0	90	0	4	0
Lane Group Flow (vph)	42	752	0	133	678	0	93	188	26	134	347	0
Bus Blockages (#/hr)	0	0	0	0	0	5	0	0	0	0	0	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	5.4	39.2		11.5	45.3		8.7	22.3	22.3	11.0	24.6	
Effective Green, g (s)	5.4	39.2		11.5	45.3		8.7	22.3	22.3	11.0	24.6	
Actuated g/C Ratio	0.05	0.39		0.12	0.45		0.09	0.22	0.22	0.11	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
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)	96	1362		204	1548		154	415	353	195	452	
v/s Ratio Prot	0.02	c0.22		c0.08	0.20		0.05	0.10		c0.08	c0.19	
v/s Ratio Perm									0.02			
v/c Ratio	0.44	0.55		0.65	0.44		0.60	0.45	0.07	0.69	0.77	
Uniform Delay, d1	45.8	23.6		42.3	18.7		44.0	33.6	30.7	42.8	35.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.2	1.6		7.3	0.9		6.5	0.8	0.1	9.6	7.7	
Delay (s)	49.0	25.2		49.6	19.6		50.5	34.4	30.8	52.5	42.7	
Level of Service	D	C		D	B		D	C	C	D	D	
Approach Delay (s)		26.5			24.4			37.1			45.4	
Approach LOS		C			C			D			D	

Intersection Summary

HCM Average Control Delay	31.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	231	600	153	85	811	33	215	431	101	136	280	526
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3431		1770	3518		1770	3438		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3431		1770	3518		1770	3438		1770	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	246	638	163	92	882	36	234	468	110	146	301	566
RTOR Reduction (vph)	0	18	0	0	3	0	0	20	0	0	0	58
Lane Group Flow (vph)	246	783	0	92	915	0	234	558	0	146	301	508
Turn Type	Prot			Prot			Split			Split		pm+ov
Protected Phases	7	4		3	8		2	2		6	6	7
Permitted Phases												6
Actuated Green, G (s)	19.3	31.8		8.6	21.1		17.4	17.4		16.1	16.1	35.4
Effective Green, g (s)	19.3	31.8		8.6	21.1		17.4	17.4		16.1	16.1	35.4
Actuated g/C Ratio	0.21	0.35		0.10	0.23		0.19	0.19		0.18	0.18	0.39
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	380	1214		169	826		343	665		317	334	694
v/s Ratio Prot	0.14	0.23		0.05	c0.26		0.13	c0.16		0.08	c0.16	c0.16
v/s Ratio Perm												0.16
v/c Ratio	0.65	0.64		0.54	1.11		0.68	0.84		0.46	0.90	0.73
Uniform Delay, d1	32.2	24.3		38.8	34.4		33.7	34.9		33.0	36.1	23.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.8	1.2		3.6	65.1		5.5	9.1		1.1	26.0	4.0
Delay (s)	36.0	25.5		42.3	99.5		39.2	44.0		34.1	62.2	27.2
Level of Service	D	C		D	F		D	D		C	E	C
Approach Delay (s)		28.0			94.3			42.6			38.6	
Approach LOS		C			F			D			D	

Intersection Summary

HCM Average Control Delay	51.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	89.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	364	574	728	249	726	144	193	45	126	180	251	814
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.91	0.91	1.00	0.95	1.00	0.95	0.95	1.00		1.00	0.88
Frt	1.00	0.95	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00		0.98	1.00
Satd. Flow (prot)	3433	3208	1441	1770	3539	1583	1681	1716	1583		1825	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00		0.98	1.00
Satd. Flow (perm)	3433	3208	1441	1770	3539	1583	1681	1716	1583		1825	2787
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	383	604	766	262	764	152	214	50	140	189	264	857
RTOR Reduction (vph)	0	66	164	0	0	114	0	0	121	0	0	82
Lane Group Flow (vph)	383	875	265	262	764	38	131	133	19	0	453	775
Turn Type	Prot		pm+ov	Prot		Perm	Split		Perm	Split		pm+ov
Protected Phases	7	4	2	3	8		2	2		6	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	18.6	22.8	36.1	21.0	25.2	25.2	13.3	13.3	13.3		26.9	45.5
Effective Green, g (s)	18.6	22.8	36.1	21.0	25.2	25.2	13.3	13.3	13.3		26.9	45.5
Actuated g/C Ratio	0.19	0.23	0.36	0.21	0.25	0.25	0.13	0.13	0.13		0.27	0.46
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	639	731	520	372	892	399	224	228	211		491	1380
v/s Ratio Prot	0.11	c0.27	0.07	0.15	c0.22		c0.08	0.08			c0.25	0.10
v/s Ratio Perm			0.12			0.02			0.01			0.17
v/c Ratio	0.60	1.20	0.51	0.70	0.86	0.10	0.58	0.58	0.09		0.92	0.56
Uniform Delay, d1	37.3	38.6	25.0	36.6	35.7	28.7	40.8	40.7	38.0		35.5	19.9
Progression Factor	0.96	0.99	1.19	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.4	101.1	0.7	6.0	10.4	0.5	3.9	3.8	0.2		23.0	0.5
Delay (s)	37.1	139.1	30.4	42.6	46.1	29.1	44.6	44.5	38.2		58.5	20.5
Level of Service	D	F	C	D	D	C	D	D	D		E	C
Approach Delay (s)		90.2			43.1			42.4			33.6	
Approach LOS		F			D			D			C	

Intersection Summary

HCM Average Control Delay	58.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	933	0	0	1271	394	543	160	784	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.91			0.91	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.50	1.00	0.91	0.85			
Flt Protected	0.70	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	1304	5085			5085	931	1681	1539	1504			
Flt Permitted	0.70	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	1304	5085			5085	931	1681	1539	1504			
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.98	0.98	0.95	0.95	0.95	0.92	0.92	0.92
Growth Factor (vph)	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	147	507	0	0	1297	402	572	168	825	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	209	0	52	221	0	0	0
Lane Group Flow (vph)	147	507	0	0	1297	193	515	487	290	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Actuated Green, G (s)	5.3	57.3			48.0	48.0	34.7	34.7	34.7			
Effective Green, g (s)	5.3	57.3			48.0	48.0	34.7	34.7	34.7			
Actuated g/C Ratio	0.05	0.57			0.48	0.48	0.35	0.35	0.35			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	69	2914			2441	447	583	534	522			
v/s Ratio Prot	c0.11	0.10			c0.26		0.31	c0.32				
v/s Ratio Perm						0.21			0.19			
v/c Ratio	2.13	0.17			0.53	0.43	0.88	0.91	0.56			
Uniform Delay, d1	47.3	10.1			18.1	17.1	30.7	31.2	26.4			
Progression Factor	0.80	2.25			0.86	1.66	1.00	1.00	1.00			
Incremental Delay, d2	549.4	0.1			0.6	2.2	14.7	20.0	1.3			
Delay (s)	587.2	22.9			16.3	30.6	45.5	51.2	27.7			
Level of Service	F	C			B	C	D	D	C			
Approach Delay (s)		149.7			19.6			41.7			0.0	
Approach LOS		F			B			D			A	

Intersection Summary

HCM Average Control Delay	50.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	410	440	0	427	1405	0	0	0	592	0	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0				4.0		4.0
Lane Util. Factor	1.00	0.95			0.91	0.91				0.97		1.00
Frt	1.00	0.92			0.91	0.85				1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (prot)	1770	3264			3074	1441				3433		1583
Flt Permitted	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (perm)	1770	3264			3074	1441				3433		1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	139	427	458	0	474	1561	0	0	0	658	0	228
RTOR Reduction (vph)	0	150	0	0	252	0	0	0	0	0	0	169
Lane Group Flow (vph)	139	735	0	0	1003	780	0	0	0	658	0	59
Turn Type	Prot					Free				custom		custom
Protected Phases	7	4			8					6		6
Permitted Phases						Free				6		6
Actuated Green, G (s)	16.0	66.0			46.0	100.0				26.0		26.0
Effective Green, g (s)	16.0	66.0			46.0	100.0				26.0		26.0
Actuated g/C Ratio	0.16	0.66			0.46	1.00				0.26		0.26
Clearance Time (s)	4.0	4.0			4.0					4.0		4.0
Vehicle Extension (s)	3.0	3.0			3.0					3.0		3.0
Lane Grp Cap (vph)	283	2154			1414	1441				893		412
v/s Ratio Prot	0.08	0.23			c0.33					c0.19		0.04
v/s Ratio Perm						c0.54						
v/c Ratio	0.49	0.34			0.71	0.54				0.74		0.14
Uniform Delay, d1	38.3	7.5			21.6	0.0				33.9		28.4
Progression Factor	1.00	1.00			0.93	1.00				1.00		1.00
Incremental Delay, d2	1.3	0.4			2.5	1.2				3.2		0.2
Delay (s)	39.6	7.9			22.7	1.2				37.1		28.6
Level of Service	D	A			C	A				D		C
Approach Delay (s)		12.2			14.4			0.0			34.9	
Approach LOS		B			B			A			C	

Intersection Summary

HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	229	74	379	13	0	19	403	1216	254	404	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	0.96		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1681	1691		1770	3539	1583	1770	1838	
Flt Permitted	0.95	1.00	1.00	0.95	0.96		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1681	1691		1770	3539	1583	1770	1838	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	87	254	82	421	14	0	20	433	1308	279	444	43
RTOR Reduction (vph)	0	0	65	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	87	254	17	219	216	0	20	433	1308	279	484	0
Turn Type	Split		Perm	Split			Prot		Free	Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						Free			
Actuated Green, G (s)	15.9	15.9	15.9	15.6	15.6		2.6	17.7	77.7	12.5	27.6	
Effective Green, g (s)	15.9	15.9	15.9	15.6	15.6		2.6	17.7	77.7	12.5	27.6	
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20		0.03	0.23	1.00	0.16	0.36	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
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)	362	381	324	337	340		59	806	1583	285	653	
v/s Ratio Prot	0.05	0.14		0.13	0.13		0.01	0.12		c0.16	0.26	
v/s Ratio Perm			0.01						c0.83			
v/c Ratio	0.24	0.67	0.05	0.65	0.64		0.34	0.54	0.83	0.98	0.74	
Uniform Delay, d1	25.8	28.5	24.8	28.5	28.4		36.7	26.4	0.0	32.5	21.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	4.4	0.1	4.3	3.9		3.4	0.7	5.1	46.9	4.5	
Delay (s)	26.2	32.8	24.9	32.8	32.3		40.1	27.1	5.1	79.4	26.5	
Level of Service	C	C	C	C	C		D	C	A	E	C	
Approach Delay (s)		29.9			32.6			10.9			45.8	
Approach LOS		C			C			B			D	

Intersection Summary

HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	77.7	Sum of lost time (s)	0.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

LEVEL OF SERVICE CALCULATION WORKSHEETS

CUMULATIVE PLUS PROJECT AM PEAK HOUR CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	261	355	310	80	579	74	303	147	35	29	239	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3292		1770	3479		1770	1809		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.31	1.00		0.63	1.00	1.00
Satd. Flow (perm)	1770	3292		1770	3479		578	1809		1175	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	290	394	344	89	643	82	337	163	39	32	266	158
RTOR Reduction (vph)	0	254	0	0	17	0	0	16	0	0	0	23
Lane Group Flow (vph)	290	484	0	89	708	0	337	186	0	32	266	135
Turn Type	Prot			Prot			pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases							2			6		6
Actuated Green, G (s)	4.0	13.5		3.5	13.0		16.9	16.9		14.8	14.8	18.8
Effective Green, g (s)	4.0	13.5		3.5	13.0		16.9	16.9		14.8	14.8	18.8
Actuated g/C Ratio	0.08	0.26		0.07	0.25		0.33	0.33		0.29	0.29	0.36
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	137	858		120	873		281	590		358	532	697
v/s Ratio Prot	c0.16	0.15		0.05	c0.20		c0.09	0.10		0.00	c0.14	0.01
v/s Ratio Perm							c0.30			0.02		0.07
v/c Ratio	2.12	0.56		0.74	0.81		1.20	0.31		0.09	0.50	0.19
Uniform Delay, d1	23.9	16.6		23.7	18.2		17.0	13.1		13.6	15.4	11.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	526.3	0.9		21.6	5.8		118.8	0.3		0.1	0.7	0.1
Delay (s)	550.2	17.5		45.3	24.0		135.8	13.4		13.7	16.2	11.4
Level of Service	F	B		D	C		F	B		B	B	B
Approach Delay (s)		167.7			26.3			89.9			14.4	
Approach LOS		F			C			F			B	

Intersection Summary

HCM Average Control Delay	87.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	51.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	80	304	41	46	662	68	60	9	29	22	22	56
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	89	338	46	48	697	72	67	10	32	24	24	62
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		525										
pX, platoon unblocked												
vC, conflicting volume	768			383			1058	1404	192	1213	1391	384
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	768			383			1058	1404	192	1213	1391	384
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	89			96			45	92	96	78	80	90
cM capacity (veh/h)	841			1172			121	119	818	110	121	614

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	258	214	397	420	109	111
Volume Left	89	0	48	0	67	24
Volume Right	0	46	0	72	32	62
cSH	841	1700	1172	1700	162	212
Volume to Capacity	0.11	0.13	0.04	0.25	0.67	0.53
Queue Length 95th (ft)	9	0	3	0	97	68
Control Delay (s)	4.1	0.0	1.4	0.0	63.8	39.4
Lane LOS	A		A		F	E
Approach Delay (s)	2.3		0.7		63.8	39.4
Approach LOS					F	E

Intersection Summary

Average Delay	8.6		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

Cumulative Plus Project AM Peak
3: Stanford Ave & Hollis St.

Emeryville Papermill
8/5/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	15	26	25	31	17	103	397	28	29	567	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	1.00
Frt	1.00	0.91		1.00	0.95			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)	1770	1687		1770	1763			3477			1821	1552
Flt Permitted	0.72	1.00		0.73	1.00			0.77			0.96	1.00
Satd. Flow (perm)	1346	1687		1354	1763			2716			1758	1552
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	37	17	29	28	34	19	114	441	31	32	630	74
RTOR Reduction (vph)	0	24	0	0	16	0	0	5	0	0	0	27
Lane Group Flow (vph)	37	22	0	28	37	0	0	581	0	0	662	47
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	5	5
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	6.1	6.1		6.1	6.1			24.9			24.9	24.9
Effective Green, g (s)	6.1	6.1		6.1	6.1			24.9			24.9	24.9
Actuated g/C Ratio	0.16	0.16		0.16	0.16			0.64			0.64	0.64
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	211	264		212	276			1734			1122	991
v/s Ratio Prot		0.01			0.02							
v/s Ratio Perm	c0.03			0.02				0.21			c0.38	0.03
v/c Ratio	0.18	0.08		0.13	0.13			0.33			0.59	0.05
Uniform Delay, d1	14.3	14.1		14.2	14.2			3.2			4.1	2.6
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	0.4	0.1		0.3	0.2			0.5			2.3	0.1
Delay (s)	14.7	14.2		14.5	14.4			3.8			6.4	2.7
Level of Service	B	B		B	B			A			A	A
Approach Delay (s)		14.4			14.4			3.8			6.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	6.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	39.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Cumulative Plus Project AM Peak
4: Stanford Ave & Doyle Street

Emeryville Papermill
8/5/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	20	30	19	0	0	0	23	22	6	3	60	56
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	22	33	21	0	0	0	26	24	7	3	67	62

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	77	57	132
Volume Left (vph)	22	26	3
Volume Right (vph)	21	7	62
Hadj (s)	-0.07	0.05	-0.24
Departure Headway (s)	4.2	4.2	3.9
Degree Utilization, x	0.09	0.07	0.14
Capacity (veh/h)	815	818	904
Control Delay (s)	7.6	7.6	7.5
Approach Delay (s)	7.6	7.6	7.5
Approach LOS	A	A	A

Intersection Summary

Delay	7.6		
HCM Level of Service	A		
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	230	75	122	532	30	234	1003	100	97	1211	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.99		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3409		1770	3511		1770	3491		1770	3496	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3409		1770	3511		1770	3491		1770	3496	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.96	0.96	0.96
Adj. Flow (vph)	77	256	83	136	591	33	257	1102	110	101	1261	112
RTOR Reduction (vph)	0	33	0	0	0	0	0	7	0	0	6	0
Lane Group Flow (vph)	77	306	0	136	624	0	257	1205	0	101	1367	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.2	20.1		11.1	23.0		17.6	44.0		8.8	35.2	
Effective Green, g (s)	8.2	20.1		11.1	23.0		17.6	44.0		8.8	35.2	
Actuated g/C Ratio	0.08	0.20		0.11	0.23		0.18	0.44		0.09	0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	145	685		196	808		312	1536		156	1231	
v/s Ratio Prot	0.04	0.09		c0.08	c0.18		c0.15	0.35		0.06	c0.39	
v/s Ratio Perm												
v/c Ratio	0.53	0.45		0.69	0.77		0.82	0.78		0.65	1.11	
Uniform Delay, d1	44.1	35.1		42.8	36.0		39.7	23.9		44.1	32.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.7	0.5		10.2	4.6		16.0	4.1		8.9	61.4	
Delay (s)	47.8	35.5		53.0	40.7		55.7	28.0		53.0	93.8	
Level of Service	D	D		D	D		E	C		D	F	
Approach Delay (s)		37.8			42.9			32.9			91.0	
Approach LOS		D			D			C			F	

Intersection Summary

HCM Average Control Delay	56.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	205	34	100	437	213	69	147	70	66	163	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3463		1770	3365		1770	1863	1583	1770	1839	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3463		1770	3365		1770	1863	1583	1770	1839	
Peak-hour factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	44	228	38	106	465	227	77	163	78	73	181	17
RTOR Reduction (vph)	0	10	0	0	40	0	0	0	65	0	4	0
Lane Group Flow (vph)	44	256	0	106	652	0	77	163	13	73	194	0
Bus Blockages (#/hr)	0	0	0	0	0	5	0	0	0	0	0	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	5.5	48.1		11.2	53.8		8.2	16.6	16.6	8.1	16.5	
Effective Green, g (s)	5.5	48.1		11.2	53.8		8.2	16.6	16.6	8.1	16.5	
Actuated g/C Ratio	0.06	0.48		0.11	0.54		0.08	0.17	0.17	0.08	0.16	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
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)	97	1666		198	1810		145	309	263	143	303	
v/s Ratio Prot	0.02	0.07		c0.06	c0.19		c0.04	0.09		0.04	c0.11	
v/s Ratio Perm									0.01			
v/c Ratio	0.45	0.15		0.54	0.36		0.53	0.53	0.05	0.51	0.64	
Uniform Delay, d1	45.8	14.5		41.9	13.2		44.1	38.1	35.1	44.0	39.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.3	0.2		2.8	0.6		3.7	1.6	0.1	3.1	4.4	
Delay (s)	49.1	14.7		44.7	13.8		47.8	39.7	35.1	47.1	43.4	
Level of Service	D	B		D	B		D	D	D	D	D	
Approach Delay (s)		19.6			17.9			40.6			44.4	
Approach LOS		B			B			D			D	

Intersection Summary

HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	734	1234	431	118	788	47	191	217	86	91	315	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.99		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3402		1770	3509		1770	3388		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3402		1770	3509		1770	3388		1770	1863	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	773	1299	454	126	838	50	212	241	96	101	350	353
RTOR Reduction (vph)	0	27	0	0	4	0	0	44	0	0	0	60
Lane Group Flow (vph)	773	1726	0	126	884	0	212	293	0	101	350	293
Turn Type	Prot			Prot			Split			Split		pm+ov
Protected Phases	7	4		3	8		2	2		6	6	7
Permitted Phases												6
Actuated Green, G (s)	30.0	37.7		12.3	20.0		15.5	15.5		16.0	16.0	46.0
Effective Green, g (s)	30.0	37.7		12.3	20.0		15.5	15.5		16.0	16.0	46.0
Actuated g/C Ratio	0.31	0.39		0.13	0.21		0.16	0.16		0.16	0.16	0.47
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	545	1315		223	720		281	539		290	306	812
v/s Ratio Prot	c0.44	c0.51		0.07	0.25		c0.12	0.09		0.06	c0.19	0.11
v/s Ratio Perm												0.07
v/c Ratio	1.42	1.31		0.57	1.23		0.75	0.54		0.35	1.14	0.36
Uniform Delay, d1	33.8	29.9		40.1	38.8		39.2	37.7		36.1	40.8	16.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	198.9	146.2		3.3	114.6		10.9	1.1		0.7	96.2	0.3
Delay (s)	232.6	176.1		43.3	153.3		50.1	38.9		36.9	136.9	16.7
Level of Service	F	F		D	F		D	D		D	F	B
Approach Delay (s)		193.4			139.7			43.2			71.6	
Approach LOS		F			F			D			E	

Intersection Summary

HCM Average Control Delay	145.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	97.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	104.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	489	713	304	77	806	179	137	26	81	178	97	682
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.91	0.97	0.95	1.00	0.95	0.95	1.00	0.95	0.95	0.88
Frt	1.00	0.99	0.85	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	0.97	1.00	0.95	0.98	1.00
Satd. Flow (prot)	3433	3369	1441	3433	3539	1583	1681	1711	1583	1681	1743	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	0.98	1.00
Satd. Flow (perm)	3433	3369	1441	3433	3539	1583	1681	1711	1583	1681	1743	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	543	792	338	86	896	199	152	29	90	187	102	718
RTOR Reduction (vph)	0	2	152	0	0	131	0	0	80	0	0	150
Lane Group Flow (vph)	543	824	152	86	896	68	90	91	10	142	147	568
Turn Type	Prot		pm+ov	Prot		Perm	Split		Perm	Split		pm+ov
Protected Phases	7	4	2	3	8		2	2		6	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	21.5	38.9	50.0	16.8	34.2	34.2	11.1	11.1	11.1	17.2	17.2	38.7
Effective Green, g (s)	21.5	38.9	50.0	16.8	34.2	34.2	11.1	11.1	11.1	17.2	17.2	38.7
Actuated g/C Ratio	0.22	0.39	0.50	0.17	0.34	0.34	0.11	0.11	0.11	0.17	0.17	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	738	1311	721	577	1210	541	187	190	176	289	300	1190
v/s Ratio Prot	c0.16	0.24	0.02	0.03	c0.25		c0.05	0.05		0.08	0.08	c0.10
v/s Ratio Perm			0.08			0.04			0.01			0.10
v/c Ratio	0.74	0.63	0.21	0.15	0.74	0.13	0.48	0.48	0.06	0.49	0.49	0.48
Uniform Delay, d1	36.6	24.7	14.0	35.5	29.0	22.6	41.7	41.7	39.8	37.4	37.4	23.0
Progression Factor	0.81	0.50	2.05	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.7	1.6	0.1	0.1	4.1	0.5	1.9	1.9	0.1	1.3	1.3	0.3
Delay (s)	32.4	13.9	28.7	35.6	33.1	23.1	43.7	43.6	39.9	38.8	38.7	23.3
Level of Service	C	B	C	D	C	C	D	D	D	D	D	C
Approach Delay (s)		22.6			31.6			42.4			27.8	
Approach LOS		C			C			D			C	

Intersection Summary

HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Cumulative Plus Project AM Peak
9: Powell St & I-80E on-ramp

Emeryville Papermill
8/5/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	91	709	0	0	993	376	958	29	1113	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.91			0.91	1.00	0.91	0.86	0.91			
Frt	1.00	1.00			1.00	0.85	1.00	0.92	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (prot)	1770	5085			5085	1583	1610	2878	1441			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.98	1.00			
Satd. Flow (perm)	1770	5085			5085	1583	1610	2878	1441			
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	101	788	0	0	1079	409	1064	32	1237	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	213	0	110	110	0	0	0
Lane Group Flow (vph)	101	788	0	0	1079	196	596	1009	508	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Actuated Green, G (s)	4.0	56.0			48.0	48.0	36.0	36.0	36.0			
Effective Green, g (s)	4.0	56.0			48.0	48.0	36.0	36.0	36.0			
Actuated g/C Ratio	0.04	0.56			0.48	0.48	0.36	0.36	0.36			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	71	2848			2441	760	580	1036	519			
v/s Ratio Prot	c0.06	0.15			c0.21		c0.37	0.35				
v/s Ratio Perm						0.12			0.35			
v/c Ratio	1.42	0.28			0.44	0.26	1.03	0.97	0.98			
Uniform Delay, d1	48.0	11.5			17.2	15.4	32.0	31.5	31.6			
Progression Factor	0.61	2.56			0.82	0.85	1.00	1.00	1.00			
Incremental Delay, d2	235.8	0.2			0.5	0.7	44.6	21.7	33.6			
Delay (s)	265.3	29.4			14.6	13.8	76.6	53.2	65.3			
Level of Service	F	C			B	B	E	D	E			
Approach Delay (s)		56.2			14.4			62.4			0.0	
Approach LOS		E			B			E			A	

Intersection Summary

HCM Average Control Delay	46.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Cumulative Plus Project AM Peak
10: Powell St & Frontage Rd

Emeryville Papermill
8/5/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	160	142	0	923	783	0	0	0	910	0	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0				4.0		4.0
Lane Util. Factor	1.00	0.95			0.91	0.91				0.97		1.00
Frt	1.00	0.93			0.97	0.85				1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (prot)	1770	3290			3279	1441				3433		1583
Flt Permitted	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (perm)	1770	3290			3279	1441				3433		1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	125	167	148	0	1026	870	0	0	0	1011	0	171
RTOR Reduction (vph)	0	63	0	0	23	0	0	0	0	0	0	112
Lane Group Flow (vph)	125	252	0	0	1290	583	0	0	0	1011	0	59
Turn Type	Prot					Free				custom		custom
Protected Phases	7	4			8					6		6
Permitted Phases						Free				6		6
Actuated Green, G (s)	16.0	57.7			37.7	100.0				34.3		34.3
Effective Green, g (s)	16.0	57.7			37.7	100.0				34.3		34.3
Actuated g/C Ratio	0.16	0.58			0.38	1.00				0.34		0.34
Clearance Time (s)	4.0	4.0			4.0					4.0		4.0
Vehicle Extension (s)	3.0	3.0			3.0					3.0		3.0
Lane Grp Cap (vph)	283	1898			1236	1441				1178		543
v/s Ratio Prot	0.07	0.08			c0.39					c0.29		0.04
v/s Ratio Perm						c0.40						
v/c Ratio	0.44	0.13			1.04	0.40				0.86		0.11
Uniform Delay, d1	38.0	9.7			31.2	0.0				30.6		22.4
Progression Factor	1.00	1.00			0.79	1.00				1.00		1.00
Incremental Delay, d2	1.1	0.1			33.5	0.6				6.4		0.1
Delay (s)	39.1	9.8			58.1	0.6				37.0		22.5
Level of Service	D	A			E	A				D		C
Approach Delay (s)		18.1			40.4			0.0			34.9	
Approach LOS		B			D			A			C	

Intersection Summary

HCM Average Control Delay	35.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	21	19	600	103	0	125	166	972	130	381	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1681	1709		1770	3539	1583	1770	1783	
Flt Permitted	0.95	1.00	1.00	0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1681	1709		1770	3539	1583	1770	1783	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	7	23	21	667	114	0	134	178	1045	143	419	166
RTOR Reduction (vph)	0	0	20	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	7	23	1	387	394	0	134	178	1045	143	572	0
Turn Type	Split		Perm	Split			Prot		Free	Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						Free			
Actuated Green, G (s)	3.9	3.9	3.9	22.8	22.8		10.3	22.2	75.5	10.6	22.5	
Effective Green, g (s)	3.9	3.9	3.9	22.8	22.8		10.3	22.2	75.5	10.6	22.5	
Actuated g/C Ratio	0.05	0.05	0.05	0.30	0.30		0.14	0.29	1.00	0.14	0.30	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
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)	91	96	82	508	516		241	1041	1583	249	531	
v/s Ratio Prot	0.00	0.01		0.23	0.23		0.08	0.05		0.08	c0.32	
v/s Ratio Perm			0.00						c0.66			
v/c Ratio	0.08	0.24	0.01	0.76	0.76		0.56	0.17	0.66	0.57	1.08	
Uniform Delay, d1	34.1	34.4	34.0	23.9	23.9		30.5	19.8	0.0	30.3	26.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	1.3	0.1	6.7	6.6		2.8	0.1	2.2	3.2	61.7	
Delay (s)	34.4	35.7	34.0	30.5	30.5		33.2	19.9	2.2	33.5	88.2	
Level of Service	C	D	C	C	C		C	B	A	C	F	
Approach Delay (s)		34.8			30.5			7.6			77.5	
Approach LOS		C			C			A			E	

Intersection Summary

HCM Average Control Delay	31.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	75.5	Sum of lost time (s)	0.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

LEVEL OF SERVICE CALCULATION WORKSHEETS

CUMULATIVE PLUS PROJECT PM PEAK HOUR CONDITIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	143	800	181	62	647	37	519	311	70	116	355	347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3441		1770	3511		1770	1811		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.30	1.00		0.51	1.00	1.00
Satd. Flow (perm)	1770	3441		1770	3511		564	1811		959	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	159	889	201	69	719	41	577	346	78	129	394	386
RTOR Reduction (vph)	0	32	0	0	7	0	0	16	0	0	0	6
Lane Group Flow (vph)	159	1058	0	69	753	0	577	408	0	129	394	380
Turn Type	Prot			Prot			pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases							2			6		6
Actuated Green, G (s)	4.0	15.5		2.3	13.8		17.2	17.2		16.3	16.3	20.3
Effective Green, g (s)	4.0	15.5		2.3	13.8		17.2	17.2		16.3	16.3	20.3
Actuated g/C Ratio	0.07	0.29		0.04	0.26		0.32	0.32		0.30	0.30	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	131	986		75	896		268	576		335	561	711
v/s Ratio Prot	0.09	c0.31		0.04	c0.21		c0.16	0.23		0.02	c0.21	0.04
v/s Ratio Perm							c0.52			0.09		0.20
v/c Ratio	1.21	1.07		0.92	0.84		2.15	0.71		0.39	0.70	0.53
Uniform Delay, d1	25.0	19.3		25.8	19.1		18.6	16.2		15.3	16.7	13.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	147.2	50.3		76.8	7.0		531.1	4.0		0.7	4.0	0.8
Delay (s)	172.2	69.6		102.6	26.1		549.7	20.2		16.0	20.7	14.0
Level of Service	F	E		F	C		F	C		B	C	B
Approach Delay (s)		82.7			32.5			325.4			17.2	
Approach LOS		F			C			F			B	

Intersection Summary

HCM Average Control Delay	118.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	54.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	46	847	10	37	692	21	0	9	32	45	28	69
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.95	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	51	941	11	39	728	22	0	10	36	50	31	77
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		525										
pX, platoon unblocked				0.79			0.79	0.79	0.79	0.79	0.79	
vC, conflicting volume	751			952			1583	1877	476	1431	1872	375
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	751			399			1201	1574	0	1007	1567	375
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			96			100	87	96	59	60	88
cM capacity (veh/h)	855			910			62	77	854	123	78	622

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	522	482	403	386	46	158
Volume Left	51	0	39	0	0	50
Volume Right	0	11	0	22	36	77
cSH	855	1700	910	1700	266	170
Volume to Capacity	0.06	0.28	0.04	0.23	0.17	0.93
Queue Length 95th (ft)	5	0	3	0	15	175
Control Delay (s)	1.6	0.0	1.3	0.0	21.3	106.0
Lane LOS	A		A		C	F
Approach Delay (s)	0.9		0.7		21.3	106.0
Approach LOS					C	F

Intersection Summary

Average Delay	9.6		
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

Cumulative Plus Project PM Peak
3: Stanford Ave & Hollis St.

Emeryville Papermill
8/5/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	152	68	62	30	19	30	22	777	47	10	601	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			1.00	1.00
Frt	1.00	0.93		1.00	0.91			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	1.00
Satd. Flow (prot)	1770	1730		1770	1692			3505			1824	1552
Flt Permitted	0.72	1.00		0.66	1.00			0.93			0.98	1.00
Satd. Flow (perm)	1345	1730		1238	1692			3281			1796	1552
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	169	76	69	33	21	33	24	863	52	11	668	24
RTOR Reduction (vph)	0	52	0	0	25	0	0	7	0	0	0	11
Lane Group Flow (vph)	169	93	0	33	29	0	0	932	0	0	679	13
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	5	5
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	9.3	9.3		9.3	9.3			21.2			21.2	21.2
Effective Green, g (s)	9.3	9.3		9.3	9.3			21.2			21.2	21.2
Actuated g/C Ratio	0.24	0.24		0.24	0.24			0.55			0.55	0.55
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	325	418		299	409			1807			989	855
v/s Ratio Prot		0.05			0.02							
v/s Ratio Perm	c0.13			0.03				0.28			c0.38	0.01
v/c Ratio	0.52	0.22		0.11	0.07			0.52			0.69	0.02
Uniform Delay, d1	12.7	11.7		11.4	11.3			5.4			6.2	3.9
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.5	0.3		0.2	0.1			1.1			3.9	0.0
Delay (s)	14.2	12.0		11.5	11.3			6.5			10.1	4.0
Level of Service	B	B		B	B			A			B	A
Approach Delay (s)		13.2			11.4			6.5			9.9	
Approach LOS		B			B			A			A	

Intersection Summary

HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	38.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Cumulative Plus Project PM Peak
4: Stanford Ave & Doyle Street

Emeryville Papermill
8/5/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	29	94	33	0	0	0	18	28	3	6	26	34
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	32	104	37	0	0	0	20	31	3	7	29	38

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	173	54	73
Volume Left (vph)	32	20	7
Volume Right (vph)	37	3	38
Hadj (s)	-0.06	0.07	-0.26
Departure Headway (s)	4.1	4.4	4.1
Degree Utilization, x	0.20	0.07	0.08
Capacity (veh/h)	847	773	831
Control Delay (s)	8.1	7.7	7.5
Approach Delay (s)	8.1	7.7	7.5
Approach LOS	A	A	A

Intersection Summary

Delay	7.9		
HCM Level of Service	A		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	670	127	100	437	69	242	1758	187	237	1588	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3455		1770	3467		1770	3488		1770	3495	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3455		1770	3467		1770	3488		1770	3495	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.96	0.96	0.96
Adj. Flow (vph)	148	744	141	111	486	77	266	1932	205	247	1654	152
RTOR Reduction (vph)	0	16	0	0	0	0	0	8	0	0	7	0
Lane Group Flow (vph)	148	869	0	111	563	0	266	2129	0	247	1799	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.3	25.5		10.5	24.7		12.0	36.0		12.0	36.0	
Effective Green, g (s)	11.3	25.5		10.5	24.7		12.0	36.0		12.0	36.0	
Actuated g/C Ratio	0.11	0.26		0.10	0.25		0.12	0.36		0.12	0.36	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	200	881		186	856		212	1256		212	1258	
v/s Ratio Prot	c0.08	c0.25		0.06	0.16		c0.15	c0.61		0.14	0.51	
v/s Ratio Perm												
v/c Ratio	0.74	0.99		0.60	0.66		1.25	1.69		1.17	1.43	
Uniform Delay, d1	42.9	37.1		42.7	33.8		44.0	32.0		44.0	32.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.7	26.8		5.1	1.8		147.2	316.1		113.5	198.2	
Delay (s)	56.6	63.9		47.8	35.7		191.2	348.1		157.5	230.2	
Level of Service	E	E		D	D		F	F		F	F	
Approach Delay (s)		62.8			37.7			330.8			221.4	
Approach LOS		E			D			F			F	

Intersection Summary

HCM Average Control Delay	217.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	109.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	881	125	183	745	220	123	245	152	177	421	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3473		1770	3418		1770	1863	1583	1770	1836	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3473		1770	3418		1770	1863	1583	1770	1836	
Peak-hour factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	62	979	139	195	793	234	137	272	169	197	468	49
RTOR Reduction (vph)	0	11	0	0	26	0	0	0	121	0	4	0
Lane Group Flow (vph)	62	1107	0	195	1001	0	137	272	48	197	513	0
Bus Blockages (#/hr)	0	0	0	0	0	5	0	0	0	0	0	0
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	7.7	31.6		12.2	36.1		11.1	28.2	28.2	12.0	29.1	
Effective Green, g (s)	7.7	31.6		12.2	36.1		11.1	28.2	28.2	12.0	29.1	
Actuated g/C Ratio	0.08	0.32		0.12	0.36		0.11	0.28	0.28	0.12	0.29	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
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)	136	1097		216	1234		196	525	446	212	534	
v/s Ratio Prot	0.04	c0.32		c0.11	0.29		0.08	0.15		c0.11	c0.28	
v/s Ratio Perm									0.03			
v/c Ratio	0.46	1.01		0.90	0.81		0.70	0.52	0.11	0.93	0.96	
Uniform Delay, d1	44.1	34.2		43.3	28.9		42.8	30.2	26.6	43.6	34.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.4	29.4		35.8	5.9		10.4	0.9	0.1	42.0	29.3	
Delay (s)	46.6	63.6		79.1	34.7		53.2	31.1	26.7	85.5	64.2	
Level of Service	D	E		E	C		D	C	C	F	E	
Approach Delay (s)		62.7			41.8			35.0			70.1	
Approach LOS		E			D			D			E	

Intersection Summary

HCM Average Control Delay	52.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	297	772	197	109	1044	39	315	633	148	198	409	771
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3431		1770	3520		1770	3439		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3431		1770	3520		1770	3439		1770	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	316	821	210	118	1135	42	342	688	161	213	440	829
RTOR Reduction (vph)	0	17	0	0	2	0	0	21	0	0	0	23
Lane Group Flow (vph)	316	1014	0	118	1175	0	342	829	0	213	440	806
Turn Type	Prot			Prot			Split			Split		pm+ov
Protected Phases	7	4		3	8		2	2		6	6	7
Permitted Phases												6
Actuated Green, G (s)	30.0	38.0		12.0	20.0		18.0	18.0		16.0	16.0	46.0
Effective Green, g (s)	30.0	38.0		12.0	20.0		18.0	18.0		16.0	16.0	46.0
Actuated g/C Ratio	0.30	0.38		0.12	0.20		0.18	0.18		0.16	0.16	0.46
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
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)	531	1304		212	704		319	619		283	298	792
v/s Ratio Prot	0.18	0.30		0.07	c0.33		0.19	c0.24		0.12	c0.24	c0.31
v/s Ratio Perm												0.20
v/c Ratio	0.60	0.78		0.56	1.67		1.07	1.34		0.75	1.48	1.02
Uniform Delay, d1	29.8	27.3		41.5	40.0		41.0	41.0		40.1	42.0	27.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.8	3.0		3.1	307.1		70.9	163.0		10.8	231.7	36.6
Delay (s)	31.6	30.3		44.6	347.1		111.9	204.0		50.9	273.7	63.6
Level of Service	C	C		D	F		F	F		D	F	E
Approach Delay (s)		30.6			319.5			177.6			124.2	
Approach LOS		C			F			F			F	

Intersection Summary

HCM Average Control Delay	160.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	105.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	468	726	937	320	941	185	334	78	218	312	435	1410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.91	0.97	0.95	1.00	0.95	0.95	1.00	0.95	0.95	0.88
Frt	1.00	0.94	0.85	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	0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3204	1441	3433	3539	1583	1681	1716	1583	1681	1764	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3204	1441	3433	3539	1583	1681	1716	1583	1681	1764	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	520	807	1041	356	1046	206	371	87	242	328	458	1484
RTOR Reduction (vph)	0	72	70	0	0	146	0	0	223	0	0	6
Lane Group Flow (vph)	520	1203	503	356	1046	60	226	232	19	295	491	1478
Turn Type	Prot		pm+ov	Prot		Perm	Split		Perm	Split		pm+ov
Protected Phases	7	4	2	3	8		2	2		6	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	21.0	29.0	37.0	21.0	29.0	29.0	8.0	8.0	8.0	26.0	26.0	47.0
Effective Green, g (s)	21.0	29.0	37.0	21.0	29.0	29.0	8.0	8.0	8.0	26.0	26.0	47.0
Actuated g/C Ratio	0.21	0.29	0.37	0.21	0.29	0.29	0.08	0.08	0.08	0.26	0.26	0.47
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	721	929	533	721	1026	459	134	137	127	437	459	1421
v/s Ratio Prot	0.15	c0.38	0.08	0.10	c0.30		0.13	c0.14		0.18	0.28	c0.22
v/s Ratio Perm			0.27			0.04			0.01			0.31
v/c Ratio	0.72	1.29	0.94	0.49	1.02	0.13	1.69	1.69	0.15	0.68	1.07	1.04
Uniform Delay, d1	36.8	35.5	30.5	34.8	35.5	26.2	46.0	46.0	42.8	33.2	37.0	26.5
Progression Factor	0.78	0.53	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	136.6	15.7	0.5	33.1	0.6	339.0	341.4	0.6	4.1	61.9	35.0
Delay (s)	30.5	155.4	43.5	35.3	68.6	26.8	385.0	387.4	43.4	37.3	98.9	61.5
Level of Service	C	F	D	D	E	C	F	F	D	D	F	E
Approach Delay (s)		100.9			55.9			267.7			66.5	
Approach LOS		F			E			F			E	

Intersection Summary

HCM Average Control Delay	96.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	1196	0	0	1640	509	940	277	1338	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	1.00	0.91			0.91	1.00	0.91	0.86	0.91			
Frt	1.00	1.00			1.00	0.50	1.00	0.92	0.85			
Flt Protected	0.70	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)	1304	5085			5085	931	1610	2910	1441			
Flt Permitted	0.70	1.00			1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)	1304	5085			5085	931	1610	2910	1441			
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.98	0.98	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	189	1300	0	0	1673	519	989	292	1408	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	179	0	31	31	0	0	0
Lane Group Flow (vph)	189	1300	0	0	1673	340	682	1272	673	0	0	0
Turn Type	Prot					Perm	Split		Perm			
Protected Phases	7	4			8		2	2				
Permitted Phases						8			2			
Actuated Green, G (s)	4.0	56.0			48.0	48.0	36.0	36.0	36.0			
Effective Green, g (s)	4.0	56.0			48.0	48.0	36.0	36.0	36.0			
Actuated g/C Ratio	0.04	0.56			0.48	0.48	0.36	0.36	0.36			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	52	2848			2441	447	580	1048	519			
v/s Ratio Prot	c0.14	0.26			0.33		0.42	0.44				
v/s Ratio Perm						c0.37			c0.47			
v/c Ratio	3.63	0.46			0.69	0.76	1.18	1.28dr	1.30			
Uniform Delay, d1	48.0	13.0			20.1	21.3	32.0	32.0	32.0			
Progression Factor	0.76	2.03			0.72	0.64	1.00	1.00	1.00			
Incremental Delay, d2	1212.3	0.3			0.1	1.1	96.2	105.2	147.5			
Delay (s)	1248.7	26.7			14.7	14.8	128.2	137.2	179.5			
Level of Service	F	C			B	B	F	F	F			
Approach Delay (s)		181.8			14.7			146.0			0.0	
Approach LOS		F			B			F			A	

Intersection Summary

HCM Average Control Delay	109.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	171	527	566	0	550	1812	0	0	0	1017	0	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0				4.0		4.0
Lane Util. Factor	1.00	0.95			0.91	0.91				0.97		1.00
Frt	1.00	0.92			0.91	0.85				1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (prot)	1770	3264			3074	1441				3433		1583
Flt Permitted	0.95	1.00			1.00	1.00				0.95		1.00
Satd. Flow (perm)	1770	3264			3074	1441				3433		1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	178	549	590	0	611	2013	0	0	0	1130	0	394
RTOR Reduction (vph)	0	193	0	0	295	0	0	0	0	0	0	254
Lane Group Flow (vph)	178	946	0	0	1323	1006	0	0	0	1130	0	140
Turn Type	Prot					Free				custom		custom
Protected Phases	7	4			8					6		6
Permitted Phases						Free				6		6
Actuated Green, G (s)	16.0	56.4			36.4	100.0				35.6		35.6
Effective Green, g (s)	16.0	56.4			36.4	100.0				35.6		35.6
Actuated g/C Ratio	0.16	0.56			0.36	1.00				0.36		0.36
Clearance Time (s)	4.0	4.0			4.0					4.0		4.0
Vehicle Extension (s)	3.0	3.0			3.0					3.0		3.0
Lane Grp Cap (vph)	283	1841			1119	1441				1222		564
v/s Ratio Prot	0.10	0.29			c0.43					c0.33		0.09
v/s Ratio Perm						c0.70						
v/c Ratio	0.63	0.51			1.20dr	0.70				0.92		0.25
Uniform Delay, d1	39.2	13.4			31.8	0.0				30.9		22.8
Progression Factor	1.00	1.00			1.01	1.00				1.00		1.00
Incremental Delay, d2	4.3	1.0			84.6	0.8				11.7		0.2
Delay (s)	43.6	14.4			116.7	0.8				42.6		23.0
Level of Service	D	B			F	A				D		C
Approach Delay (s)		18.4			72.2			0.0			37.6	
Approach LOS		B			E			A			D	

Intersection Summary

HCM Average Control Delay	49.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	295	95	485	17	0	33	698	2116	440	700	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95		1.00	0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	0.96		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1681	1691		1770	3539	1583	1770	1838	
Flt Permitted	0.95	1.00	1.00	0.95	0.96		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1681	1691		1770	3539	1583	1770	1838	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	111	328	106	539	19	0	35	751	2275	484	769	75
RTOR Reduction (vph)	0	0	83	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	111	328	23	280	278	0	35	751	2275	484	841	0
Turn Type	Split		Perm	Split			Prot		Free	Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4						Free			
Actuated Green, G (s)	20.0	20.0	20.0	19.4	19.4		4.7	23.5	91.1	12.2	31.0	
Effective Green, g (s)	20.0	20.0	20.0	19.4	19.4		4.7	23.5	91.1	12.2	31.0	
Actuated g/C Ratio	0.22	0.22	0.22	0.21	0.21		0.05	0.26	1.00	0.13	0.34	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
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)	389	409	348	358	360		91	913	1583	237	625	
v/s Ratio Prot	0.06	0.18		0.17	0.16		0.02	0.21		c0.27	0.46	
v/s Ratio Perm			0.01						c1.44			
v/c Ratio	0.29	0.80	0.07	0.78	0.77		0.38	0.82	1.44	2.04	1.35	
Uniform Delay, d1	29.6	33.7	28.2	33.9	33.8		41.8	31.8	45.5	39.4	30.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	10.8	0.1	10.6	9.9		2.7	6.0	200.4	483.4	165.8	
Delay (s)	30.0	44.5	28.2	44.5	43.6		44.5	37.9	245.9	522.9	195.9	
Level of Service	C	D	C	D	D		D	D	F	F	F	
Approach Delay (s)		38.4			44.1			192.6			315.0	
Approach LOS		D			D			F			F	

Intersection Summary

HCM Average Control Delay	191.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.52		
Actuated Cycle Length (s)	91.1	Sum of lost time (s)	4.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

TECHNICAL APPENDIX C

SIGNAL WARRANT SHEETS

Traffic Signal Warrants Worksheet
Warrant 3: Peak Hour
(*from the MUTCD 2003 California Supplement*)

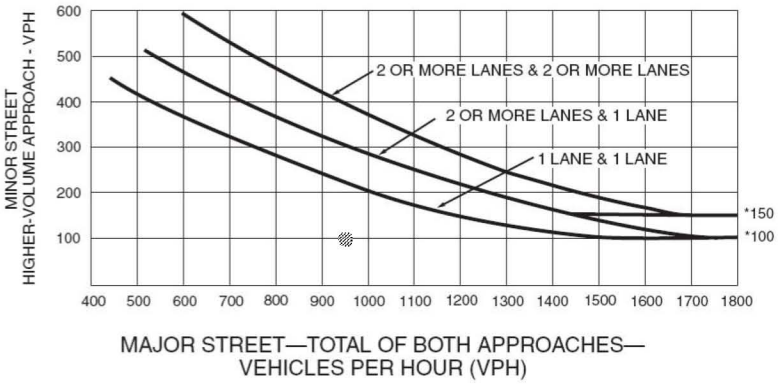
Scenario: EXISTING PLUS PROJECT AM PEAK
Intersection: POWELL STREET AND DOYLE STREET

PART A or PART B SATISFIED	YES	NO
PART A SATISFIED (All parts 1, 2, and 3 below must be satisfied)	YES	NO
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND	Yes	No
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes	No
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes	No
PART B SATISFIED	YES	NO

APPROACH LANES	One	2 or More
Both Approaches – Major Street		931
Highest Approaches – Minor Street	86	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above the applicable curves in MUTCD Figure 4C-3.

Figure 4C-3.Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Traffic Signal Warrants Worksheet
Warrant 3: Peak Hour
(*from the MUTCD 2003 California Supplement*)

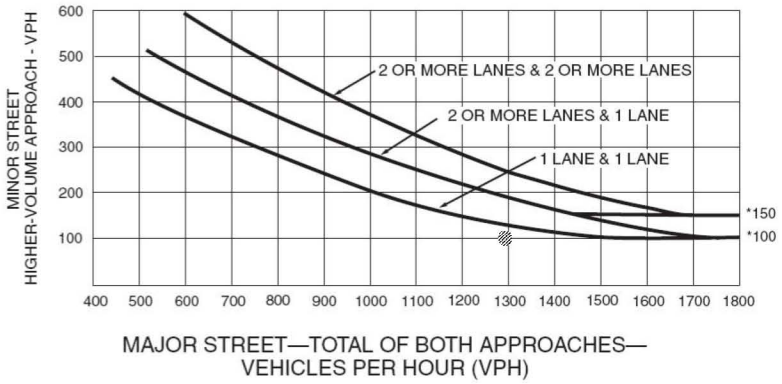
Scenario: EXISTING PLUS PROJECT PM PEAK
Intersection: POWELL STREET AND DOYLE STREET

PART A or PART B SATISFIED	YES	NO
PART A SATISFIED (All parts 1, 2, and 3 below must be satisfied)	YES	NO
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND	Yes	No
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes	No
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes	No
PART B SATISFIED	YES	NO

APPROACH LANES	One	2 or More
Both Approaches – Major Street		1288
Highest Approaches – Minor Street	97	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above the applicable curves in MUTCD Figure 4C-3.

Figure 4C-3.Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Traffic Signal Warrants Worksheet
Warrant 3: Peak Hour
(*from the MUTCD 2003 California Supplement*)

Scenario: CUMULATIVE PLUS PROJECT AM PEAK
Intersection: POWELL STREET AND DOYLE STREET

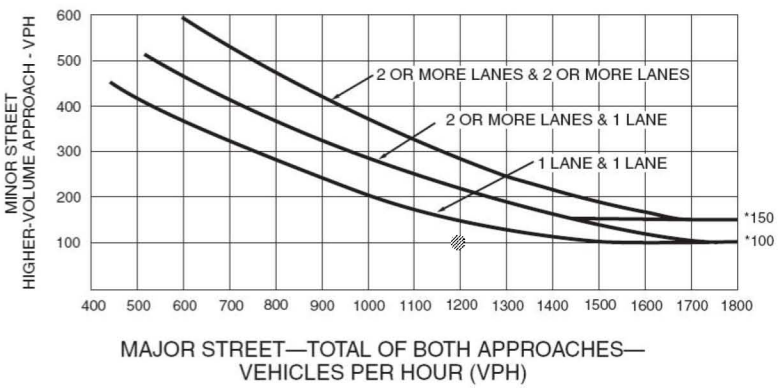
PART A or PART B SATISFIED	YES	NO

PART A (All parts 1, 2, and 3 below must be satisfied)	SATISFIED	YES	NO
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND		Yes	No
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND		Yes	No
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.		Yes	No
PART B	SATISFIED	YES	NO

APPROACH LANES	One	2 or More
Both Approaches – Major Street		1201
Highest Approaches – Minor Street	98	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above the applicable curves in MUTCD Figure 4C-3.

Figure 4C-3.Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Traffic Signal Warrants Worksheet
Warrant 3: Peak Hour
(*from the MUTCD 2003 California Supplement*)

Scenario: CUMULATIVE PLUS PROJECT PM PEAK
Intersection: POWELL STREET AND DOYLE STREET

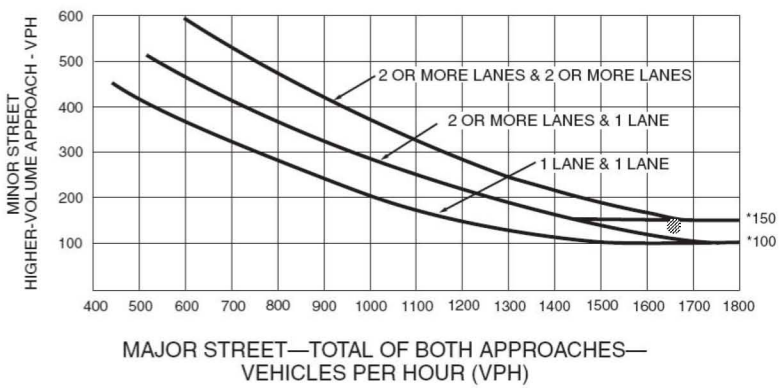
PART A or PART B SATISFIED	YES	NO

PART A (All parts 1, 2, and 3 below must be satisfied)	SATISFIED	YES	NO
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND		Yes	No
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND		Yes	No
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.		Yes	No
PART B	SATISFIED	YES	NO

APPROACH LANES	One	2 or More
Both Approaches – Major Street		1654
Highest Approaches – Minor Street	142	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above the applicable curves in MUTCD Figure 4C-3.

Figure 4C-3.Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Traffic Signal Warrants Worksheet
Warrant 3: Peak Hour
(*from the MUTCD 2003 California Supplement*)

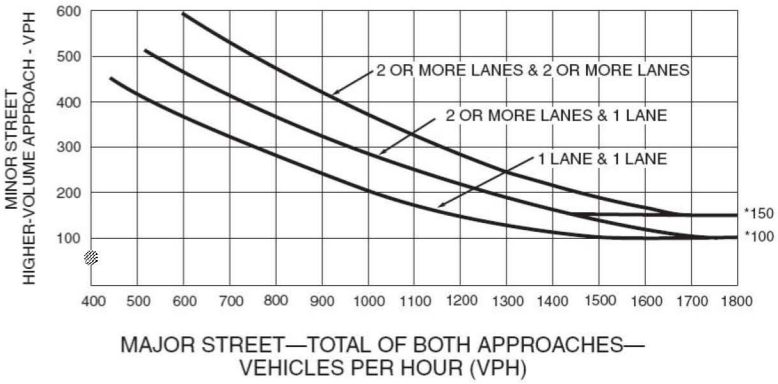
Scenario: EXISTING PLUS PROJECT AM PEAK
Intersection: STANDFORD STREET AND DOYLE STREET

PART A or PART B SATISFIED	YES	NO
PART A SATISFIED	YES	NO
(All parts 1, 2, and 3 below must be satisfied)		
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND	Yes	No
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes	No
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes	No
PART B SATISFIED	YES	NO

APPROACH LANES	One	2 or More
Both Approaches – Major Street	118	
Highest Approaches – Minor Street	53	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above the applicable curves in MUTCD Figure 4C-3.

Figure 4C-3.Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Traffic Signal Warrants Worksheet
Warrant 3: Peak Hour
(*from the MUTCD 2003 California Supplement*)

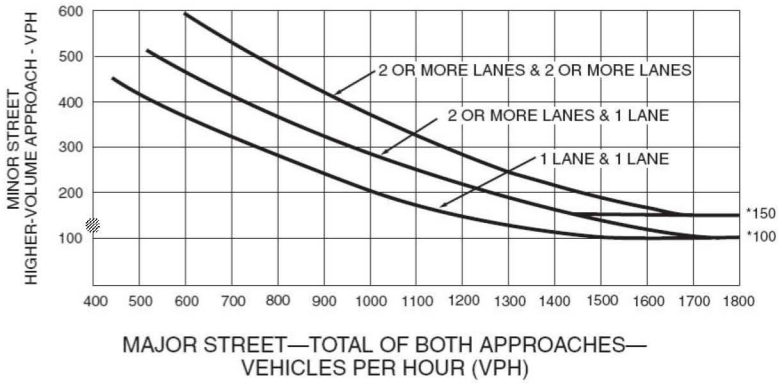
Scenario: EXISTING PLUS PROJECT PM PEAK
Intersection: STANDFORD STREET AND DOYLE STREET

PART A or PART B SATISFIED	YES	NO
PART A SATISFIED	YES	NO
(All parts 1, 2, and 3 below must be satisfied)		
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND	Yes	No
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes	No
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes	No
PART B SATISFIED	YES	NO

APPROACH LANES	One	2 or More
Both Approaches – Major Street	77	
Highest Approaches – Minor Street	122	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above the applicable curves in MUTCD Figure 4C-3.

Figure 4C-3.Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Traffic Signal Warrants Worksheet
Warrant 3: Peak Hour
(*from the MUTCD 2003 California Supplement*)

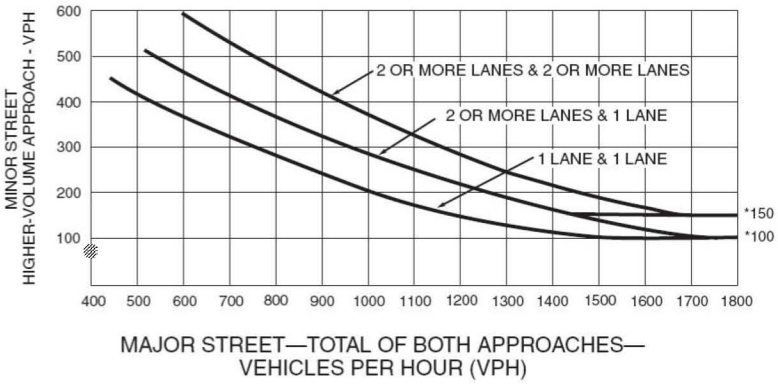
Scenario: CUMULATIVE PLUS PROJECT AM PEAK
Intersection: STANDFORD STREET AND DOYLE STREET

PART A or PART B SATISFIED	YES	NO
PART A SATISFIED	YES	NO
(All parts 1, 2, and 3 below must be satisfied)		
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND	Yes	No
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes	No
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes	No
PART B SATISFIED	YES	NO

APPROACH LANES	One	2 or More
Both Approaches – Major Street	170	
Highest Approaches – Minor Street	69	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above the applicable curves in MUTCD Figure 4C-3.

Figure 4C-3.Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Traffic Signal Warrants Worksheet
Warrant 3: Peak Hour
(*from the MUTCD 2003 California Supplement*)

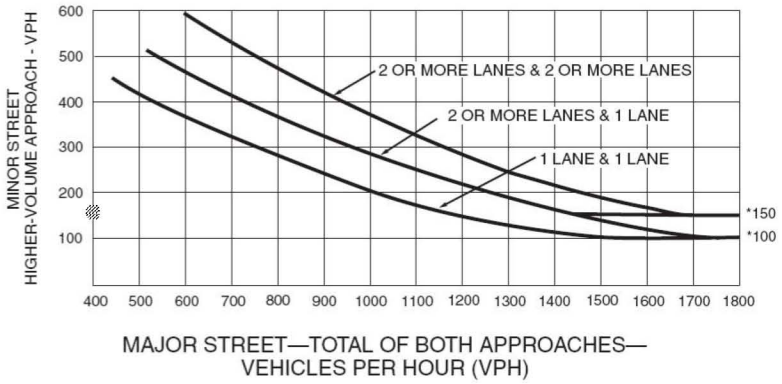
Scenario: CUMULATIVE PLUS PROJECT PM PEAK
Intersection: STANDFORD STREET AND DOYLE STREET

PART A or PART B SATISFIED	YES	NO
PART A SATISFIED	YES	NO
(All parts 1, 2, and 3 below must be satisfied)		
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach; AND	Yes	No
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes	No
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes	No
PART B SATISFIED	YES	NO

APPROACH LANES	One	2 or More
Both Approaches – Major Street	114	
Highest Approaches – Minor Street	156	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above the applicable curves in MUTCD Figure 4C-3.

Figure 4C-3.Warrant 3, Peak Hour

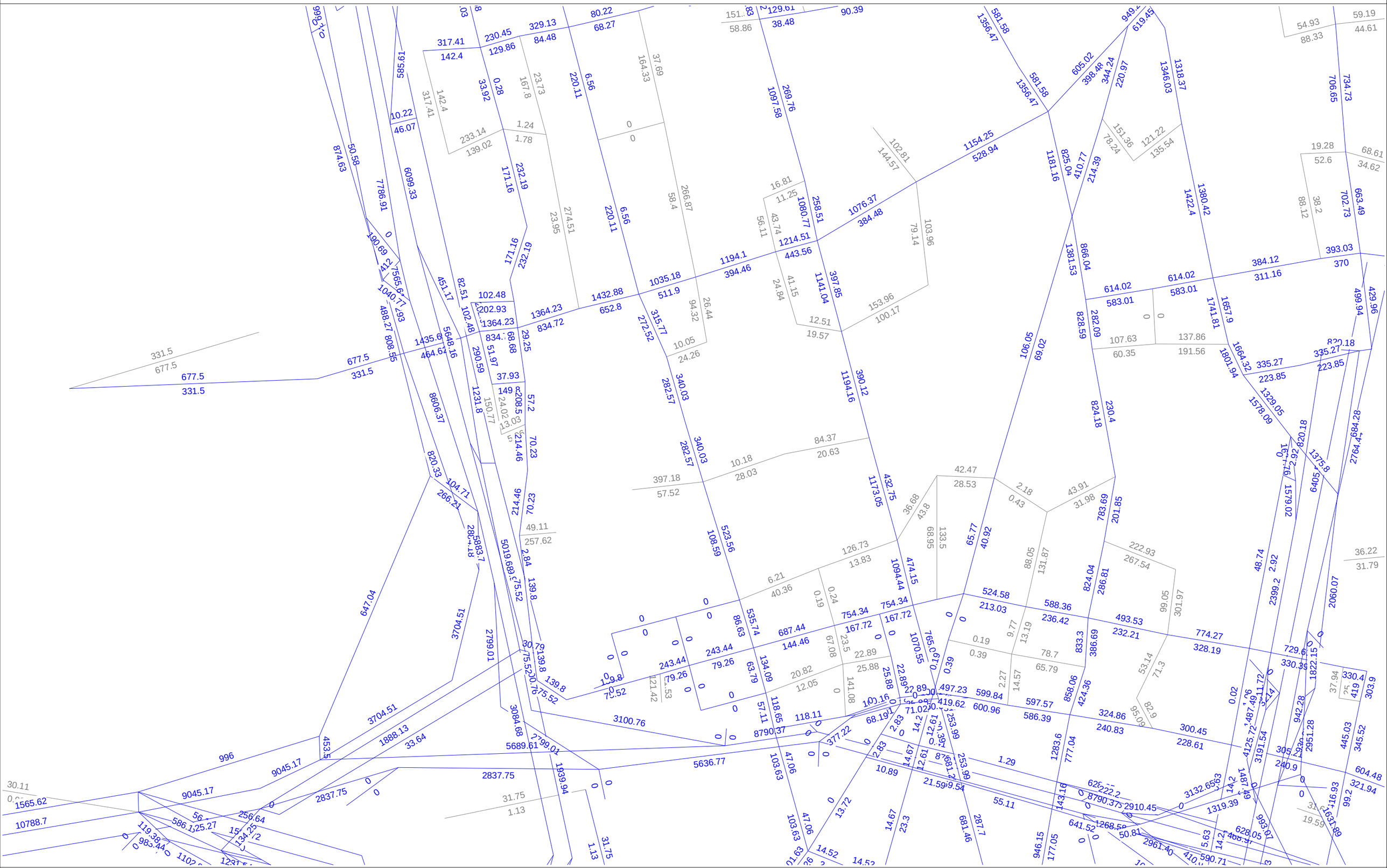


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

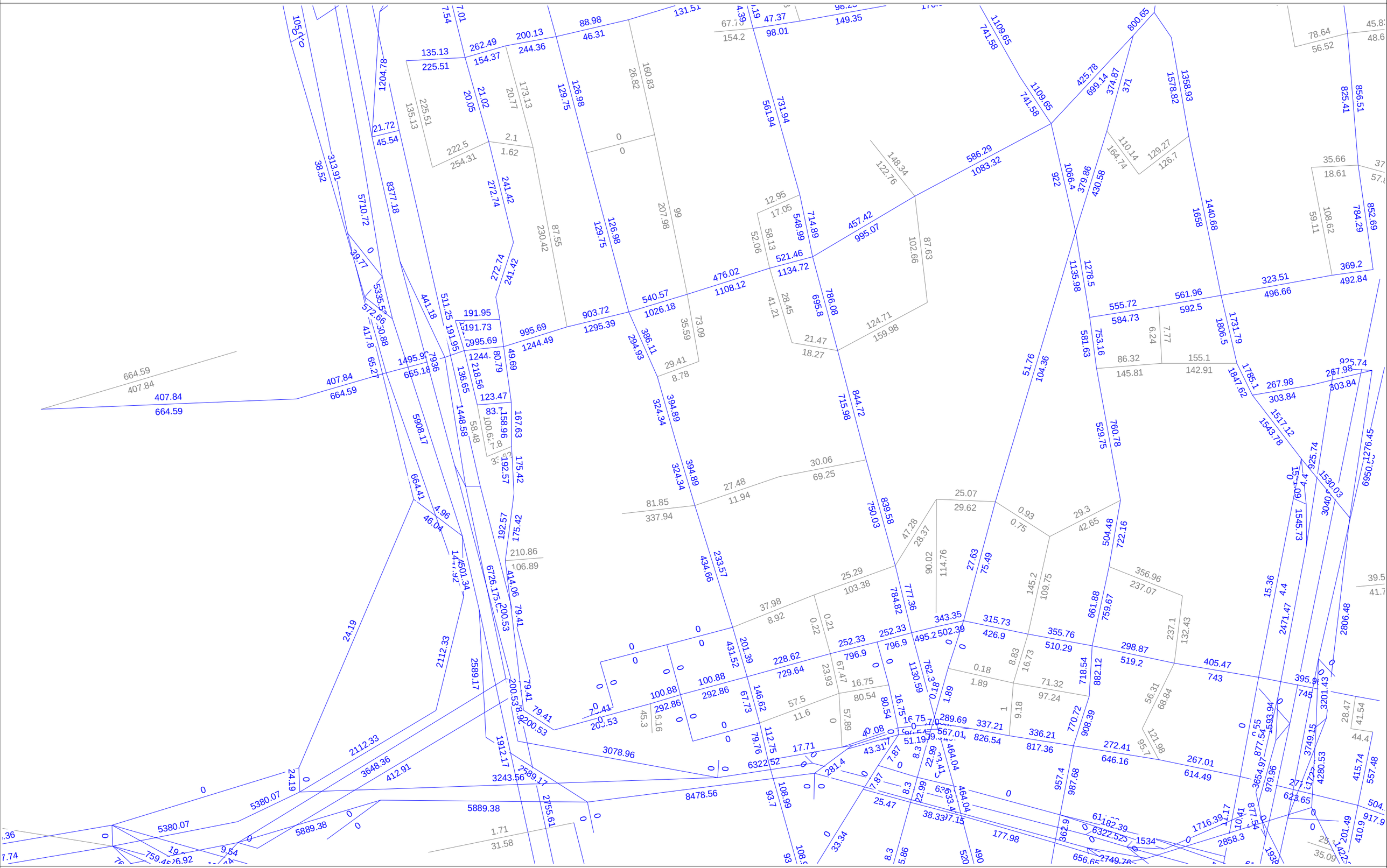
TECHNICAL APPENDIX D

ACCMA MODEL OUTPUTS

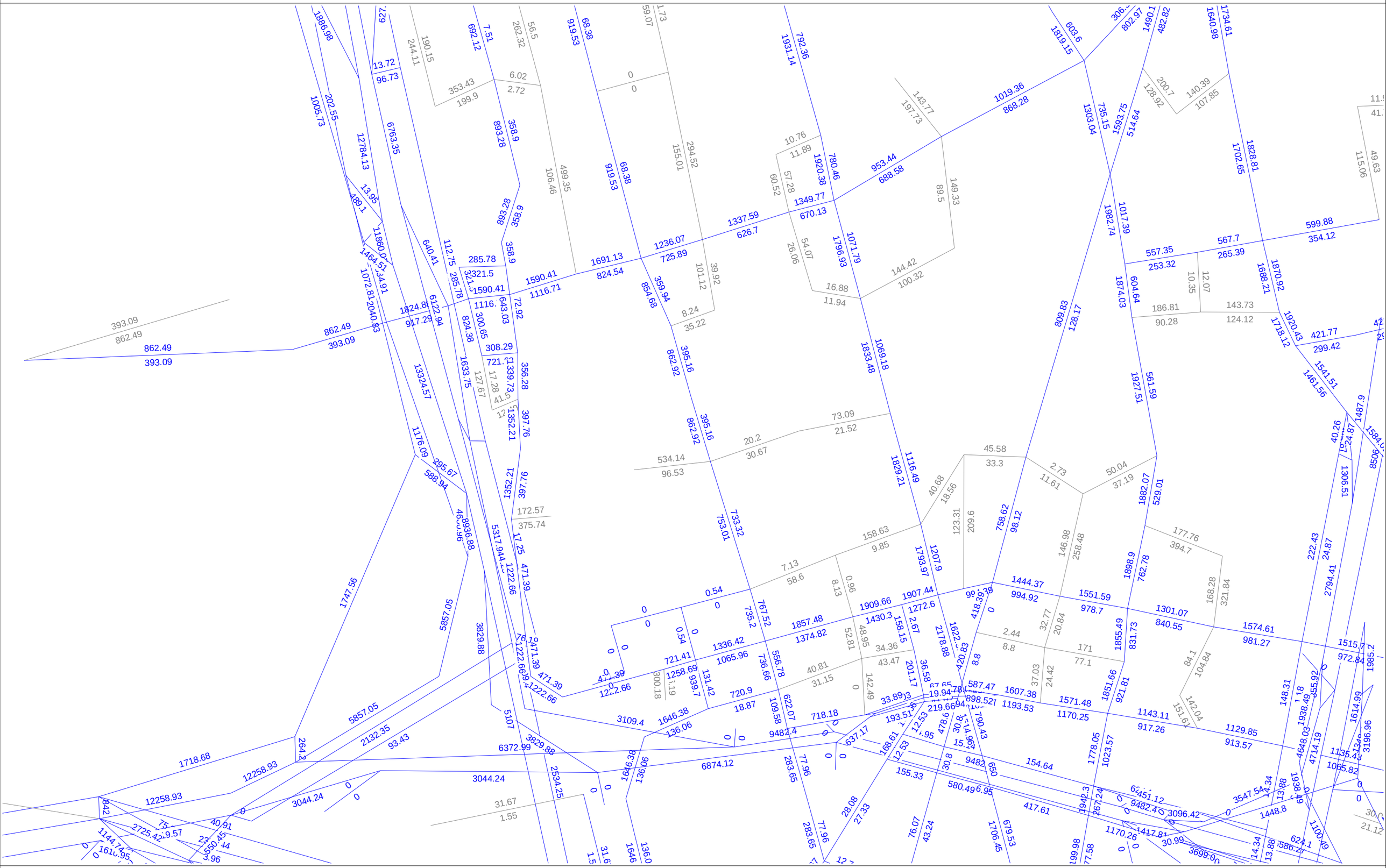
2000 AM Peak Hour Volumes



2000 PM Peak Hour Volumes

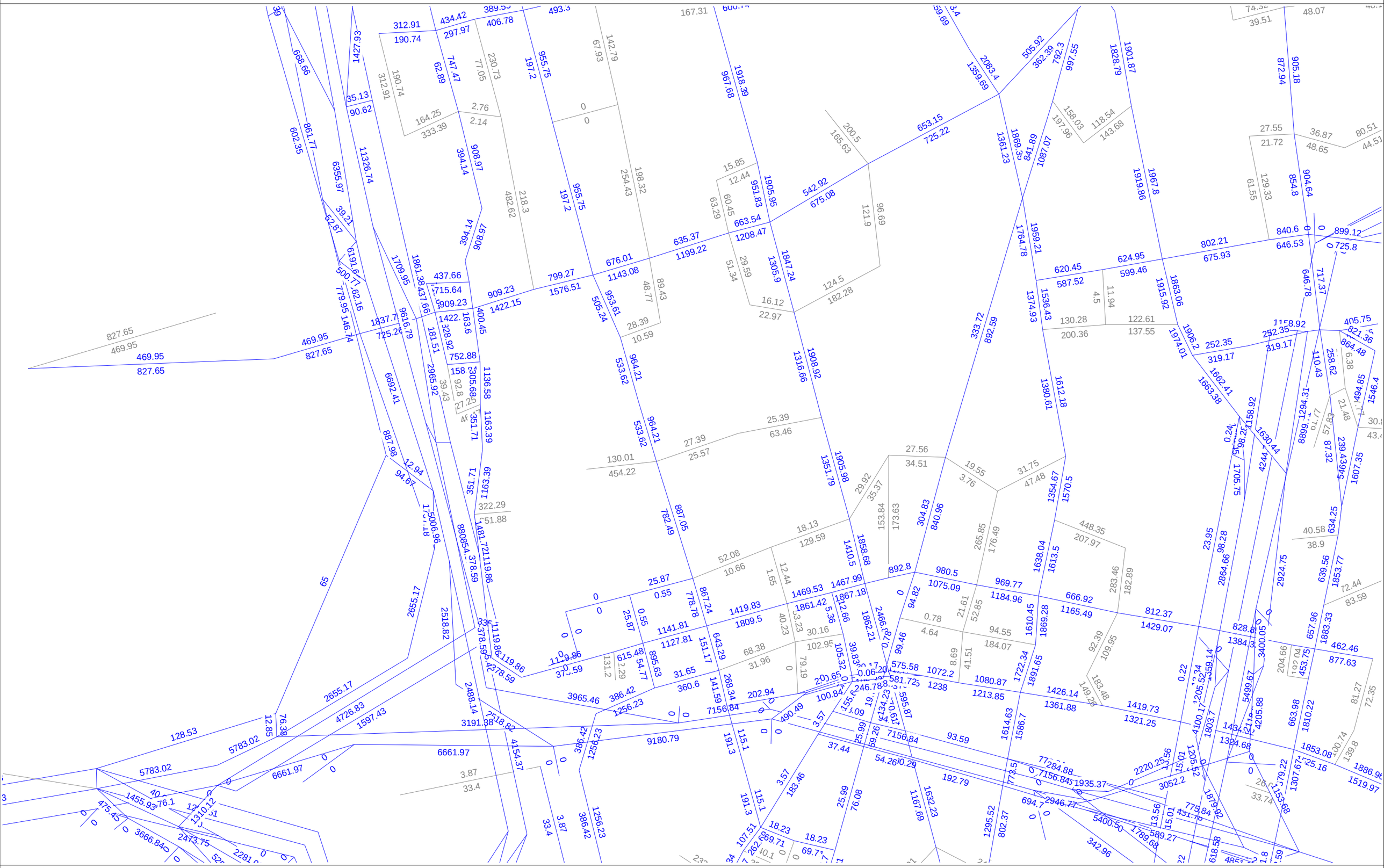


2030 AM Peak Hour Volumes

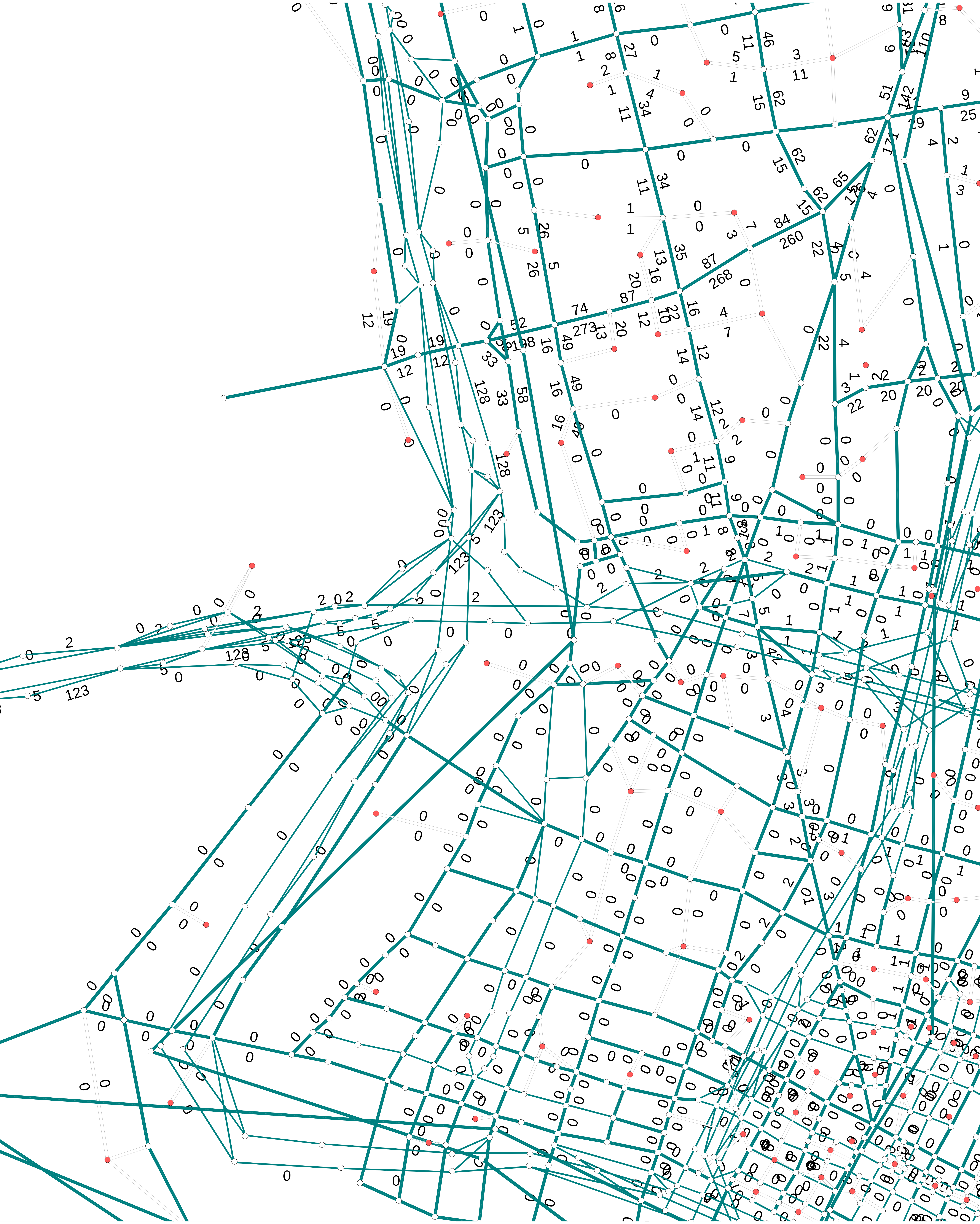


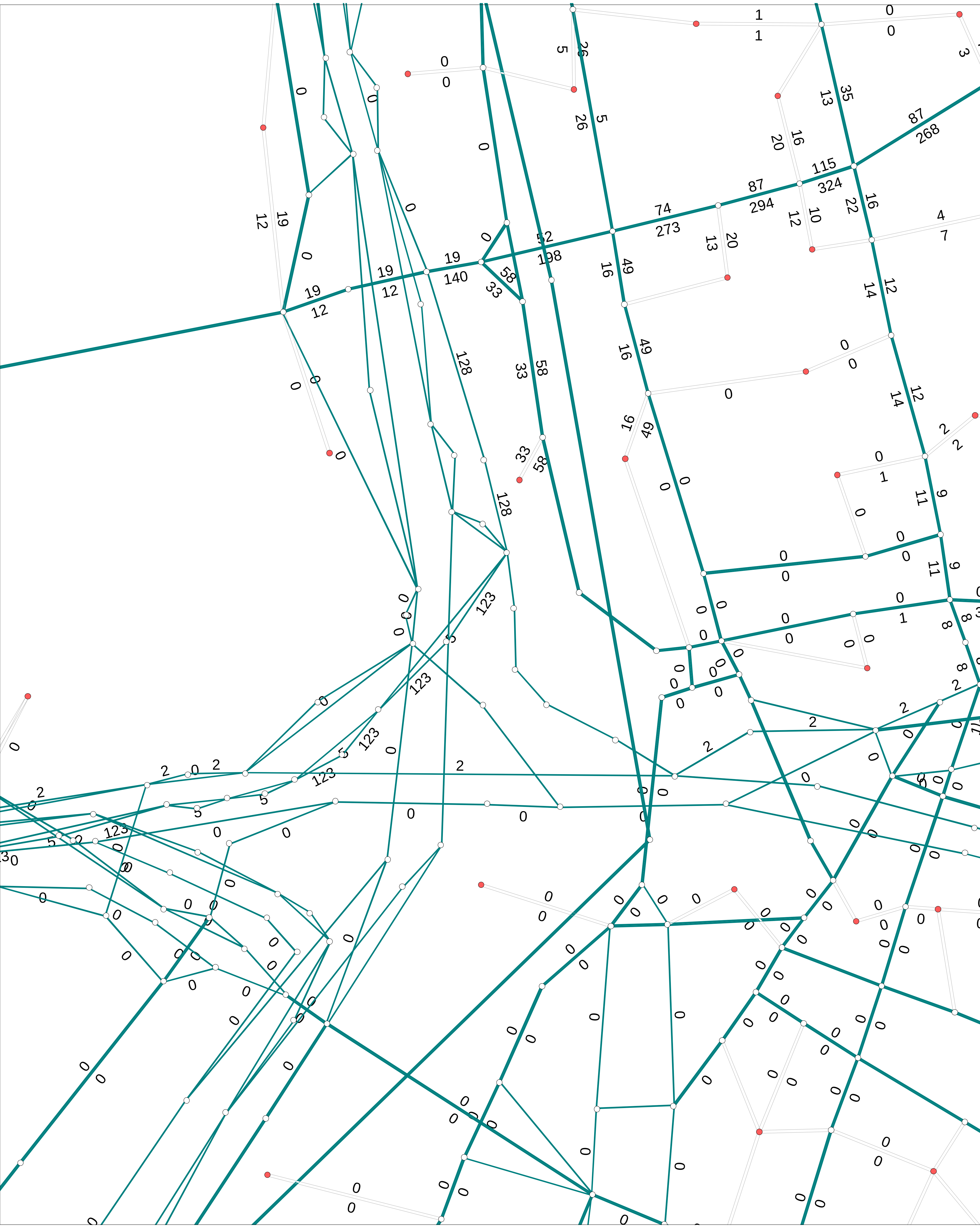
Licensed to CCS Planning & Engineering

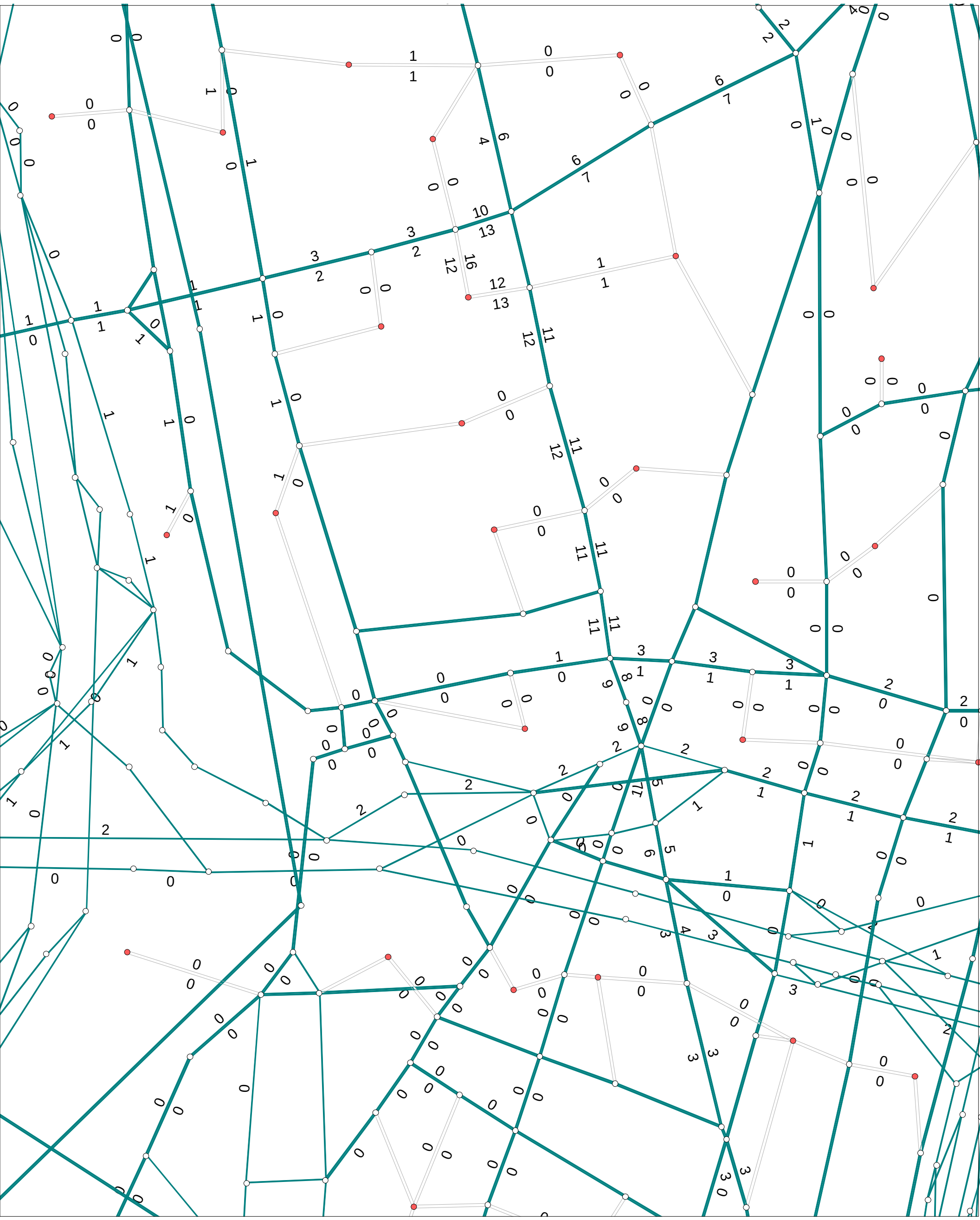
2030 PM Peak Hour Volumes



Licensed to CCS Planning & Engineering







APPENDIX B

AIR QUALITY CALCULATIONS

8/5/2008 4:25:03 PM

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust
2007 TOTALS (lbs/day unmitigated)	7.29	50.42	28.60	0.00	29.12	3.17	32.29	6.08
2008 TOTALS (lbs/day unmitigated)	244.16	73.54	63.75	0.03	29.23	4.64	33.87	6.12

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	37.16	3.87	97.90	0.29	15.34	14.76	5,142.11

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	17.17	27.56	202.89	0.15	31.21	5.95	15,235.06

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	54.33	31.43	300.79	0.44	46.55	20.71	20,377.17

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	7	-150	7	0	AG	258	8.1	.0	10.0
B. Hollis S NBD	7	0	7	150	AG	353	5.0	.0	10.0
C. Hollis S NBL	5	-150	0	0	AG	354	9.6	.0	10.0
D. Hollis S SBA	-7	150	-7	0	AG	479	9.5	.0	10.0
E. Hollis S SBD	-7	0	-7	-150	AG	431	7.5	.0	10.0
F. Hollis S SBL	-5	150	0	0	AG	77	8.8	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	729	6.3	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	711	4.3	.0	11.8
I. Powell S EBL	-150	-5	0	0	AG	111	8.8	.0	10.0
J. Powell S WBA	150	9	0	9	AG	550	6.1	.0	13.5
K. Powell S WBD	0	9	-150	9	AG	1111	4.3	.0	11.8
L. Powell S WBL	150	5	0	0	AG	48	8.8	.0	10.0
M. Hollis NBAX	7	-750	7	-150	AG	612	4.4	.0	10.0
N. Hollis NBDX	7	150	7	750	AG	353	4.4	.0	10.0
O. Hollis SBAX	-7	750	-7	150	AG	556	4.4	.0	10.0
P. Hollis SBDX	-7	-150	-7	-750	AG	431	4.4	.0	10.0
Q. Powell EBAX	-750	-9	-150	-9	AG	840	4.1	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	711	4.1	.0	11.8
S. Powell WBAX	750	9	150	9	AG	598	4.1	.0	13.5
T. Powell WBDX	-150	9	-750	9	AG	1111	4.1	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-16	1.8
2. NW	-14	16	1.8
3. SW	-14	-17	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.5	.1	.0	.2	.0	.1	.0	.5	.0
2. NW	169.	1.5	.1	.0	.3	.2	.4	.0	.2	.0
3. SW	8.	1.4	.0	.0	.0	.5	.1	.0	.3	.0
4. NE	262.	1.3	.0	.1	.0	.2	.0	.0	.1	.0
5. ES mdblk	276.	1.0	.0	.0	.0	.0	.0	.0	.0	.4
6. WN mdblk	99.	1.2	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	81.	1.2	.0	.0	.0	.0	.0	.0	.6	.0
8. EN mdblk	263.	1.0	.0	.0	.0	.0	.0	.0	.1	.0
9. SE mdblk	351.	1.2	.3	.0	.4	.1	.1	.0	.0	.0
10. NW mdblk	173.	1.2	.0	.0	.0	.7	.0	.0	.0	.0
11. SW mdblk	8.	1.1	.0	.0	.2	.0	.5	.0	.0	.0
12. NE mdblk	187.	.9	.0	.3	.0	.2	.0	.0	.0	.0
13. ES blk	276.	.8	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.9	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.8	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.8	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.7	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.7	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.6	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.5	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.1	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.7
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4	.0
17. SE blk	.0	.0	.0	.0	.4	.0	.0	.1	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.1	.4	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.3	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.3	.2	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Doyle St NBA	2	-150	2	0	AG	32	8.1	.0	10.0
B. Doyle St NBD	2	0	2	150	AG	58	5.0	.0	10.0
C. Doyle St NBL	2	-150	0	0	AG	11	8.8	.0	10.0
D. Doyle St SBA	-2	150	-2	0	AG	66	8.1	.0	10.0
E. Doyle St SBD	-2	0	-2	-150	AG	44	5.0	.0	10.0
F. Doyle St SBL	-2	150	0	0	AG	31	8.8	.0	10.0
G. Powell S EBA	-150	-4	0	-4	AG	667	6.3	.0	11.8
H. Powell S EBD	0	-4	150	-4	AG	716	4.3	.0	10.0
I. Powell S EBL	-150	-2	0	0	AG	36	8.8	.0	10.0
J. Powell S WBA	150	4	0	4	AG	554	6.1	.0	11.8
K. Powell S WBD	0	4	-150	4	AG	596	4.2	.0	10.0
L. Powell S WBL	150	2	0	0	AG	17	8.8	.0	10.0
M. Doyle S NBAX	2	-750	2	-150	AG	43	4.4	.0	10.0
N. Doyle S NBDX	2	150	2	750	AG	58	4.4	.0	10.0
O. Doyle S SBAX	-2	750	-2	150	AG	97	4.4	.0	10.0
P. Doyle S SBDX	-2	-150	-2	-750	AG	44	4.4	.0	10.0
Q. Powell EBAX	-750	-4	-150	-4	AG	703	4.1	.0	11.8
R. Powell EBDX	150	-4	750	-4	AG	716	4.1	.0	10.0
S. Powell WBAX	750	4	150	4	AG	571	4.1	.0	11.8
T. Powell WBDX	-150	4	-750	4	AG	596	4.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	8	-10	1.8
2. NW	-8	10	1.8
3. SW	-8	-11	1.8
4. NE	8	11	1.8
5. ES mdblk	150	-10	1.8
6. WN mdblk	-150	10	1.8
7. WS mdblk	-150	-11	1.8
8. EN mdblk	150	11	1.8
9. SE mdblk	8	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	8	150	1.8
13. ES blk	600	-10	1.8
14. WN blk	-600	10	1.8
15. WS blk	-600	-11	1.8
16. EN blk	600	11	1.8
17. SE blk	8	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	8	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	276.	1.0	.0	.0	.0	.0	.0	.0	.6	.0
2. NW	97.	.9	.0	.0	.0	.0	.0	.0	.0	.2
3. SW	277.	.9	.0	.0	.0	.0	.0	.0	.6	.0
4. NE	262.	.9	.0	.0	.0	.0	.0	.0	.3	.0
5. ES mdblk	276.	.9	.0	.0	.0	.0	.0	.0	.0	.4
6. WN mdblk	97.	.9	.0	.0	.0	.0	.0	.0	.3	.0
7. WS mdblk	83.	1.0	.0	.0	.0	.0	.0	.0	.6	.0
8. EN mdblk	263.	.9	.0	.0	.0	.0	.0	.0	.0	.2
9. SE mdblk	355.	.3	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	174.	.3	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	4.	.3	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	186.	.3	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	276.	.8	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.8	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.7	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	357.	.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	176.	.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	3.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.2	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.5	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
3. SW	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1
4. NE	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.4
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	4	-150	4	0	AG	558	6.3	.0	11.8
B. Hollis S NBD	4	0	4	150	AG	669	4.6	.0	10.0
C. Hollis S NBL	2	-150	0	0	AG	15	8.8	.0	10.0
D. Hollis S SBA	-5	150	-5	0	AG	425	6.5	.0	11.8
E. Hollis S SBD	-5	0	-5	-150	AG	484	4.6	.0	10.0
F. Hollis S SBL	-2	150	0	0	AG	7	8.8	.0	10.0
G. Stanford EBA	-150	-7	0	-7	AG	101	8.1	.0	10.0
H. Stanford EBD	0	-7	150	-7	AG	90	5.0	.0	10.0
I. Stanford EBL	-150	-5	0	0	AG	118	8.8	.0	10.0
J. Stanford WBA	150	7	0	7	AG	38	8.1	.0	10.0
K. Stanford WBD	0	7	-150	7	AG	45	5.0	.0	10.0
L. Stanford WBL	150	5	0	0	AG	26	8.8	.0	10.0
M. Hollis NBAX	4	-750	4	-150	AG	573	4.4	.0	11.8
N. Hollis NBDX	4	150	4	750	AG	669	4.4	.0	10.0
O. Hollis SBAX	-5	750	-5	150	AG	432	4.4	.0	11.8
P. Hollis SBDX	-5	-150	-5	-750	AG	484	4.4	.0	10.0
Q. Stanfor EBAX	-750	-7	-150	-7	AG	219	4.4	.0	10.0
R. Stanfor EBDX	150	-7	750	-7	AG	90	4.4	.0	10.0
S. Stanfor WBAX	750	7	150	7	AG	64	4.4	.0	10.0
T. Stanfor WBDX	-150	7	-750	7	AG	45	4.4	.0	10.0

JOB: Papermill
RUN: Existing-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	11	-14	1.8
2. NW	-13	14	1.8
3. SW	-12	-14	1.8
4. NE	10	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	11	-150	1.8
10. NW mdblk	-13	150	1.8
11. SW mdblk	-12	-150	1.8
12. NE mdblk	10	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	11	-600	1.8
18. NW blk	-13	600	1.8
19. SW blk	-12	-600	1.8
20. NE blk	10	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	352.	.8	.0	.4	.0	.2	.0	.0	.0	.0
2. NW	172.	.8	.2	.0	.0	.0	.3	.0	.0	.0
3. SW	7.	.9	.0	.2	.0	.4	.0	.0	.0	.0
4. NE	187.	.9	.4	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	275.	.3	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	98.	.3	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	82.	.4	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	264.	.3	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	353.	.9	.5	.0	.0	.0	.1	.0	.0	.0
10. NW mdblk	173.	.8	.0	.1	.0	.4	.0	.0	.0	.0
11. SW mdblk	7.	.8	.2	.0	.0	.0	.3	.0	.0	.0
12. NE mdblk	187.	.8	.0	.4	.0	.2	.0	.0	.0	.0
13. ES blk	275.	.2	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.2	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	85.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	265.	.2	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.7	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.7	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.7	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.8	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	.0	.0	.0	.0	.4	.0	.0	.2	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.2	.3	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.4	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.5	.2	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Doyle St NBA	2	-150	2	0	AG	21	6.3	.0	10.0
B. Doyle St NBD	2	0	2	150	AG	39	4.6	.0	10.0
C. Doyle St NBL	2	-150	0	0	AG	12	8.8	.0	10.0
D. Doyle St SBA	-2	150	-2	0	AG	43	6.3	.0	10.0
E. Doyle St SBD	-2	0	-2	-150	AG	44	4.6	.0	10.0
F. Doyle St SBL	-2	150	0	0	AG	4	8.8	.0	10.0
G. Stanford EBA	-150	-2	0	-2	AG	99	8.1	.0	10.0
H. Stanford EBD	0	-2	150	-2	AG	79	5.0	.0	10.0
I. Stanford EBL	-150	-2	0	0	AG	20	8.8	.0	10.0
J. Stanford WBA	150	0	0	0	AG	0	4.4	.0	10.0
K. Stanford WBD	0	0	-150	0	AG	37	5.0	.0	10.0
L. Stanford WBL	150	2	0	0	AG	0	4.4	.0	10.0
M. Doyle S NBAX	2	-750	2	-150	AG	33	4.4	.0	10.0
N. Doyle S NBDX	2	150	2	750	AG	39	4.4	.0	10.0
O. Doyle S SBAX	-2	750	-2	150	AG	47	4.4	.0	10.0
P. Doyle S SBDX	-2	-150	-2	-750	AG	44	4.4	.0	10.0
Q. Stanfor EBAX	-750	-2	-150	-2	AG	119	4.4	.0	10.0
R. Stanfor EBDX	150	-2	750	-2	AG	79	4.4	.0	10.0
S. Stanfor WBAX	750	0	150	0	AG	0	4.4	.0	10.0
T. Stanfor WBDX	-150	0	-750	0	AG	37	4.4	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	8	-8	1.8
2. NW	-8	7	1.8
3. SW	-8	-8	1.8
4. NE	8	7	1.8
5. ES mdblk	150	-8	1.8
6. WN mdblk	-150	7	1.8
7. WS mdblk	-150	-8	1.8
8. EN mdblk	150	7	1.8
9. SE mdblk	8	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	8	150	1.8
13. ES blk	600	-8	1.8
14. WN blk	-600	7	1.8
15. WS blk	-600	-8	1.8
16. EN blk	600	7	1.8
17. SE blk	8	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	8	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	276.	.3	.0	.0	.0	.0	.0	.0	.1	.0
2. NW	264.	.2	.0	.0	.0	.0	.0	.0	.1	.0
3. SW	276.	.2	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	264.	.3	.0	.0	.0	.0	.0	.0	.1	.0
5. ES mdblk	273.	.2	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	98.	.2	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	83.	.2	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	267.	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	355.	.1	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	176.	.1	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	4.	.1	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	186.	.1	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	273.	.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	95.	.2	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	85.	.2	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	267.	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	355.	.1	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	177.	.1	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	3.	.1	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.1	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	9	-150	9	0	AG	1123	7.1	.0	13.5
B. San Pabl NBD	9	0	9	150	AG	1176	4.5	.0	11.8
C. San Pabl NBL	5	-150	0	0	AG	140	8.8	.0	10.0
D. San Pabl SBA	-9	150	-9	0	AG	996	7.1	.0	13.5
E. San Pabl SBD	-9	0	-9	-150	AG	1094	4.5	.0	11.8
F. San Pabl SBL	-5	150	0	0	AG	137	8.8	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	622	7.0	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	768	4.5	.0	11.8
I. Powell S EBL	-150	-5	0	0	AG	107	8.8	.0	10.0
J. Powell S WBA	150	9	0	9	AG	389	6.8	.0	13.5
K. Powell S WBD	0	9	-150	9	AG	554	4.4	.0	11.8
L. Powell S WBL	150	5	0	0	AG	78	8.8	.0	10.0
M. San Pab NBAX	9	-750	9	-150	AG	1263	4.1	.0	13.5
N. San Pab NBDX	9	150	9	750	AG	1176	4.1	.0	11.8
O. San Pab SBAX	-9	750	-9	150	AG	1133	4.1	.0	13.5
P. San Pab SBDX	-9	-150	-9	-750	AG	1094	4.1	.0	11.8
Q. Powell EBAX	-750	-9	-150	-9	AG	729	4.1	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	768	4.1	.0	11.8
S. Powell WBAX	750	9	150	9	AG	467	4.1	.0	13.5
T. Powell WBDX	-150	9	-750	9	AG	554	4.1	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-16	1.8
2. NW	-17	16	1.8
3. SW	-16	-17	1.8
4. NE	16	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-17	150	1.8
11. SW mdblk	-16	-150	1.8
12. NE mdblk	16	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	17	-600	1.8
18. NW blk	-17	600	1.8
19. SW blk	-16	-600	1.8
20. NE blk	16	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	350.	1.7	.3	.5	.0	.2	.0	.0	.0	.2
2. NW	170.	1.6	.3	.0	.0	.2	.5	.0	.2	.0
3. SW	8.	1.8	.0	.1	.0	.7	.2	.0	.3	.0
4. NE	188.	1.8	.8	.2	.0	.0	.1	.0	.0	.1
5. ES mdblk	277.	1.1	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	98.	1.0	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	82.	1.2	.0	.0	.0	.0	.0	.0	.6	.0
8. EN mdblk	262.	1.0	.0	.0	.0	.0	.0	.0	.1	.0
9. SE mdblk	352.	1.8	1.0	.0	.1	.2	.1	.0	.0	.0
10. NW mdblk	172.	1.7	.2	.1	.0	.9	.0	.1	.0	.0
11. SW mdblk	8.	1.4	.2	.1	.0	.0	.7	.0	.0	.0
12. NE mdblk	188.	1.5	.1	.7	.0	.2	.1	.0	.0	.0
13. ES blk	276.	.8	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.8	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.7	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.2	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
2. NW	.0	.0	.2	.0	.1	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0
4. NE	.0	.2	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.1	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.4
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.1
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.3	.0
17. SE blk	.0	.0	.0	.0	.7	.0	.0	.2	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.2	.7	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.3	.0	.0	.7	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.7	.3	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	7	-150	7	0	AG	267	8.4	.0	10.0
B. Hollis S NBD	7	0	7	150	AG	351	5.8	.0	10.0
C. Hollis S NBL	5	-150	0	0	AG	84	8.8	.0	10.0
D. Hollis S SBA	-7	150	-7	0	AG	319	8.1	.0	10.0
E. Hollis S SBD	-7	0	-7	-150	AG	499	5.2	.0	10.0
F. Hollis S SBL	-5	150	0	0	AG	121	8.8	.0	10.0
G. 40th Str EBA	-150	-9	0	-9	AG	686	6.5	.0	13.5
H. 40th Str EBD	0	-9	150	-9	AG	826	4.6	.0	11.8
I. 40th Str EBL	-150	-5	0	0	AG	38	8.8	.0	10.0
J. 40th Str WBA	150	9	0	9	AG	658	6.5	.0	13.5
K. 40th Str WBD	0	9	-150	9	AG	622	4.6	.0	11.8
L. 40th Str WBL	150	5	0	0	AG	125	8.8	.0	10.0
M. Hollis NBAX	7	-750	7	-150	AG	351	4.4	.0	10.0
N. Hollis NBDX	7	150	7	750	AG	351	4.4	.0	10.0
O. Hollis SBAX	-7	750	-7	150	AG	440	4.4	.0	10.0
P. Hollis SBDX	-7	-150	-7	-750	AG	499	4.4	.0	10.0
Q. 40th St EBAX	-750	-9	-150	-9	AG	724	4.4	.0	13.5
R. 40th St EBDX	150	-9	750	-9	AG	826	4.4	.0	11.8
S. 40th St WBAX	750	9	150	9	AG	783	4.4	.0	13.5
T. 40th St WBDX	-150	9	-750	9	AG	622	4.4	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-16	1.8
2. NW	-14	16	1.8
3. SW	-14	-17	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	277.	1.2	.1	.0	.0	.0	.0	.0	.5	.0
2. NW	98.	1.3	.0	.0	.0	.2	.0	.0	.0	.1
3. SW	80.	1.2	.0	.0	.0	.0	.2	.0	.1	.4
4. NE	188.	1.1	.3	.0	.0	.0	.1	.0	.0	.1
5. ES mdblk	278.	1.0	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	97.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	83.	1.1	.0	.0	.0	.0	.0	.0	.6	.0
8. EN mdblk	262.	1.1	.0	.0	.0	.0	.0	.0	.1	.0
9. SE mdblk	353.	.9	.3	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	.9	.0	.0	.0	.4	.0	.1	.0	.0
11. SW mdblk	7.	.9	.0	.0	.0	.0	.4	.0	.0	.0
12. NE mdblk	187.	.8	.0	.3	.0	.0	.0	.0	.0	.0
13. ES blk	277.	.9	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.8	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.9	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.6	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.6	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.7	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.6	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	.0	.5	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
3. SW	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.4
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.1
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5	.0
17. SE blk	.0	.0	.0	.0	.3	.0	.0	.1	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.1	.3	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.1	.0	.0	.4	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.3	.1	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Seventh NBA	9	-150	9	0	AG	534	8.1	.0	13.5
B. Seventh NBD	9	0	9	150	AG	696	5.2	.0	11.8
C. Seventh NBL	5	-150	0	0	AG	215	9.5	.0	10.0
D. Seventh SBA	-7	150	-7	0	AG	803	9.6	.0	10.0
E. Seventh SBD	-7	0	-7	-150	AG	515	8.8	.0	10.0
F. Seventh SBL	-5	150	0	0	AG	133	8.8	.0	10.0
G. Ashby Av EBA	-150	-9	0	-9	AG	753	6.3	.0	13.5
H. Ashby Av EBD	0	-9	150	-9	AG	834	4.3	.0	11.8
I. Ashby Av EBL	-150	-5	0	0	AG	231	9.5	.0	10.0
J. Ashby Av WBA	150	9	0	9	AG	843	6.3	.0	13.5
K. Ashby Av WBD	0	9	-150	9	AG	1552	4.4	.0	11.8
L. Ashby Av WBL	150	5	0	0	AG	85	8.8	.0	10.0
M. Seventh NBAX	9	-750	9	-150	AG	749	4.4	.0	13.5
N. Seventh NBDX	9	150	9	750	AG	696	4.4	.0	11.8
O. Seventh SBAX	-7	750	-7	150	AG	936	4.4	.0	10.0
P. Seventh SBDX	-7	-150	-7	-750	AG	515	4.4	.0	10.0
Q. Ashby A EBAX	-750	-9	-150	-9	AG	984	4.1	.0	13.5
R. Ashby A EBDX	150	-9	750	-9	AG	834	4.1	.0	11.8
S. Ashby A WBAX	750	9	150	9	AG	928	4.1	.0	13.5
T. Ashby A WBDX	-150	9	-750	9	AG	1552	4.1	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-16	1.8
2. NW	-14	16	1.8
3. SW	-14	-17	1.8
4. NE	16	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	16	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	17	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	16	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.8	.3	.0	.0	.0	.2	.0	.5	.1
2. NW	169.	2.0	.2	.0	.2	.3	.5	.0	.2	.0
3. SW	8.	2.0	.0	.1	.0	.8	.2	.1	.3	.0
4. NE	261.	1.9	.0	.2	.0	.3	.0	.0	.2	.0
5. ES mdblk	277.	1.3	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	98.	1.6	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	81.	1.5	.0	.0	.0	.0	.0	.0	.6	.0
8. EN mdblk	263.	1.4	.0	.0	.0	.0	.0	.0	.1	.0
9. SE mdblk	352.	1.5	.6	.0	.2	.2	.1	.0	.0	.0
10. NW mdblk	172.	1.8	.1	.1	.0	1.1	.0	.2	.0	.0
11. SW mdblk	7.	1.4	.1	.0	.1	.1	.7	.0	.0	.0
12. NE mdblk	189.	1.3	.0	.5	.0	.2	.1	.0	.0	.0
13. ES blk	276.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.9	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.8	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	1.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.2	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.2	.0	.0	.1	.0	.0	.0	.0	.0	.0
4. NE	.1	.2	.7	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	.0	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	.1	.0	.9	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.2	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.7	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.9
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.3
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.6	.0
17. SE blk	.0	.0	.0	.0	.5	.0	.0	.1	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.2	.6	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.4	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.5	.2	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Christie NBA	9	-150	9	0	AG	171	8.1	.0	11.8
B. Christie NBD	9	0	9	150	AG	553	5.2	.0	10.0
C. Christie NBL	5	-150	0	0	AG	193	8.8	.0	10.0
D. Christie SBA	-7	150	-7	0	AG	1065	9.6	.0	15.3
E. Christie SBD	-7	0	-7	-150	AG	1228	9.2	.0	10.0
F. Christie SBL	-2	150	0	0	AG	180	8.8	.0	10.0
G. Powell S EBA	-150	-14	0	-14	AG	1259	6.7	.0	17.0
H. Powell S EBD	0	-14	150	-14	AG	837	4.3	.0	11.8
I. Powell S EBL	-150	-9	0	0	AG	364	8.8	.0	10.0
J. Powell S WBA	150	9	0	9	AG	892	6.7	.0	13.5
K. Powell S WBD	0	9	-150	9	AG	1755	5.3	.0	10.0
L. Powell S WBL	150	5	0	0	AG	249	9.5	.0	10.0
M. Christi NBAX	9	-750	9	-150	AG	364	4.4	.0	11.8
N. Christi NBDX	9	150	9	750	AG	553	4.4	.0	10.0
O. Christi SBAX	-7	750	-7	150	AG	1245	4.4	.0	15.3
P. Christi SBDX	-7	-150	-7	-750	AG	1228	4.4	.0	10.0
Q. Powell EBAX	-750	-14	-150	-14	AG	1623	4.1	.0	17.0
R. Powell EBDX	150	-14	750	-14	AG	837	4.1	.0	11.8
S. Powell WBAX	750	9	150	9	AG	1141	4.1	.0	13.5
T. Powell WBDX	-150	9	-750	9	AG	1755	4.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	16	-21	1.8
2. NW	-16	15	1.8
3. SW	-14	-24	1.8
4. NE	15	17	1.8
5. ES mdblk	150	-21	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-24	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	16	-150	1.8
10. NW mdblk	-16	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	15	150	1.8
13. ES blk	600	-21	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-24	1.8
16. EN blk	600	17	1.8
17. SE blk	16	-600	1.8
18. NW blk	-16	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	15	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	277.	2.1	.0	.0	.0	.0	.4	.0	.9	.0
2. NW	170.	2.6	.0	.0	.1	.3	1.1	.0	.3	.0
3. SW	8.	2.7	.0	.1	.0	.9	.6	.1	.5	.0
4. NE	260.	2.3	.0	.2	.0	.4	.0	.0	.2	.0
5. ES mdblk	277.	1.4	.0	.0	.0	.0	.0	.0	.1	.5
6. WN mdblk	99.	2.0	.0	.0	.0	.0	.1	.0	.2	.0
7. WS mdblk	79.	1.9	.0	.0	.0	.0	.0	.0	1.0	.0
8. EN mdblk	262.	1.8	.0	.0	.0	.0	.0	.0	.2	.0
9. SE mdblk	351.	1.4	.2	.0	.2	.2	.3	.0	.0	.0
10. NW mdblk	173.	2.0	.0	.0	.0	1.2	.2	.1	.0	.0
11. SW mdblk	7.	2.3	.0	.0	.0	.2	1.5	.0	.0	.0
12. NE mdblk	189.	1.5	.0	.4	.0	.4	.2	.1	.0	.0
13. ES blk	276.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.9	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.1	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.2	.0	.1	.0	.0	.0	.0	.0	.2	.0	.0	.2
2. NW	.1	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.1	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.2	.2	.8	.0	.0	.0	.0	.0	.2	.0	.0	.0
5. ES mdblk	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	.2	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.2	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.8	.1	.2	.0	.0	.0	.0	.1	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	1.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.9	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.7	.0
17. SE blk	.0	.0	.0	.0	.3	.0	.0	.3	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.1	.8	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.1	.0	.0	.8	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.4	.3	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. EB I-80 NBA	7	-150	7	0	AG	917	9.5	.0	11.8
B. EB I-80 NBD	7	0	7	150	AG	695	5.8	.0	10.0
C. EB I-80 NBL	5	-150	0	0	AG	543	9.5	.0	10.0
D. EB I-80 SBA	0	150	0	0	AG	0	4.4	.0	10.0
E. EB I-80 SBD	0	0	0	-150	AG	0	4.4	.0	10.0
F. EB I-80 SBL	-2	150	0	0	AG	0	4.4	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	918	6.5	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	1675	4.4	.0	13.5
I. Powell S EBL	-150	-5	0	0	AG	135	8.8	.0	10.0
J. Powell S WBA	150	7	0	7	AG	1687	6.9	.0	17.0
K. Powell S WBD	0	7	-150	7	AG	1830	4.5	.0	13.5
L. Powell S WBL	150	2	0	0	AG	0	4.1	.0	10.0
M. EB I-80 NBAX	7	-750	7	-150	AG	1460	4.4	.0	11.8
N. EB I-80 NBDX	7	150	7	750	AG	695	4.4	.0	10.0
O. EB I-80 SBAX	0	750	0	150	AG	0	4.4	.0	10.0
P. EB I-80 SBDX	0	-150	0	-750	AG	0	4.4	.0	10.0
Q. Powell EBAX	-750	-9	-150	-9	AG	1053	4.1	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	1675	4.1	.0	13.5
S. Powell WBAX	750	7	150	7	AG	1687	4.1	.0	17.0
T. Powell WBDX	-150	7	-750	7	AG	1830	4.1	.0	13.5

JOB: Papermill
RUN: Existing-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-17	1.8
2. NW	-7	15	1.8
3. SW	-7	-17	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-17	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-7	150	1.8
11. SW mdblk	-7	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-17	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-7	600	1.8
19. SW blk	-7	-600	1.8
20. NE blk	14	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	279.	2.3	.5	.0	.2	.0	.0	.0	.6	.2
2. NW	171.	2.2	.6	.0	.6	.0	.0	.0	.2	.0
3. SW	81.	2.3	.4	.0	.3	.0	.0	.0	.0	.9
4. NE	187.	2.5	1.0	.1	.4	.0	.0	.0	.0	.2
5. ES mdblk	278.	1.8	.0	.0	.0	.0	.0	.0	.0	.9
6. WN mdblk	98.	1.9	.0	.0	.0	.0	.0	.0	.2	.2
7. WS mdblk	83.	1.7	.0	.0	.0	.0	.0	.0	.7	.1
8. EN mdblk	261.	2.0	.0	.0	.0	.0	.0	.0	.1	.2
9. SE mdblk	350.	2.0	1.2	.0	.5	.0	.0	.0	.0	.0
10. NW mdblk	175.	.9	.2	.2	.1	.0	.0	.0	.0	.0
11. SW mdblk	11.	1.4	.7	.0	.5	.0	.0	.0	.0	.0
12. NE mdblk	185.	1.2	.2	.5	.1	.0	.0	.0	.0	.0
13. ES blk	277.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.8	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.7	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	.0	.0	.5	.0	.1	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.4	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
4. NE	.0	.7	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.3	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	.0	.2	1.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	.0	.3	.2	.0	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	.0	1.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.1	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.4	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	1.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.4
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.9	.0
17. SE blk	.0	.0	.0	.0	.9	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.5	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Frontage NBA	0	-150	0	0	AG	0	4.4	.0	10.0
B. Frontage NBD	0	0	0	150	AG	1552	9.6	.0	10.0
C. Frontage NBL	2	-150	0	0	AG	0	4.4	.0	10.0
D. Frontage SBA	-9	150	-9	0	AG	581	9.0	.0	10.0
E. Frontage SBD	-9	0	-9	-150	AG	440	7.5	.0	10.0
F. Frontage SBL	-9	150	0	0	AG	205	8.8	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	846	6.3	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	611	4.3	.0	11.8
I. Powell S EBL	-150	-5	0	0	AG	133	8.8	.0	10.0
J. Powell S WBA	150	7	0	7	AG	1848	7.3	.0	17.0
K. Powell S WBD	0	7	-150	7	AG	1010	4.3	.0	11.8
L. Powell S WBL	150	2	0	0	AG	0	4.1	.0	10.0
M. Frontag NBAX	0	-750	0	-150	AG	0	4.4	.0	10.0
N. Frontag NBDX	0	150	0	750	AG	1552	4.4	.0	10.0
O. Frontag SBAX	-9	750	-9	150	AG	786	4.4	.0	10.0
P. Frontag SBDX	-9	-150	-9	-750	AG	440	4.4	.0	10.0
Q. Powell EBAX	-750	-9	-150	-9	AG	979	4.1	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	611	4.1	.0	11.8
S. Powell WBAX	750	7	150	7	AG	1848	4.1	.0	17.0
T. Powell WBDX	-150	7	-750	7	AG	1010	4.1	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	7	-16	1.8
2. NW	-15	14	1.8
3. SW	-15	-17	1.8
4. NE	7	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	7	-150	1.8
10. NW mdblk	-15	150	1.8
11. SW mdblk	-15	-150	1.8
12. NE mdblk	7	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	7	-600	1.8
18. NW blk	-15	600	1.8
19. SW blk	-15	-600	1.8
20. NE blk	7	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	353.	2.9	.0	1.5	.0	.3	.0	.2	.0	.2
2. NW	96.	2.8	.0	.6	.0	.3	.0	.0	.0	.0
3. SW	9.	2.4	.0	.8	.0	.6	.1	.1	.3	.0
4. NE	351.	2.7	.0	1.9	.0	.3	.0	.2	.0	.0
5. ES mdblk	283.	1.4	.0	.2	.0	.0	.0	.0	.0	.4
6. WN mdblk	95.	1.4	.0	.1	.0	.0	.0	.0	.0	.0
7. WS mdblk	81.	1.6	.0	.1	.0	.0	.0	.0	.7	.0
8. EN mdblk	262.	2.0	.0	.0	.0	.0	.0	.0	.1	.0
9. SE mdblk	357.	1.0	.0	.3	.0	.1	.1	.0	.0	.0
10. NW mdblk	167.	2.2	.0	.9	.0	.8	.0	.3	.0	.0
11. SW mdblk	5.	1.3	.0	.3	.0	.1	.4	.0	.0	.0
12. NE mdblk	190.	2.7	.0	2.0	.0	.3	.0	.1	.0	.0
13. ES blk	277.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	357.	.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	3.	.6	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.5	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.4	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0
2. NW	.0	1.3	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
3. SW	.0	.0	.1	.0	.0	.1	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0
5. ES mdblk	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.3	.5	.0	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	.1	.3	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	1.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.4	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.6
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	1.0	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.5	.6	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	1.0	.3	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Frontage NBA	9	-150	9	0	AG	1633	8.9	.0	13.5
B. Frontage NBD	9	0	9	150	AG	481	4.6	.0	10.0
C. Frontage NBL	5	-150	0	0	AG	19	8.8	.0	10.0
D. Frontage SBA	-7	150	-7	0	AG	443	6.5	.0	10.0
E. Frontage SBD	-7	0	-7	-150	AG	846	4.7	.0	10.0
F. Frontage SBL	-5	150	0	0	AG	254	9.5	.0	10.0
G. WB I-80 EBA	-150	-7	0	-7	AG	303	9.0	.0	10.0
H. WB I-80 EBD	0	-7	150	-7	AG	1713	9.6	.0	10.0
I. WB I-80 EBL	-150	-5	0	0	AG	78	8.8	.0	10.0
J. WB I-80 WBA	150	7	0	7	AG	13	8.1	.0	10.0
K. WB I-80 WBD	0	7	-150	7	AG	71	5.0	.0	10.0
L. WB I-80 WBL	150	5	0	0	AG	368	8.8	.0	10.0
M. Frontag NBAX	9	-750	9	-150	AG	1652	4.4	.0	13.5
N. Frontag NBDX	9	150	9	750	AG	481	4.4	.0	10.0
O. Frontag SBAX	-7	750	-7	150	AG	697	4.4	.0	10.0
P. Frontag SBDX	-7	-150	-7	-750	AG	846	4.4	.0	10.0
Q. WB I-80 EBAX	-750	-7	-150	-7	AG	381	4.4	.0	10.0
R. WB I-80 EBDX	150	-7	750	-7	AG	1713	4.4	.0	10.0
S. WB I-80 WBAX	750	7	150	7	AG	381	4.4	.0	10.0
T. WB I-80 WBDX	-150	7	-750	7	AG	71	4.4	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-14	1.8
2. NW	-14	14	1.8
3. SW	-14	-14	1.8
4. NE	15	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	15	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	17	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	15	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	311.	2.7	1.0	.0	.0	.1	.0	.0	.0	1.3
2. NW	130.	1.6	.5	.0	.0	.2	.0	.0	.0	.7
3. SW	83.	3.0	.5	.0	.0	.0	.3	.0	.0	1.7
4. NE	186.	2.8	1.6	.0	.0	.0	.0	.0	.0	.5
5. ES mdblk	279.	2.6	.0	.0	.0	.0	.0	.0	.0	2.1
6. WN mdblk	97.	1.0	.1	.0	.0	.0	.0	.0	.0	.3
7. WS mdblk	87.	1.2	.1	.0	.0	.0	.0	.0	.3	.3
8. EN mdblk	253.	1.5	.2	.0	.0	.0	.0	.0	.0	.8
9. SE mdblk	351.	2.3	1.8	.0	.0	.0	.1	.0	.0	.0
10. NW mdblk	173.	1.5	.3	.0	.0	.4	.0	.3	.0	.1
11. SW mdblk	15.	1.6	.7	.0	.0	.0	.5	.0	.0	.2
12. NE mdblk	185.	1.2	.3	.3	.0	.0	.0	.0	.0	.1
13. ES blk	276.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.5	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	87.	.6	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.9	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.9	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.8	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.2	.0	.0	.0	.0	.0	.1	.0	.0
4. NE	.0	.0	.0	.2	.2	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
8. EN mdblk	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.1	.1	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.3	.0
17. SE blk	.0	.0	.0	.0	1.0	.0	.0	.2	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.1	.5	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.4	.0	.0	.6	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.4	.2	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	7	-150	7	0	AG	261	8.1	.0	10.0
B. Hollis S NBD	7	0	7	150	AG	351	5.0	.0	10.0
C. Hollis S NBL	5	-150	0	0	AG	354	9.6	.0	10.0
D. Hollis S SBA	-7	150	-7	0	AG	479	9.5	.0	10.0
E. Hollis S SBD	-7	0	-7	-150	AG	431	7.5	.0	10.0
F. Hollis S SBL	-5	150	0	0	AG	80	8.8	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	772	6.3	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	760	4.3	.0	11.8
I. Powell S EBL	-150	-5	0	0	AG	111	8.8	.0	10.0
J. Powell S WBA	150	9	0	9	AG	526	6.1	.0	13.5
K. Powell S WBD	0	9	-150	9	AG	1089	4.3	.0	11.8
L. Powell S WBL	150	5	0	0	AG	48	8.8	.0	10.0
M. Hollis NBAX	7	-750	7	-150	AG	615	4.4	.0	10.0
N. Hollis NBDX	7	150	7	750	AG	351	4.4	.0	10.0
O. Hollis SBAX	-7	750	-7	150	AG	559	4.4	.0	10.0
P. Hollis SBDX	-7	-150	-7	-750	AG	431	4.4	.0	10.0
Q. Powell EBAX	-750	-9	-150	-9	AG	883	4.1	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	760	4.1	.0	11.8
S. Powell WBAX	750	9	150	9	AG	574	4.1	.0	13.5
T. Powell WBDX	-150	9	-750	9	AG	1089	4.1	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-16	1.8
2. NW	-14	16	1.8
3. SW	-14	-17	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.5	.1	.0	.2	.0	.1	.0	.6	.0
2. NW	169.	1.6	.1	.0	.3	.2	.4	.0	.2	.0
3. SW	8.	1.4	.0	.0	.0	.5	.1	.0	.3	.0
4. NE	262.	1.3	.0	.1	.0	.2	.0	.0	.1	.0
5. ES mdblk	276.	1.0	.0	.0	.0	.0	.0	.0	.0	.4
6. WN mdblk	99.	1.2	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	81.	1.2	.0	.0	.0	.0	.0	.0	.6	.0
8. EN mdblk	263.	1.0	.0	.0	.0	.0	.0	.0	.1	.0
9. SE mdblk	351.	1.2	.3	.0	.4	.1	.1	.0	.0	.0
10. NW mdblk	173.	1.2	.0	.0	.0	.7	.0	.0	.0	.0
11. SW mdblk	8.	1.1	.0	.0	.2	.0	.5	.0	.0	.0
12. NE mdblk	187.	.9	.0	.3	.0	.2	.0	.0	.0	.0
13. ES blk	276.	.8	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.8	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.8	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.7	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.7	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.6	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.5	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.1	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.7
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4	.0
17. SE blk	.0	.0	.0	.0	.4	.0	.0	.1	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.1	.4	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.3	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.3	.2	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Doyle St NBA	2	-150	2	0	AG	26	8.1	.0	10.0
B. Doyle St NBD	2	0	2	150	AG	58	5.0	.0	10.0
C. Doyle St NBL	2	-150	0	0	AG	0	4.4	.0	10.0
D. Doyle St SBA	-2	150	-2	0	AG	66	8.1	.0	10.0
E. Doyle St SBD	-2	0	-2	-150	AG	59	5.0	.0	10.0
F. Doyle St SBL	-2	150	0	0	AG	31	8.8	.0	10.0
G. Powell S EBA	-150	-4	0	-4	AG	666	6.3	.0	11.8
H. Powell S EBD	0	-4	150	-4	AG	709	4.3	.0	10.0
I. Powell S EBL	-150	-2	0	0	AG	36	8.8	.0	10.0
J. Powell S WBA	150	4	0	4	AG	554	6.1	.0	11.8
K. Powell S WBD	0	4	-150	4	AG	585	4.2	.0	10.0
L. Powell S WBL	150	2	0	0	AG	32	8.8	.0	10.0
M. Doyle S NBAX	2	-750	2	-150	AG	26	4.4	.0	10.0
N. Doyle S NBDX	2	150	2	750	AG	58	4.4	.0	10.0
O. Doyle S SBAX	-2	750	-2	150	AG	97	4.4	.0	10.0
P. Doyle S SBDX	-2	-150	-2	-750	AG	59	4.4	.0	10.0
Q. Powell EBAX	-750	-4	-150	-4	AG	702	4.1	.0	11.8
R. Powell EBDX	150	-4	750	-4	AG	709	4.1	.0	10.0
S. Powell WBAX	750	4	150	4	AG	586	4.1	.0	11.8
T. Powell WBDX	-150	4	-750	4	AG	585	4.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	8	-10	1.8
2. NW	-8	10	1.8
3. SW	-8	-11	1.8
4. NE	8	11	1.8
5. ES mdblk	150	-10	1.8
6. WN mdblk	-150	10	1.8
7. WS mdblk	-150	-11	1.8
8. EN mdblk	150	11	1.8
9. SE mdblk	8	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	8	150	1.8
13. ES blk	600	-10	1.8
14. WN blk	-600	10	1.8
15. WS blk	-600	-11	1.8
16. EN blk	600	11	1.8
17. SE blk	8	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	8	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	276.	1.0	.0	.0	.0	.0	.0	.0	.6	.0
2. NW	97.	1.0	.0	.0	.0	.0	.0	.0	.0	.2
3. SW	277.	.9	.0	.0	.0	.0	.0	.0	.6	.0
4. NE	262.	.9	.0	.0	.0	.0	.0	.0	.3	.0
5. ES mdblk	277.	.9	.0	.0	.0	.0	.0	.0	.0	.4
6. WN mdblk	97.	.9	.0	.0	.0	.0	.0	.0	.3	.0
7. WS mdblk	83.	1.0	.0	.0	.0	.0	.0	.0	.6	.0
8. EN mdblk	263.	.9	.0	.0	.0	.0	.0	.0	.0	.2
9. SE mdblk	356.	.3	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	174.	.3	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	3.	.3	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	187.	.3	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	276.	.8	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.8	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.7	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	357.	.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	175.	.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	3.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.2	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.5	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
3. SW	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1
4. NE	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.4
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.4	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	4	-150	4	0	AG	564	6.3	.0	11.8
B. Hollis S NBD	4	0	4	150	AG	672	4.6	.0	10.0
C. Hollis S NBL	2	-150	0	0	AG	15	8.8	.0	10.0
D. Hollis S SBA	-5	150	-5	0	AG	425	6.5	.0	11.8
E. Hollis S SBD	-5	0	-5	-150	AG	481	4.6	.0	10.0
F. Hollis S SBL	-2	150	0	0	AG	7	8.8	.0	10.0
G. Stanford EBA	-150	-7	0	-7	AG	101	8.1	.0	10.0
H. Stanford EBD	0	-7	150	-7	AG	93	5.0	.0	10.0
I. Stanford EBL	-150	-5	0	0	AG	118	8.8	.0	10.0
J. Stanford WBA	150	7	0	7	AG	38	8.1	.0	10.0
K. Stanford WBD	0	7	-150	7	AG	45	5.0	.0	10.0
L. Stanford WBL	150	5	0	0	AG	23	8.8	.0	10.0
M. Hollis NBAX	4	-750	4	-150	AG	579	4.4	.0	11.8
N. Hollis NBDX	4	150	4	750	AG	672	4.4	.0	10.0
O. Hollis SBAX	-5	750	-5	150	AG	432	4.4	.0	11.8
P. Hollis SBDX	-5	-150	-5	-750	AG	481	4.4	.0	10.0
Q. Stanfor EBAX	-750	-7	-150	-7	AG	219	4.4	.0	10.0
R. Stanfor EBDX	150	-7	750	-7	AG	93	4.4	.0	10.0
S. Stanfor WBAX	750	7	150	7	AG	61	4.4	.0	10.0
T. Stanfor WBDX	-150	7	-750	7	AG	45	4.4	.0	10.0

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	11	-14	1.8
2. NW	-13	14	1.8
3. SW	-12	-14	1.8
4. NE	10	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	11	-150	1.8
10. NW mdblk	-13	150	1.8
11. SW mdblk	-12	-150	1.8
12. NE mdblk	10	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	11	-600	1.8
18. NW blk	-13	600	1.8
19. SW blk	-12	-600	1.8
20. NE blk	10	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	352.	.8	.0	.4	.0	.2	.0	.0	.0	.0
2. NW	172.	.8	.2	.0	.0	.0	.3	.0	.0	.0
3. SW	7.	.9	.0	.2	.0	.4	.0	.0	.0	.0
4. NE	187.	.9	.4	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	275.	.3	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	98.	.3	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	82.	.4	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	264.	.3	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	353.	.9	.5	.0	.0	.0	.1	.0	.0	.0
10. NW mdblk	173.	.8	.0	.1	.0	.4	.0	.0	.0	.0
11. SW mdblk	7.	.8	.2	.0	.0	.0	.3	.0	.0	.0
12. NE mdblk	187.	.8	.0	.4	.0	.2	.0	.0	.0	.0
13. ES blk	275.	.2	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.2	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	85.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	265.	.2	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.7	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.7	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.7	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.8	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	.0	.0	.0	.0	.4	.0	.0	.2	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.2	.3	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.4	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.5	.2	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Doyle St NBA	2	-150	2	0	AG	21	6.3	.0	10.0
B. Doyle St NBD	2	0	2	150	AG	42	4.6	.0	10.0
C. Doyle St NBL	2	-150	0	0	AG	12	8.8	.0	10.0
D. Doyle St SBA	-2	150	-2	0	AG	40	6.3	.0	10.0
E. Doyle St SBD	-2	0	-2	-150	AG	44	4.6	.0	10.0
F. Doyle St SBL	-2	150	0	0	AG	4	8.8	.0	10.0
G. Stanford EBA	-150	-2	0	-2	AG	99	8.1	.0	10.0
H. Stanford EBD	0	-2	150	-2	AG	79	5.0	.0	10.0
I. Stanford EBL	-150	-2	0	0	AG	23	8.8	.0	10.0
J. Stanford WBA	150	0	0	0	AG	0	4.4	.0	10.0
K. Stanford WBD	0	0	-150	0	AG	34	5.0	.0	10.0
L. Stanford WBL	150	2	0	0	AG	0	4.4	.0	10.0
M. Doyle S NBAX	2	-750	2	-150	AG	33	4.4	.0	10.0
N. Doyle S NBDX	2	150	2	750	AG	42	4.4	.0	10.0
O. Doyle S SBAX	-2	750	-2	150	AG	44	4.4	.0	10.0
P. Doyle S SBDX	-2	-150	-2	-750	AG	44	4.4	.0	10.0
Q. Stanfor EBAX	-750	-2	-150	-2	AG	122	4.4	.0	10.0
R. Stanfor EBDX	150	-2	750	-2	AG	79	4.4	.0	10.0
S. Stanfor WBAX	750	0	150	0	AG	0	4.4	.0	10.0
T. Stanfor WBDX	-150	0	-750	0	AG	34	4.4	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	8	-8	1.8
2. NW	-8	7	1.8
3. SW	-8	-8	1.8
4. NE	8	7	1.8
5. ES mdblk	150	-8	1.8
6. WN mdblk	-150	7	1.8
7. WS mdblk	-150	-8	1.8
8. EN mdblk	150	7	1.8
9. SE mdblk	8	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	8	150	1.8
13. ES blk	600	-8	1.8
14. WN blk	-600	7	1.8
15. WS blk	-600	-8	1.8
16. EN blk	600	7	1.8
17. SE blk	8	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	8	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	276.	.3	.0	.0	.0	.0	.0	.0	.1	.0
2. NW	264.	.2	.0	.0	.0	.0	.0	.0	.1	.0
3. SW	276.	.2	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	264.	.3	.0	.0	.0	.0	.0	.0	.1	.0
5. ES mdblk	273.	.2	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	98.	.2	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	83.	.2	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	267.	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	355.	.1	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	176.	.1	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	4.	.1	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	185.	.1	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	273.	.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	95.	.2	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	85.	.2	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	267.	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	355.	.1	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	177.	.1	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	3.	.1	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.1	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	9	-150	9	0	AG	1123	7.1	.0	13.5
B. San Pabl NBD	9	0	9	150	AG	1171	4.5	.0	11.8
C. San Pabl NBL	5	-150	0	0	AG	140	8.8	.0	10.0
D. San Pabl SBA	-9	150	-9	0	AG	1005	7.1	.0	13.5
E. San Pabl SBD	-9	0	-9	-150	AG	1094	4.5	.0	11.8
F. San Pabl SBL	-5	150	0	0	AG	137	8.8	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	619	7.0	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	765	4.5	.0	11.8
I. Powell S EBL	-150	-5	0	0	AG	102	8.8	.0	10.0
J. Powell S WBA	150	9	0	9	AG	395	6.8	.0	13.5
K. Powell S WBD	0	9	-150	9	AG	569	4.4	.0	11.8
L. Powell S WBL	150	5	0	0	AG	78	8.8	.0	10.0
M. San Pab NBAX	9	-750	9	-150	AG	1263	4.1	.0	13.5
N. San Pab NBDX	9	150	9	750	AG	1171	4.1	.0	11.8
O. San Pab SBAX	-9	750	-9	150	AG	1142	4.1	.0	13.5
P. San Pab SBDX	-9	-150	-9	-750	AG	1094	4.1	.0	11.8
Q. Powell EBAX	-750	-9	-150	-9	AG	721	4.1	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	765	4.1	.0	11.8
S. Powell WBAX	750	9	150	9	AG	473	4.1	.0	13.5
T. Powell WBDX	-150	9	-750	9	AG	569	4.1	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-16	1.8
2. NW	-17	16	1.8
3. SW	-16	-17	1.8
4. NE	16	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-17	150	1.8
11. SW mdblk	-16	-150	1.8
12. NE mdblk	16	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	17	-600	1.8
18. NW blk	-17	600	1.8
19. SW blk	-16	-600	1.8
20. NE blk	16	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	350.	1.7	.3	.5	.0	.2	.0	.0	.0	.2
2. NW	170.	1.6	.3	.0	.0	.2	.5	.0	.2	.0
3. SW	8.	1.8	.0	.1	.0	.7	.2	.0	.3	.0
4. NE	188.	1.8	.8	.2	.0	.0	.1	.0	.0	.1
5. ES mdblk	277.	1.1	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	98.	1.0	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	82.	1.2	.0	.0	.0	.0	.0	.0	.6	.0
8. EN mdblk	262.	1.0	.0	.0	.0	.0	.0	.0	.1	.0
9. SE mdblk	352.	1.8	1.0	.0	.1	.2	.1	.0	.0	.0
10. NW mdblk	172.	1.7	.2	.1	.0	.9	.0	.1	.0	.0
11. SW mdblk	8.	1.4	.2	.1	.0	.0	.7	.0	.0	.0
12. NE mdblk	188.	1.5	.1	.7	.0	.2	.1	.0	.0	.0
13. ES blk	276.	.8	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.8	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.7	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.2	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
2. NW	.0	.0	.2	.0	.1	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0
4. NE	.0	.2	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.1	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.4
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0	.1
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.3	.0
17. SE blk	.0	.0	.0	.0	.7	.0	.0	.2	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.2	.7	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.3	.0	.0	.7	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.7	.3	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	7	-150	7	0	AG	273	8.4	.0	10.0
B. Hollis S NBD	7	0	7	150	AG	357	5.8	.0	10.0
C. Hollis S NBL	5	-150	0	0	AG	84	8.8	.0	10.0
D. Hollis S SBA	-7	150	-7	0	AG	316	8.1	.0	10.0
E. Hollis S SBD	-7	0	-7	-150	AG	496	5.2	.0	10.0
F. Hollis S SBL	-5	150	0	0	AG	121	8.8	.0	10.0
G. 40th Str EBA	-150	-9	0	-9	AG	686	6.5	.0	13.5
H. 40th Str EBD	0	-9	150	-9	AG	826	4.6	.0	11.8
I. 40th Str EBL	-150	-5	0	0	AG	38	8.8	.0	10.0
J. 40th Str WBA	150	9	0	9	AG	658	6.5	.0	13.5
K. 40th Str WBD	0	9	-150	9	AG	622	4.6	.0	11.8
L. 40th Str WBL	150	5	0	0	AG	125	8.8	.0	10.0
M. Hollis NBAX	7	-750	7	-150	AG	357	4.4	.0	10.0
N. Hollis NBDX	7	150	7	750	AG	357	4.4	.0	10.0
O. Hollis SBAX	-7	750	-7	150	AG	437	4.4	.0	10.0
P. Hollis SBDX	-7	-150	-7	-750	AG	496	4.4	.0	10.0
Q. 40th St EBAX	-750	-9	-150	-9	AG	724	4.4	.0	13.5
R. 40th St EBDX	150	-9	750	-9	AG	826	4.4	.0	11.8
S. 40th St WBAX	750	9	150	9	AG	783	4.4	.0	13.5
T. 40th St WBDX	-150	9	-750	9	AG	622	4.4	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-16	1.8
2. NW	-14	16	1.8
3. SW	-14	-17	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	277.	1.2	.1	.0	.0	.0	.0	.0	.5	.0
2. NW	98.	1.3	.0	.0	.0	.2	.0	.0	.0	.1
3. SW	80.	1.2	.0	.0	.0	.0	.2	.0	.1	.4
4. NE	188.	1.1	.3	.0	.0	.0	.1	.0	.0	.1
5. ES mdblk	278.	1.0	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	97.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	83.	1.1	.0	.0	.0	.0	.0	.0	.6	.0
8. EN mdblk	262.	1.1	.0	.0	.0	.0	.0	.0	.1	.0
9. SE mdblk	353.	.9	.4	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	.9	.0	.0	.0	.4	.0	.1	.0	.0
11. SW mdblk	7.	.9	.0	.0	.0	.0	.4	.0	.0	.0
12. NE mdblk	187.	.8	.0	.3	.0	.0	.0	.0	.0	.0
13. ES blk	277.	.9	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.8	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.8	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.9	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.6	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.6	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.7	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.6	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
2. NW	.0	.5	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
3. SW	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.4
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0	.1
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.5	.0
17. SE blk	.0	.0	.0	.0	.3	.0	.0	.1	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.1	.3	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.1	.0	.0	.4	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.3	.1	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Seventh NBA	9	-150	9	0	AG	532	8.1	.0	13.5
B. Seventh NBD	9	0	9	150	AG	692	5.2	.0	11.8
C. Seventh NBL	5	-150	0	0	AG	215	9.5	.0	10.0
D. Seventh SBA	-7	150	-7	0	AG	806	9.6	.0	10.0
E. Seventh SBD	-7	0	-7	-150	AG	518	8.8	.0	10.0
F. Seventh SBL	-5	150	0	0	AG	136	8.8	.0	10.0
G. Ashby Av EBA	-150	-9	0	-9	AG	753	6.3	.0	13.5
H. Ashby Av EBD	0	-9	150	-9	AG	837	4.3	.0	11.8
I. Ashby Av EBL	-150	-5	0	0	AG	231	9.5	.0	10.0
J. Ashby Av WBA	150	9	0	9	AG	841	6.3	.0	13.5
K. Ashby Av WBD	0	9	-150	9	AG	1552	4.4	.0	11.8
L. Ashby Av WBL	150	5	0	0	AG	85	8.8	.0	10.0
M. Seventh NBAX	9	-750	9	-150	AG	747	4.4	.0	13.5
N. Seventh NBDX	9	150	9	750	AG	692	4.4	.0	11.8
O. Seventh SBAX	-7	750	-7	150	AG	942	4.4	.0	10.0
P. Seventh SBDX	-7	-150	-7	-750	AG	518	4.4	.0	10.0
Q. Ashby A EBAX	-750	-9	-150	-9	AG	984	4.1	.0	13.5
R. Ashby A EBDX	150	-9	750	-9	AG	837	4.1	.0	11.8
S. Ashby A WBAX	750	9	150	9	AG	926	4.1	.0	13.5
T. Ashby A WBDX	-150	9	-750	9	AG	1552	4.1	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-16	1.8
2. NW	-14	16	1.8
3. SW	-14	-17	1.8
4. NE	16	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	16	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	17	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	16	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	1.8	.3	.0	.0	.0	.2	.0	.5	.1
2. NW	169.	2.0	.2	.0	.2	.3	.5	.0	.2	.0
3. SW	8.	2.0	.0	.1	.0	.8	.2	.1	.3	.0
4. NE	261.	1.9	.0	.2	.0	.3	.0	.0	.2	.0
5. ES mdblk	277.	1.3	.0	.0	.0	.0	.0	.0	.0	.5
6. WN mdblk	98.	1.6	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	81.	1.5	.0	.0	.0	.0	.0	.0	.6	.0
8. EN mdblk	263.	1.4	.0	.0	.0	.0	.0	.0	.1	.0
9. SE mdblk	352.	1.5	.6	.0	.2	.2	.1	.0	.0	.0
10. NW mdblk	172.	1.9	.1	.1	.0	1.1	.0	.2	.0	.0
11. SW mdblk	7.	1.4	.1	.0	.1	.1	.7	.0	.0	.0
12. NE mdblk	189.	1.3	.0	.5	.0	.3	.1	.0	.0	.0
13. ES blk	276.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.9	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.8	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	1.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.2	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.2	.0	.0	.1	.0	.0	.0	.0	.0	.0
4. NE	.1	.2	.7	.0	.0	.0	.0	.0	.1	.0	.0	.0
5. ES mdblk	.0	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	.1	.0	.9	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.2	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.7	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.9
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.3
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.6	.0
17. SE blk	.0	.0	.0	.0	.5	.0	.0	.1	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.2	.6	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.4	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.5	.2	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Christie NBA	9	-150	9	0	AG	171	8.1	.0	11.8
B. Christie NBD	9	0	9	150	AG	553	5.2	.0	10.0
C. Christie NBL	5	-150	0	0	AG	193	8.8	.0	10.0
D. Christie SBA	-7	150	-7	0	AG	1065	9.6	.0	15.3
E. Christie SBD	-7	0	-7	-150	AG	1228	9.2	.0	10.0
F. Christie SBL	-2	150	0	0	AG	180	8.8	.0	10.0
G. Powell S EBA	-150	-14	0	-14	AG	1302	6.7	.0	17.0
H. Powell S EBD	0	-14	150	-14	AG	880	4.3	.0	11.8
I. Powell S EBL	-150	-9	0	0	AG	364	8.8	.0	10.0
J. Powell S WBA	150	9	0	9	AG	870	6.7	.0	13.5
K. Powell S WBD	0	9	-150	9	AG	1733	5.3	.0	10.0
L. Powell S WBL	150	5	0	0	AG	249	9.5	.0	10.0
M. Christi NBAX	9	-750	9	-150	AG	364	4.4	.0	11.8
N. Christi NBDX	9	150	9	750	AG	553	4.4	.0	10.0
O. Christi SBAX	-7	750	-7	150	AG	1245	4.4	.0	15.3
P. Christi SBDX	-7	-150	-7	-750	AG	1228	4.4	.0	10.0
Q. Powell EBAX	-750	-14	-150	-14	AG	1666	4.1	.0	17.0
R. Powell EBDX	150	-14	750	-14	AG	880	4.1	.0	11.8
S. Powell WBAX	750	9	150	9	AG	1119	4.1	.0	13.5
T. Powell WBDX	-150	9	-750	9	AG	1733	4.1	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	16	-21	1.8
2. NW	-16	15	1.8
3. SW	-14	-24	1.8
4. NE	15	17	1.8
5. ES mdblk	150	-21	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-24	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	16	-150	1.8
10. NW mdblk	-16	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	15	150	1.8
13. ES blk	600	-21	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-24	1.8
16. EN blk	600	17	1.8
17. SE blk	16	-600	1.8
18. NW blk	-16	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	15	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	277.	2.2	.0	.0	.0	.0	.4	.0	.9	.1
2. NW	170.	2.6	.0	.0	.1	.3	1.1	.0	.3	.0
3. SW	8.	2.8	.0	.1	.0	.9	.6	.1	.5	.0
4. NE	260.	2.3	.0	.2	.0	.4	.0	.0	.2	.0
5. ES mdblk	277.	1.5	.0	.0	.0	.0	.0	.0	.1	.5
6. WN mdblk	99.	2.0	.0	.0	.0	.0	.1	.0	.2	.0
7. WS mdblk	79.	1.9	.0	.0	.0	.0	.0	.0	1.0	.0
8. EN mdblk	262.	1.8	.0	.0	.0	.0	.0	.0	.2	.0
9. SE mdblk	351.	1.4	.2	.0	.2	.2	.3	.0	.0	.0
10. NW mdblk	173.	2.0	.0	.0	.0	1.2	.2	.1	.0	.0
11. SW mdblk	7.	2.3	.0	.0	.0	.2	1.5	.0	.0	.0
12. NE mdblk	189.	1.5	.0	.4	.0	.4	.2	.1	.0	.0
13. ES blk	276.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.9	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	1.1	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.2	.0	.1	.0	.0	.0	.0	.0	.2	.0	.0	.2
2. NW	.1	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.1	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.2	.2	.8	.0	.0	.0	.0	.0	.2	.0	.0	.0
5. ES mdblk	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	.2	.0	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.2	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.8	.1	.2	.0	.0	.0	.0	.1	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.2	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	1.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.9	.0	.0	.2
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.7	.0
17. SE blk	.0	.0	.0	.0	.3	.0	.0	.3	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.1	.8	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.1	.0	.0	.8	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.4	.3	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. EB I-80 NBA	7	-150	7	0	AG	944	9.5	.0	11.8
B. EB I-80 NBD	7	0	7	150	AG	689	5.8	.0	10.0
C. EB I-80 NBL	5	-150	0	0	AG	543	9.5	.0	10.0
D. EB I-80 SBA	0	150	0	0	AG	0	4.4	.0	10.0
E. EB I-80 SBD	0	0	0	-150	AG	0	4.4	.0	10.0
F. EB I-80 SBL	-2	150	0	0	AG	0	4.4	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	933	6.5	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	1717	4.4	.0	13.5
I. Powell S EBL	-150	-5	0	0	AG	135	8.8	.0	10.0
J. Powell S WBA	150	7	0	7	AG	1665	6.9	.0	17.0
K. Powell S WBD	0	7	-150	7	AG	1814	4.5	.0	13.5
L. Powell S WBL	150	2	0	0	AG	0	4.1	.0	10.0
M. EB I-80 NBAX	7	-750	7	-150	AG	1487	4.4	.0	11.8
N. EB I-80 NBDX	7	150	7	750	AG	689	4.4	.0	10.0
O. EB I-80 SBAX	0	750	0	150	AG	0	4.4	.0	10.0
P. EB I-80 SBDX	0	-150	0	-750	AG	0	4.4	.0	10.0
Q. Powell EBAX	-750	-9	-150	-9	AG	1068	4.1	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	1717	4.1	.0	13.5
S. Powell WBAX	750	7	150	7	AG	1665	4.1	.0	17.0
T. Powell WBDX	-150	7	-750	7	AG	1814	4.1	.0	13.5

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-17	1.8
2. NW	-7	15	1.8
3. SW	-7	-17	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-17	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-7	150	1.8
11. SW mdblk	-7	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-17	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-7	600	1.8
19. SW blk	-7	-600	1.8
20. NE blk	14	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	279.	2.3	.6	.0	.2	.0	.0	.0	.6	.2
2. NW	171.	2.2	.7	.0	.6	.0	.0	.0	.2	.0
3. SW	82.	2.3	.4	.0	.3	.0	.0	.0	.0	.9
4. NE	187.	2.5	1.0	.1	.4	.0	.0	.0	.0	.2
5. ES mdblk	278.	1.8	.0	.0	.0	.0	.0	.0	.0	.9
6. WN mdblk	98.	1.9	.0	.0	.0	.0	.0	.0	.2	.2
7. WS mdblk	83.	1.7	.0	.0	.0	.0	.0	.0	.8	.1
8. EN mdblk	261.	2.0	.0	.0	.0	.0	.0	.0	.2	.2
9. SE mdblk	350.	2.0	1.2	.0	.5	.0	.0	.0	.0	.0
10. NW mdblk	175.	.9	.2	.2	.1	.0	.0	.0	.0	.0
11. SW mdblk	11.	1.4	.7	.0	.5	.0	.0	.0	.0	.0
12. NE mdblk	185.	1.2	.2	.5	.1	.0	.0	.0	.0	.0
13. ES blk	277.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	1.6	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.5	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.5	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.8	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.7	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.2
2. NW	.0	.0	.5	.0	.1	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.3	.0	.0	.0	.0	.0	.0	.0	.1	.2	.0
4. NE	.0	.7	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.3	.2	.0	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	.0	.1	1.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	.0	.3	.2	.0	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	.0	1.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.1	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.4	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	1.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.4
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.9	.0
17. SE blk	.0	.0	.0	.0	.9	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.5	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Frontage NBA	0	-150	0	0	AG	0	4.4	.0	10.0
B. Frontage NBD	0	0	0	150	AG	1538	9.6	.0	10.0
C. Frontage NBL	2	-150	0	0	AG	0	4.4	.0	10.0
D. Frontage SBA	-9	150	-9	0	AG	205	8.1	.0	10.0
E. Frontage SBD	-9	0	-9	-150	AG	440	7.5	.0	10.0
F. Frontage SBL	-9	150	0	0	AG	592	9.5	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	850	6.3	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	1002	4.3	.0	11.8
I. Powell S EBL	-150	-5	0	0	AG	133	8.8	.0	10.0
J. Powell S WBA	150	7	0	7	AG	1832	7.3	.0	17.0
K. Powell S WBD	0	7	-150	7	AG	632	4.3	.0	11.8
L. Powell S WBL	150	2	0	0	AG	0	4.1	.0	10.0
M. Frontag NBAX	0	-750	0	-150	AG	0	4.4	.0	10.0
N. Frontag NBDX	0	150	0	750	AG	1538	4.4	.0	10.0
O. Frontag SBAX	-9	750	-9	150	AG	797	4.4	.0	10.0
P. Frontag SBDX	-9	-150	-9	-750	AG	440	4.4	.0	10.0
Q. Powell EBAX	-750	-9	-150	-9	AG	983	4.1	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	1002	4.1	.0	11.8
S. Powell WBAX	750	7	150	7	AG	1832	4.1	.0	17.0
T. Powell WBDX	-150	7	-750	7	AG	632	4.1	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	7	-16	1.8
2. NW	-15	14	1.8
3. SW	-15	-17	1.8
4. NE	7	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	7	-150	1.8
10. NW mdblk	-15	150	1.8
11. SW mdblk	-15	-150	1.8
12. NE mdblk	7	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	7	-600	1.8
18. NW blk	-15	600	1.8
19. SW blk	-15	-600	1.8
20. NE blk	7	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	353.	3.2	.0	1.5	.0	.1	.0	.7	.0	.3
2. NW	96.	2.8	.0	.6	.0	.1	.0	.2	.0	.1
3. SW	11.	2.2	.0	.9	.0	.2	.2	.4	.3	.0
4. NE	350.	2.9	.0	1.9	.0	.1	.0	.6	.0	.0
5. ES mdblk	284.	1.5	.0	.2	.0	.0	.0	.0	.0	.6
6. WN mdblk	95.	1.2	.0	.1	.0	.0	.0	.0	.0	.1
7. WS mdblk	82.	1.6	.0	.1	.0	.0	.0	.0	.7	.0
8. EN mdblk	262.	2.0	.0	.0	.0	.0	.0	.0	.1	.0
9. SE mdblk	358.	1.0	.0	.3	.0	.0	.0	.1	.0	.0
10. NW mdblk	167.	2.2	.0	.9	.0	.3	.0	.8	.0	.0
11. SW mdblk	5.	1.3	.0	.3	.0	.0	.4	.2	.0	.0
12. NE mdblk	189.	2.7	.0	2.0	.0	.1	.0	.4	.0	.0
13. ES blk	277.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.9	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	357.	.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	5.	.6	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	1.5	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.4	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0
2. NW	.0	1.3	.0	.0	.0	.0	.0	.0	.0	.2	.2	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.3	.3	.0	.0	.0	.0	.0	.0	.0	.1	.0
7. WS mdblk	.1	.3	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	.0	1.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.4	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.4
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.1
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	1.0	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.5	.6	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	1.0	.3	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Frontage NBA	9	-150	9	0	AG	1619	8.9	.0	13.5
B. Frontage NBD	9	0	9	150	AG	481	4.6	.0	10.0
C. Frontage NBL	5	-150	0	0	AG	19	8.8	.0	10.0
D. Frontage SBA	-7	150	-7	0	AG	443	6.5	.0	10.0
E. Frontage SBD	-7	0	-7	-150	AG	857	4.7	.0	10.0
F. Frontage SBL	-5	150	0	0	AG	254	9.5	.0	10.0
G. WB I-80 EBA	-150	-7	0	-7	AG	303	9.0	.0	10.0
H. WB I-80 EBD	0	-7	150	-7	AG	1699	9.6	.0	10.0
I. WB I-80 EBL	-150	-5	0	0	AG	78	8.8	.0	10.0
J. WB I-80 WBA	150	7	0	7	AG	13	8.1	.0	10.0
K. WB I-80 WBD	0	7	-150	7	AG	71	5.0	.0	10.0
L. WB I-80 WBL	150	5	0	0	AG	379	8.8	.0	10.0
M. Frontag NBAX	9	-750	9	-150	AG	1638	4.4	.0	13.5
N. Frontag NBDX	9	150	9	750	AG	481	4.4	.0	10.0
O. Frontag SBAX	-7	750	-7	150	AG	697	4.4	.0	10.0
P. Frontag SBDX	-7	-150	-7	-750	AG	857	4.4	.0	10.0
Q. WB I-80 EBAX	-750	-7	-150	-7	AG	381	4.4	.0	10.0
R. WB I-80 EBDX	150	-7	750	-7	AG	1699	4.4	.0	10.0
S. WB I-80 WBAX	750	7	150	7	AG	392	4.4	.0	10.0
T. WB I-80 WBDX	-150	7	-750	7	AG	71	4.4	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-14	1.8
2. NW	-14	14	1.8
3. SW	-14	-14	1.8
4. NE	15	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	15	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	17	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	15	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	311.	2.6	1.0	.0	.0	.1	.0	.0	.0	1.3
2. NW	130.	1.6	.5	.0	.0	.2	.0	.0	.0	.7
3. SW	82.	3.0	.5	.0	.0	.0	.3	.0	.0	1.7
4. NE	186.	2.8	1.6	.0	.0	.0	.0	.0	.0	.5
5. ES mdblk	279.	2.6	.0	.0	.0	.0	.0	.0	.0	2.1
6. WN mdblk	97.	1.0	.1	.0	.0	.0	.0	.0	.0	.3
7. WS mdblk	87.	1.2	.1	.0	.0	.0	.0	.0	.3	.3
8. EN mdblk	253.	1.5	.2	.0	.0	.0	.0	.0	.0	.8
9. SE mdblk	352.	2.3	1.8	.0	.0	.0	.1	.0	.0	.0
10. NW mdblk	173.	1.5	.3	.0	.0	.4	.0	.3	.0	.1
11. SW mdblk	15.	1.6	.7	.0	.0	.0	.5	.0	.0	.2
12. NE mdblk	185.	1.2	.3	.3	.0	.0	.0	.0	.0	.1
13. ES blk	276.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.5	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	87.	.6	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	1.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	1.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.9	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.8	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Existing PP- (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.2	.0	.0	.0	.0	.0	.1	.0	.0
4. NE	.0	.0	.0	.2	.2	.0	.0	.2	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
8. EN mdblk	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.1	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.3	.0
17. SE blk	.0	.0	.0	.0	1.0	.0	.0	.2	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.1	.5	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.4	.0	.0	.6	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.4	.2	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum NP-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	7	-150	7	0	AG	378	1.6	.0	10.0
B. Hollis S NBD	7	0	7	150	AG	493	1.2	.0	10.0
C. Hollis S NBL	5	-150	0	0	AG	519	1.8	.0	10.0
D. Hollis S SBA	-7	150	-7	0	AG	702	1.8	.0	10.0
E. Hollis S SBD	-7	0	-7	-150	AG	598	1.7	.0	10.0
F. Hollis S SBL	-5	150	0	0	AG	113	1.7	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	938	1.4	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	937	1.0	.0	11.8
I. Powell S EBL	-150	-5	0	0	AG	143	1.7	.0	10.0
J. Powell S WBA	150	9	0	9	AG	708	1.3	.0	13.5
K. Powell S WBD	0	9	-150	9	AG	1535	1.0	.0	11.8
L. Powell S WBL	150	5	0	0	AG	62	1.7	.0	10.0
M. Hollis NBAX	7	-750	7	-150	AG	897	1.0	.0	10.0
N. Hollis NBDX	7	150	7	750	AG	493	1.0	.0	10.0
O. Hollis SBAX	-7	750	-7	150	AG	815	1.0	.0	10.0
P. Hollis SBDX	-7	-150	-7	-750	AG	598	1.0	.0	10.0
Q. Powell EBAX	-750	-9	-150	-9	AG	1081	1.0	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	937	1.0	.0	11.8
S. Powell WBAX	750	9	150	9	AG	770	1.0	.0	13.5
T. Powell WBDX	-150	9	-750	9	AG	1535	1.0	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum NP-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-16	1.8
2. NW	-14	16	1.8
3. SW	-14	-17	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum NP-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	.4	.0	.0	.0	.0	.0	.0	.1	.0
2. NW	170.	.4	.0	.0	.0	.0	.1	.0	.0	.0
3. SW	8.	.4	.0	.0	.0	.1	.0	.0	.0	.0
4. NE	262.	.4	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	276.	.3	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	99.	.4	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	81.	.3	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	263.	.3	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	351.	.3	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	173.	.3	.0	.0	.0	.2	.0	.0	.0	.0
11. SW mdblk	8.	.3	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	187.	.3	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	276.	.2	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.2	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.2	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum NP-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
17. SE blk	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum NP-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Doyle St NBA	2	-150	2	0	AG	47	1.6	.0	10.0
B. Doyle St NBD	2	0	2	150	AG	76	1.1	.0	10.0
C. Doyle St NBL	2	-150	0	0	AG	16	1.7	.0	10.0
D. Doyle St SBA	-2	150	-2	0	AG	97	1.6	.0	10.0
E. Doyle St SBD	-2	0	-2	-150	AG	60	1.1	.0	10.0
F. Doyle St SBL	-2	150	0	0	AG	45	1.7	.0	10.0
G. Powell S EBA	-150	-4	0	-4	AG	858	1.3	.0	11.8
H. Powell S EBD	0	-4	150	-4	AG	931	1.0	.0	10.0
I. Powell S EBL	-150	-2	0	0	AG	46	1.7	.0	10.0
J. Powell S WBA	150	4	0	4	AG	713	1.3	.0	11.8
K. Powell S WBD	0	4	-150	4	AG	777	1.0	.0	10.0
L. Powell S WBL	150	2	0	0	AG	22	1.7	.0	10.0
M. Doyle S NBAX	2	-750	2	-150	AG	63	1.0	.0	10.0
N. Doyle S NBDX	2	150	2	750	AG	76	1.0	.0	10.0
O. Doyle S SBAX	-2	750	-2	150	AG	142	1.0	.0	10.0
P. Doyle S SBDX	-2	-150	-2	-750	AG	60	1.0	.0	10.0
Q. Powell EBAX	-750	-4	-150	-4	AG	904	1.0	.0	11.8
R. Powell EBDX	150	-4	750	-4	AG	931	1.0	.0	10.0
S. Powell WBAX	750	4	150	4	AG	735	1.0	.0	11.8
T. Powell WBDX	-150	4	-750	4	AG	777	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum NP-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	8	-10	1.8
2. NW	-8	10	1.8
3. SW	-8	-11	1.8
4. NE	8	11	1.8
5. ES mdblk	150	-10	1.8
6. WN mdblk	-150	10	1.8
7. WS mdblk	-150	-11	1.8
8. EN mdblk	150	11	1.8
9. SE mdblk	8	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	8	150	1.8
13. ES blk	600	-10	1.8
14. WN blk	-600	10	1.8
15. WS blk	-600	-11	1.8
16. EN blk	600	11	1.8
17. SE blk	8	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	8	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum NP-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	276.	.3	.0	.0	.0	.0	.0	.0	.1	.0
2. NW	96.	.3	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	277.	.3	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	262.	.2	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	277.	.3	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	97.	.3	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	83.	.3	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	263.	.3	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	355.	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	174.	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	4.	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	186.	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	276.	.2	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.2	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.2	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.2	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	356.	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	175.	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	3.	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum NP-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum NP-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	4	-150	4	0	AG	818	1.4	.0	11.8
B. Hollis S NBD	4	0	4	150	AG	956	1.1	.0	10.0
C. Hollis S NBL	2	-150	0	0	AG	22	1.7	.0	10.0
D. Hollis S SBA	-5	150	-5	0	AG	623	1.4	.0	11.8
E. Hollis S SBD	-5	0	-5	-150	AG	696	1.1	.0	10.0
F. Hollis S SBL	-2	150	0	0	AG	10	1.7	.0	10.0
G. Stanford EBA	-150	-7	0	-7	AG	130	1.6	.0	10.0
H. Stanford EBD	0	-7	150	-7	AG	122	1.1	.0	10.0
I. Stanford EBL	-150	-5	0	0	AG	152	1.7	.0	10.0
J. Stanford WBA	150	7	0	7	AG	49	1.6	.0	10.0
K. Stanford WBD	0	7	-150	7	AG	63	1.1	.0	10.0
L. Stanford WBL	150	5	0	0	AG	33	1.7	.0	10.0
M. Hollis NBAX	4	-750	4	-150	AG	840	1.0	.0	11.8
N. Hollis NBDX	4	150	4	750	AG	956	1.0	.0	10.0
O. Hollis SBAX	-5	750	-5	150	AG	633	1.0	.0	11.8
P. Hollis SBDX	-5	-150	-5	-750	AG	696	1.0	.0	10.0
Q. Stanfor EBAX	-750	-7	-150	-7	AG	282	1.0	.0	10.0
R. Stanfor EBDX	150	-7	750	-7	AG	122	1.0	.0	10.0
S. Stanfor WBAX	750	7	150	7	AG	82	1.0	.0	10.0
T. Stanfor WBDX	-150	7	-750	7	AG	63	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum NP-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	11	-14	1.8
2. NW	-13	14	1.8
3. SW	-12	-14	1.8
4. NE	10	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	11	-150	1.8
10. NW mdblk	-13	150	1.8
11. SW mdblk	-12	-150	1.8
12. NE mdblk	10	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	11	-600	1.8
18. NW blk	-13	600	1.8
19. SW blk	-12	-600	1.8
20. NE blk	10	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum NP-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	352.	.3	.0	.1	.0	.0	.0	.0	.0	.0
2. NW	172.	.2	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	7.	.3	.0	.0	.0	.1	.0	.0	.0	.0
4. NE	187.	.3	.1	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	275.	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	98.	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	82.	.1	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	264.	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	353.	.3	.2	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	173.	.2	.0	.0	.0	.1	.0	.0	.0	.0
11. SW mdblk	7.	.2	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	187.	.3	.0	.1	.0	.0	.0	.0	.0	.0
13. ES blk	275.	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	85.	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	265.	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.2	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum NP-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum NP-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Doyle St NBA	2	-150	2	0	AG	31	1.3	.0	10.0
B. Doyle St NBD	2	0	2	150	AG	54	1.0	.0	10.0
C. Doyle St NBL	2	-150	0	0	AG	18	1.7	.0	10.0
D. Doyle St SBA	-2	150	-2	0	AG	63	1.3	.0	10.0
E. Doyle St SBD	-2	0	-2	-150	AG	59	1.0	.0	10.0
F. Doyle St SBL	-2	150	0	0	AG	6	1.7	.0	10.0
G. Stanford EBA	-150	-2	0	-2	AG	127	1.6	.0	10.0
H. Stanford EBD	0	-2	150	-2	AG	103	1.1	.0	10.0
I. Stanford EBL	-150	-2	0	0	AG	26	1.7	.0	10.0
J. Stanford WBA	150	0	0	0	AG	0	1.0	.0	10.0
K. Stanford WBD	0	0	-150	0	AG	55	1.1	.0	10.0
L. Stanford WBL	150	2	0	0	AG	0	1.0	.0	10.0
M. Doyle S NBAX	2	-750	2	-150	AG	49	1.0	.0	10.0
N. Doyle S NBDX	2	150	2	750	AG	54	1.0	.0	10.0
O. Doyle S SBAX	-2	750	-2	150	AG	69	1.0	.0	10.0
P. Doyle S SBDX	-2	-150	-2	-750	AG	59	1.0	.0	10.0
Q. Stanfor EBAX	-750	-2	-150	-2	AG	153	1.0	.0	10.0
R. Stanfor EBDX	150	-2	750	-2	AG	103	1.0	.0	10.0
S. Stanfor WBAX	750	0	150	0	AG	0	1.0	.0	10.0
T. Stanfor WBDX	-150	0	-750	0	AG	55	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum NP-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	8	-8	1.8
2. NW	-8	7	1.8
3. SW	-8	-8	1.8
4. NE	8	7	1.8
5. ES mdblk	150	-8	1.8
6. WN mdblk	-150	7	1.8
7. WS mdblk	-150	-8	1.8
8. EN mdblk	150	7	1.8
9. SE mdblk	8	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	8	150	1.8
13. ES blk	600	-8	1.8
14. WN blk	-600	7	1.8
15. WS blk	-600	-8	1.8
16. EN blk	600	7	1.8
17. SE blk	8	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	8	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum NP-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	276.	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	264.	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	276.	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	264.	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	273.	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	98.	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	83.	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	267.	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	355.	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	175.	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	4.	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	186.	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	273.	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	95.	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	85.	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	266.	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	355.	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	176.	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	3.	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum NP-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum NP-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	*	9	-150	9	0	* AG	1945	1.7	.0	13.5
B. San Pabl NBD	*	9	0	9	150	* AG	1965	1.1	.0	11.8
C. San Pabl NBL	*	5	-150	0	0	* AG	242	1.8	.0	10.0
D. San Pabl SBA	*	-9	150	-9	0	* AG	1725	1.6	.0	13.5
E. San Pabl SBD	*	-9	0	-9	-150	* AG	1815	1.1	.0	11.8
F. San Pabl SBL	*	-5	150	0	0	* AG	237	1.8	.0	10.0
G. Powell S EBA	*	-150	-9	0	-9	* AG	800	1.4	.0	13.5
H. Powell S EBD	*	0	-9	150	-9	* AG	1097	1.0	.0	11.8
I. Powell S EBL	*	-150	-5	0	0	* AG	138	1.7	.0	10.0
J. Powell S WBA	*	150	9	0	9	* AG	500	1.4	.0	13.5
K. Powell S WBD	*	0	9	-150	9	* AG	810	1.0	.0	11.8
L. Powell S WBL	*	150	5	0	0	* AG	100	1.7	.0	10.0
M. San Pab NBAX	*	9	-750	9	-150	* AG	2187	1.0	.0	13.5
N. San Pab NBDX	*	9	150	9	750	* AG	1965	1.0	.0	11.8
O. San Pab SBAX	*	-9	750	-9	150	* AG	1962	1.0	.0	13.5
P. San Pab SBDX	*	-9	-150	-9	-750	* AG	1815	1.0	.0	11.8
Q. Powell EBAX	*	-750	-9	-150	-9	* AG	938	1.0	.0	13.5
R. Powell EBDX	*	150	-9	750	-9	* AG	1097	1.0	.0	11.8
S. Powell WBAX	*	750	9	150	9	* AG	600	1.0	.0	13.5
T. Powell WBDX	*	-150	9	-750	9	* AG	810	1.0	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum NP-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. SE	*	17	-16	1.8
2. NW	*	-17	16	1.8
3. SW	*	-16	-17	1.8
4. NE	*	16	17	1.8
5. ES mdblk	*	150	-16	1.8
6. WN mdblk	*	-150	16	1.8
7. WS mdblk	*	-150	-17	1.8
8. EN mdblk	*	150	17	1.8
9. SE mdblk	*	17	-150	1.8
10. NW mdblk	*	-17	150	1.8
11. SW mdblk	*	-16	-150	1.8
12. NE mdblk	*	16	150	1.8
13. ES blk	*	600	-16	1.8
14. WN blk	*	-600	16	1.8
15. WS blk	*	-600	-17	1.8
16. EN blk	*	600	17	1.8
17. SE blk	*	17	-600	1.8
18. NW blk	*	-17	600	1.8
19. SW blk	*	-16	-600	1.8
20. NE blk	*	16	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum NP-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	349.	.6	.1	.2	.0	.0	.0	.0	.0	.0
2. NW	169.	.6	.1	.0	.0	.0	.2	.0	.0	.0
3. SW	8.	.6	.0	.0	.0	.3	.0	.0	.0	.0
4. NE	188.	.6	.3	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	277.	.3	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	98.	.3	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	82.	.3	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	262.	.3	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	351.	.6	.4	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	.6	.0	.0	.0	.3	.0	.0	.0	.0
11. SW mdblk	8.	.5	.0	.0	.0	.0	.3	.0	.0	.0
12. NE mdblk	188.	.5	.0	.3	.0	.0	.0	.0	.0	.0
13. ES blk	276.	.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.2	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.4	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum NP-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.1	.0	.0	.3	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum NP-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	7	-150	7	0	AG	391	1.7	.0	10.0
B. Hollis S NBD	7	0	7	150	AG	515	1.7	.0	10.0
C. Hollis S NBL	5	-150	0	0	AG	123	1.7	.0	10.0
D. Hollis S SBA	-7	150	-7	0	AG	468	1.6	.0	10.0
E. Hollis S SBD	-7	0	-7	-150	AG	732	1.2	.0	10.0
F. Hollis S SBL	-5	150	0	0	AG	177	1.7	.0	10.0
G. 40th Str EBA	-150	-9	0	-9	AG	1006	1.4	.0	13.5
H. 40th Str EBD	0	-9	150	-9	AG	1210	1.1	.0	11.8
I. 40th Str EBL	-150	-5	0	0	AG	56	1.7	.0	10.0
J. 40th Str WBA	150	9	0	9	AG	965	1.4	.0	13.5
K. 40th Str WBD	0	9	-150	9	AG	912	1.1	.0	11.8
L. 40th Str WBL	150	5	0	0	AG	183	1.7	.0	10.0
M. Hollis NBAX	7	-750	7	-150	AG	514	1.0	.0	10.0
N. Hollis NBDX	7	150	7	750	AG	515	1.0	.0	10.0
O. Hollis SBAX	-7	750	-7	150	AG	645	1.0	.0	10.0
P. Hollis SBDX	-7	-150	-7	-750	AG	732	1.0	.0	10.0
Q. 40th St EBAX	-750	-9	-150	-9	AG	1062	1.0	.0	13.5
R. 40th St EBDX	150	-9	750	-9	AG	1210	1.0	.0	11.8
S. 40th St WBAX	750	9	150	9	AG	1148	1.0	.0	13.5
T. 40th St WBDX	-150	9	-750	9	AG	912	1.0	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum NP-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-16	1.8
2. NW	-14	16	1.8
3. SW	-14	-17	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum NP-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	.4	.0	.0	.0	.0	.0	.0	.2	.0
2. NW	98.	.4	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	81.	.4	.0	.0	.0	.0	.0	.0	.0	.1
4. NE	260.	.3	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	278.	.3	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	97.	.3	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	82.	.3	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	262.	.3	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	353.	.3	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	.3	.0	.0	.0	.1	.0	.0	.0	.0
11. SW mdblk	7.	.3	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	187.	.3	.0	.1	.0	.0	.0	.0	.0	.0
13. ES blk	277.	.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.2	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum NP-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum NP-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Seventh NBA	9	-150	9	0	AG	783	1.6	.0	13.5
B. Seventh NBD	9	0	9	150	AG	973	1.2	.0	11.8
C. Seventh NBL	5	-150	0	0	AG	315	1.8	.0	10.0
D. Seventh SBA	-7	150	-7	0	AG	1177	1.8	.0	10.0
E. Seventh SBD	-7	0	-7	-150	AG	712	1.8	.0	10.0
F. Seventh SBL	-5	150	0	0	AG	195	1.7	.0	10.0
G. Ashby Av EBA	-150	-9	0	-9	AG	969	1.4	.0	13.5
H. Ashby Av EBD	0	-9	150	-9	AG	1115	1.0	.0	11.8
I. Ashby Av EBL	-150	-5	0	0	AG	297	1.8	.0	10.0
J. Ashby Av WBA	150	9	0	9	AG	1085	1.4	.0	13.5
K. Ashby Av WBD	0	9	-150	9	AG	2130	1.1	.0	11.8
L. Ashby Av WBL	150	5	0	0	AG	109	1.7	.0	10.0
M. Seventh NBAX	9	-750	9	-150	AG	1098	1.0	.0	13.5
N. Seventh NBDX	9	150	9	750	AG	973	1.0	.0	11.8
O. Seventh SBAX	-7	750	-7	150	AG	1372	1.0	.0	10.0
P. Seventh SBDX	-7	-150	-7	-750	AG	712	1.0	.0	10.0
Q. Ashby A EBAX	-750	-9	-150	-9	AG	1266	1.0	.0	13.5
R. Ashby A EBDX	150	-9	750	-9	AG	1115	1.0	.0	11.8
S. Ashby A WBAX	750	9	150	9	AG	1194	1.0	.0	13.5
T. Ashby A WBDX	-150	9	-750	9	AG	2130	1.0	.0	11.8

JOB: Papermill
RUN: Cum NP-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-16	1.8
2. NW	-14	16	1.8
3. SW	-14	-17	1.8
4. NE	16	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	16	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	17	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	16	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum NP-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	.5	.0	.0	.0	.0	.0	.0	.1	.0
2. NW	169.	.6	.0	.0	.0	.0	.1	.0	.0	.0
3. SW	8.	.6	.0	.0	.0	.2	.0	.0	.0	.0
4. NE	261.	.6	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	277.	.4	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	99.	.5	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	81.	.4	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	263.	.4	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	352.	.4	.2	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	.5	.0	.0	.0	.3	.0	.0	.0	.0
11. SW mdblk	7.	.4	.0	.0	.0	.0	.2	.0	.0	.0
12. NE mdblk	189.	.4	.0	.2	.0	.0	.0	.0	.0	.0
13. ES blk	277.	.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.3	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum NP-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. SE blk	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum NP-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Christie NBA	9	-150	9	0	AG	296	1.6	.0	11.8
B. Christie NBD	9	0	9	150	AG	731	1.2	.0	10.0
C. Christie NBL	5	-150	0	0	AG	334	1.7	.0	10.0
D. Christie SBA	-7	150	-7	0	AG	1845	1.8	.0	15.3
E. Christie SBD	-7	0	-7	-150	AG	1692	1.8	.0	10.0
F. Christie SBL	-2	150	0	0	AG	312	1.8	.0	10.0
G. Powell S EBA	-150	-14	0	-14	AG	1620	1.4	.0	17.0
H. Powell S EBD	0	-14	150	-14	AG	1213	1.0	.0	11.8
I. Powell S EBL	-150	-9	0	0	AG	468	1.8	.0	10.0
J. Powell S WBA	150	9	0	9	AG	1148	1.4	.0	13.5
K. Powell S WBD	0	9	-150	9	AG	2707	1.3	.0	10.0
L. Powell S WBL	150	5	0	0	AG	320	1.8	.0	10.0
M. Christi NBAX	9	-750	9	-150	AG	630	1.0	.0	11.8
N. Christi NBDX	9	150	9	750	AG	731	1.0	.0	10.0
O. Christi SBAX	-7	750	-7	150	AG	2157	1.0	.0	15.3
P. Christi SBDX	-7	-150	-7	-750	AG	1692	1.0	.0	10.0
Q. Powell EBAX	-750	-14	-150	-14	AG	2088	1.0	.0	17.0
R. Powell EBDX	150	-14	750	-14	AG	1213	1.0	.0	11.8
S. Powell WBAX	750	9	150	9	AG	1468	1.0	.0	13.5
T. Powell WBDX	-150	9	-750	9	AG	2707	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum NP-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	16	-21	1.8
2. NW	-16	15	1.8
3. SW	-14	-24	1.8
4. NE	15	17	1.8
5. ES mdblk	150	-21	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-24	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	16	-150	1.8
10. NW mdblk	-16	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	15	150	1.8
13. ES blk	600	-21	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-24	1.8
16. EN blk	600	17	1.8
17. SE blk	16	-600	1.8
18. NW blk	-16	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	15	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum NP-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	.6	.0	.0	.0	.0	.0	.0	.2	.0
2. NW	169.	.8	.0	.0	.0	.0	.3	.0	.0	.0
3. SW	7.	.8	.0	.0	.0	.3	.1	.0	.1	.0
4. NE	260.	.7	.0	.0	.0	.1	.0	.0	.0	.0
5. ES mdblk	278.	.4	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	100.	.7	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	78.	.5	.0	.0	.0	.0	.0	.0	.3	.0
8. EN mdblk	263.	.5	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	351.	.4	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	.6	.0	.0	.0	.4	.0	.0	.0	.0
11. SW mdblk	7.	.6	.0	.0	.0	.0	.4	.0	.0	.0
12. NE mdblk	190.	.4	.0	.1	.0	.1	.0	.0	.0	.0
13. ES blk	277.	.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	98.	.5	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	82.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.3	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum NP-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. SE blk	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum NP-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. EB I-80 NBA	7	-150	7	0	AG	1588	1.8	.0	11.8
B. EB I-80 NBD	7	0	7	150	AG	966	1.5	.0	10.0
C. EB I-80 NBL	5	-150	0	0	AG	940	1.8	.0	10.0
D. EB I-80 SBA	0	150	0	0	AG	0	1.0	.0	10.0
E. EB I-80 SBD	0	0	0	-150	AG	0	1.0	.0	10.0
F. EB I-80 SBL	-2	150	0	0	AG	0	1.0	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	1181	1.4	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	2492	1.2	.0	13.5
I. Powell S EBL	-150	-5	0	0	AG	174	1.7	.0	10.0
J. Powell S WBA	150	7	0	7	AG	2171	1.6	.0	17.0
K. Powell S WBD	0	7	-150	7	AG	2596	1.2	.0	13.5
L. Powell S WBL	150	2	0	0	AG	0	1.0	.0	10.0
M. EB I-80 NBAX	7	-750	7	-150	AG	2528	1.0	.0	11.8
N. EB I-80 NBDX	7	150	7	750	AG	966	1.0	.0	10.0
O. EB I-80 SBAX	0	750	0	150	AG	0	1.0	.0	10.0
P. EB I-80 SBDX	0	-150	0	-750	AG	0	1.0	.0	10.0
Q. Powell EBAX	-750	-9	-150	-9	AG	1355	1.0	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	2492	1.0	.0	13.5
S. Powell WBAX	750	7	150	7	AG	2171	1.0	.0	17.0
T. Powell WBDX	-150	7	-750	7	AG	2596	1.0	.0	13.5

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum NP-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-17	1.8
2. NW	-7	15	1.8
3. SW	-7	-17	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-17	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-7	150	1.8
11. SW mdblk	-7	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-17	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-7	600	1.8
19. SW blk	-7	-600	1.8
20. NE blk	14	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum NP-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	280.	.7	.2	.0	.0	.0	.0	.0	.2	.0
2. NW	171.	.7	.2	.0	.2	.0	.0	.0	.0	.0
3. SW	81.	.8	.1	.0	.1	.0	.0	.0	.0	.3
4. NE	187.	.8	.3	.0	.1	.0	.0	.0	.0	.0
5. ES mdblk	278.	.6	.0	.0	.0	.0	.0	.0	.0	.3
6. WN mdblk	98.	.6	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	83.	.5	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	261.	.6	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	350.	.6	.4	.0	.2	.0	.0	.0	.0	.0
10. NW mdblk	175.	.3	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	11.	.4	.2	.0	.1	.0	.0	.0	.0	.0
12. NE mdblk	185.	.4	.0	.2	.0	.0	.0	.0	.0	.0
13. ES blk	277.	.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.5	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	262.	.5	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.2	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum NP-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.1	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.1
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.3	.0
17. SE blk	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum NP-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Frontage NBA	0	-150	0	0	AG	0	1.0	.0	10.0
B. Frontage NBD	0	0	0	150	AG	1997	1.8	.0	10.0
C. Frontage NBL	2	-150	0	0	AG	0	1.0	.0	10.0
D. Frontage SBA	-9	150	-9	0	AG	1006	1.8	.0	10.0
E. Frontage SBD	-9	0	-9	-150	AG	566	1.7	.0	10.0
F. Frontage SBL	-9	150	0	0	AG	355	1.7	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	1089	1.4	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	878	1.0	.0	11.8
I. Powell S EBL	-150	-5	0	0	AG	171	1.7	.0	10.0
J. Powell S WBA	150	7	0	7	AG	2378	1.6	.0	17.0
K. Powell S WBD	0	7	-150	7	AG	1558	1.0	.0	11.8
L. Powell S WBL	150	2	0	0	AG	0	1.0	.0	10.0
M. Frontag NBAX	0	-750	0	-150	AG	0	1.0	.0	10.0
N. Frontag NBDX	0	150	0	750	AG	1997	1.0	.0	10.0
O. Frontag SBAX	-9	750	-9	150	AG	1361	1.0	.0	10.0
P. Frontag SBDX	-9	-150	-9	-750	AG	566	1.0	.0	10.0
Q. Powell EBAX	-750	-9	-150	-9	AG	1260	1.0	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	878	1.0	.0	11.8
S. Powell WBAX	750	7	150	7	AG	2378	1.0	.0	17.0
T. Powell WBDX	-150	7	-750	7	AG	1558	1.0	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum NP-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	7	-16	1.8
2. NW	-15	14	1.8
3. SW	-15	-17	1.8
4. NE	7	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	7	-150	1.8
10. NW mdblk	-15	150	1.8
11. SW mdblk	-15	-150	1.8
12. NE mdblk	7	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	7	-600	1.8
18. NW blk	-15	600	1.8
19. SW blk	-15	-600	1.8
20. NE blk	7	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum NP-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	353.	.8	.0	.3	.0	.0	.0	.0	.0	.0
2. NW	96.	.8	.0	.1	.0	.1	.0	.0	.0	.0
3. SW	8.	.7	.0	.2	.0	.2	.0	.0	.0	.0
4. NE	350.	.7	.0	.5	.0	.1	.0	.0	.0	.0
5. ES mdblk	281.	.4	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	96.	.4	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	81.	.4	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	262.	.6	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	357.	.3	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	167.	.6	.0	.2	.0	.2	.0	.0	.0	.0
11. SW mdblk	5.	.4	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	191.	.7	.0	.5	.0	.1	.0	.0	.0	.0
13. ES blk	277.	.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.4	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	357.	.1	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	5.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.4	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum NP-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum NP-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Frontage NBA	9	-150	9	0	AG	2828	1.7	.0	13.5
B. Frontage NBD	9	0	9	150	AG	798	1.1	.0	10.0
C. Frontage NBL	5	-150	0	0	AG	33	1.7	.0	10.0
D. Frontage SBA	-7	150	-7	0	AG	768	1.4	.0	10.0
E. Frontage SBD	-7	0	-7	-150	AG	1269	1.1	.0	10.0
F. Frontage SBL	-5	150	0	0	AG	440	1.8	.0	10.0
G. WB I-80 EBA	-150	-7	0	-7	AG	390	1.7	.0	10.0
H. WB I-80 EBD	0	-7	150	-7	AG	2865	1.8	.0	10.0
I. WB I-80 EBL	-150	-5	0	0	AG	100	1.7	.0	10.0
J. WB I-80 WBA	150	7	0	7	AG	17	1.6	.0	10.0
K. WB I-80 WBD	0	7	-150	7	AG	118	1.1	.0	10.0
L. WB I-80 WBL	150	5	0	0	AG	474	1.8	.0	10.0
M. Frontag NBAX	9	-750	9	-150	AG	2861	1.0	.0	13.5
N. Frontag NBDX	9	150	9	750	AG	798	1.0	.0	10.0
O. Frontag SBAX	-7	750	-7	150	AG	1208	1.0	.0	10.0
P. Frontag SBDX	-7	-150	-7	-750	AG	1269	1.0	.0	10.0
Q. WB I-80 EBAX	-750	-7	-150	-7	AG	490	1.0	.0	10.0
R. WB I-80 EBDX	150	-7	750	-7	AG	2865	1.0	.0	10.0
S. WB I-80 WBAX	750	7	150	7	AG	491	1.0	.0	10.0
T. WB I-80 WBDX	-150	7	-750	7	AG	118	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum NP-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-14	1.8
2. NW	-14	14	1.8
3. SW	-14	-14	1.8
4. NE	15	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	15	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	17	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	15	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum NP-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	311.	.8	.3	.0	.0	.0	.0	.0	.0	.4
2. NW	131.	.5	.1	.0	.0	.0	.0	.0	.0	.2
3. SW	83.	.9	.2	.0	.0	.0	.0	.0	.0	.5
4. NE	186.	.8	.5	.0	.0	.0	.0	.0	.0	.2
5. ES mdblk	280.	.7	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	96.	.3	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	87.	.3	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	253.	.4	.0	.0	.0	.0	.0	.0	.0	.2
9. SE mdblk	351.	.7	.6	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	.5	.0	.0	.0	.2	.0	.0	.0	.0
11. SW mdblk	14.	.5	.2	.0	.0	.0	.2	.0	.0	.0
12. NE mdblk	185.	.4	.0	.1	.0	.0	.0	.0	.0	.0
13. ES blk	277.	.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.1	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	87.	.2	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	262.	.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.5	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	8.	.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.3	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum NP-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
17. SE blk	.0	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum PP-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	7	-150	7	0	AG	381	1.6	.0	10.0
B. Hollis S NBD	7	0	7	150	AG	491	1.2	.0	10.0
C. Hollis S NBL	5	-150	0	0	AG	519	1.8	.0	10.0
D. Hollis S SBA	-7	150	-7	0	AG	702	1.8	.0	10.0
E. Hollis S SBD	-7	0	-7	-150	AG	598	1.7	.0	10.0
F. Hollis S SBL	-5	150	0	0	AG	116	1.7	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	981	1.4	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	986	1.0	.0	11.8
I. Powell S EBL	-150	-5	0	0	AG	143	1.7	.0	10.0
J. Powell S WBA	150	9	0	9	AG	684	1.3	.0	13.5
K. Powell S WBD	0	9	-150	9	AG	1513	1.0	.0	11.8
L. Powell S WBL	150	5	0	0	AG	62	1.7	.0	10.0
M. Hollis NBAX	7	-750	7	-150	AG	900	1.0	.0	10.0
N. Hollis NBDX	7	150	7	750	AG	491	1.0	.0	10.0
O. Hollis SBAX	-7	750	-7	150	AG	818	1.0	.0	10.0
P. Hollis SBDX	-7	-150	-7	-750	AG	598	1.0	.0	10.0
Q. Powell EBAX	-750	-9	-150	-9	AG	1124	1.0	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	986	1.0	.0	11.8
S. Powell WBAX	750	9	150	9	AG	746	1.0	.0	13.5
T. Powell WBDX	-150	9	-750	9	AG	1513	1.0	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum PP-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-16	1.8
2. NW	-14	16	1.8
3. SW	-14	-17	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum PP-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	.4	.0	.0	.0	.0	.0	.0	.2	.0
2. NW	170.	.4	.0	.0	.0	.0	.1	.0	.0	.0
3. SW	8.	.4	.0	.0	.0	.1	.0	.0	.0	.0
4. NE	262.	.4	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	276.	.3	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	99.	.4	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	81.	.3	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	263.	.3	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	351.	.3	.0	.0	.1	.0	.0	.0	.0	.0
10. NW mdblk	173.	.3	.0	.0	.0	.2	.0	.0	.0	.0
11. SW mdblk	8.	.3	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	187.	.3	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	276.	.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.2	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.2	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum PP-01 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
17. SE blk	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum PP-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Doyle St NBA	2	-150	2	0	AG	41	1.6	.0	10.0
B. Doyle St NBD	2	0	2	150	AG	76	1.1	.0	10.0
C. Doyle St NBL	2	-150	0	0	AG	0	1.0	.0	10.0
D. Doyle St SBA	-2	150	-2	0	AG	97	1.6	.0	10.0
E. Doyle St SBD	-2	0	-2	-150	AG	75	1.1	.0	10.0
F. Doyle St SBL	-2	150	0	0	AG	45	1.7	.0	10.0
G. Powell S EBA	-150	-4	0	-4	AG	857	1.3	.0	11.8
H. Powell S EBD	0	-4	150	-4	AG	924	1.0	.0	10.0
I. Powell S EBL	-150	-2	0	0	AG	46	1.7	.0	10.0
J. Powell S WBA	150	4	0	4	AG	713	1.3	.0	11.8
K. Powell S WBD	0	4	-150	4	AG	761	1.0	.0	10.0
L. Powell S WBL	150	2	0	0	AG	37	1.7	.0	10.0
M. Doyle S NBAX	2	-750	2	-150	AG	41	1.0	.0	10.0
N. Doyle S NBDX	2	150	2	750	AG	76	1.0	.0	10.0
O. Doyle S SBAX	-2	750	-2	150	AG	142	1.0	.0	10.0
P. Doyle S SBDX	-2	-150	-2	-750	AG	75	1.0	.0	10.0
Q. Powell EBAX	-750	-4	-150	-4	AG	903	1.0	.0	11.8
R. Powell EBDX	150	-4	750	-4	AG	924	1.0	.0	10.0
S. Powell WBAX	750	4	150	4	AG	750	1.0	.0	11.8
T. Powell WBDX	-150	4	-750	4	AG	761	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum PP-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	8	-10	1.8
2. NW	-8	10	1.8
3. SW	-8	-11	1.8
4. NE	8	11	1.8
5. ES mdblk	150	-10	1.8
6. WN mdblk	-150	10	1.8
7. WS mdblk	-150	-11	1.8
8. EN mdblk	150	11	1.8
9. SE mdblk	8	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	8	150	1.8
13. ES blk	600	-10	1.8
14. WN blk	-600	10	1.8
15. WS blk	-600	-11	1.8
16. EN blk	600	11	1.8
17. SE blk	8	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	8	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum PP-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	276.	.3	.0	.0	.0	.0	.0	.0	.1	.0
2. NW	96.	.3	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	277.	.3	.0	.0	.0	.0	.0	.0	.1	.0
4. NE	262.	.2	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	277.	.3	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	97.	.3	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	83.	.3	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	263.	.3	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	356.	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	173.	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	4.	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	187.	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	276.	.2	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.2	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.2	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.2	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	356.	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	175.	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	3.	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum PP-02 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum PP-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	4	-150	4	0	AG	824	1.4	.0	11.8
B. Hollis S NBD	4	0	4	150	AG	959	1.1	.0	10.0
C. Hollis S NBL	2	-150	0	0	AG	22	1.7	.0	10.0
D. Hollis S SBA	-5	150	-5	0	AG	623	1.4	.0	11.8
E. Hollis S SBD	-5	0	-5	-150	AG	693	1.1	.0	10.0
F. Hollis S SBL	-2	150	0	0	AG	10	1.7	.0	10.0
G. Stanford EBA	-150	-7	0	-7	AG	130	1.6	.0	10.0
H. Stanford EBD	0	-7	150	-7	AG	125	1.1	.0	10.0
I. Stanford EBL	-150	-5	0	0	AG	152	1.7	.0	10.0
J. Stanford WBA	150	7	0	7	AG	49	1.6	.0	10.0
K. Stanford WBD	0	7	-150	7	AG	63	1.1	.0	10.0
L. Stanford WBL	150	5	0	0	AG	30	1.7	.0	10.0
M. Hollis NBAX	4	-750	4	-150	AG	846	1.0	.0	11.8
N. Hollis NBDX	4	150	4	750	AG	959	1.0	.0	10.0
O. Hollis SBAX	-5	750	-5	150	AG	633	1.0	.0	11.8
P. Hollis SBDX	-5	-150	-5	-750	AG	693	1.0	.0	10.0
Q. Stanfor EBAX	-750	-7	-150	-7	AG	282	1.0	.0	10.0
R. Stanfor EBDX	150	-7	750	-7	AG	125	1.0	.0	10.0
S. Stanfor WBAX	750	7	150	7	AG	79	1.0	.0	10.0
T. Stanfor WBDX	-150	7	-750	7	AG	63	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum PP-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	11	-14	1.8
2. NW	-13	14	1.8
3. SW	-12	-14	1.8
4. NE	10	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	11	-150	1.8
10. NW mdblk	-13	150	1.8
11. SW mdblk	-12	-150	1.8
12. NE mdblk	10	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	11	-600	1.8
18. NW blk	-13	600	1.8
19. SW blk	-12	-600	1.8
20. NE blk	10	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum PP-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	352.	.3	.0	.1	.0	.0	.0	.0	.0	.0
2. NW	172.	.2	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	7.	.3	.0	.0	.0	.1	.0	.0	.0	.0
4. NE	187.	.3	.1	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	275.	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	98.	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	82.	.1	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	264.	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	353.	.3	.2	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	173.	.2	.0	.0	.0	.1	.0	.0	.0	.0
11. SW mdblk	7.	.2	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	187.	.3	.0	.1	.0	.0	.0	.0	.0	.0
13. ES blk	275.	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	85.	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	265.	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.2	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum PP-03 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum PP-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Doyle St NBA	2	-150	2	0	AG	31	1.3	.0	10.0
B. Doyle St NBD	2	0	2	150	AG	57	1.0	.0	10.0
C. Doyle St NBL	2	-150	0	0	AG	18	1.7	.0	10.0
D. Doyle St SBA	-2	150	-2	0	AG	60	1.3	.0	10.0
E. Doyle St SBD	-2	0	-2	-150	AG	59	1.0	.0	10.0
F. Doyle St SBL	-2	150	0	0	AG	6	1.7	.0	10.0
G. Stanford EBA	-150	-2	0	-2	AG	127	1.6	.0	10.0
H. Stanford EBD	0	-2	150	-2	AG	103	1.1	.0	10.0
I. Stanford EBL	-150	-2	0	0	AG	29	1.7	.0	10.0
J. Stanford WBA	150	0	0	0	AG	0	1.0	.0	10.0
K. Stanford WBD	0	0	-150	0	AG	52	1.1	.0	10.0
L. Stanford WBL	150	2	0	0	AG	0	1.0	.0	10.0
M. Doyle S NBAX	2	-750	2	-150	AG	49	1.0	.0	10.0
N. Doyle S NBDX	2	150	2	750	AG	57	1.0	.0	10.0
O. Doyle S SBAX	-2	750	-2	150	AG	66	1.0	.0	10.0
P. Doyle S SBDX	-2	-150	-2	-750	AG	59	1.0	.0	10.0
Q. Stanfor EBAX	-750	-2	-150	-2	AG	156	1.0	.0	10.0
R. Stanfor EBDX	150	-2	750	-2	AG	103	1.0	.0	10.0
S. Stanfor WBAX	750	0	150	0	AG	0	1.0	.0	10.0
T. Stanfor WBDX	-150	0	-750	0	AG	52	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum PP-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	8	-8	1.8
2. NW	-8	7	1.8
3. SW	-8	-8	1.8
4. NE	8	7	1.8
5. ES mdblk	150	-8	1.8
6. WN mdblk	-150	7	1.8
7. WS mdblk	-150	-8	1.8
8. EN mdblk	150	7	1.8
9. SE mdblk	8	-150	1.8
10. NW mdblk	-8	150	1.8
11. SW mdblk	-8	-150	1.8
12. NE mdblk	8	150	1.8
13. ES blk	600	-8	1.8
14. WN blk	-600	7	1.8
15. WS blk	-600	-8	1.8
16. EN blk	600	7	1.8
17. SE blk	8	-600	1.8
18. NW blk	-8	600	1.8
19. SW blk	-8	-600	1.8
20. NE blk	8	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum PP-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	276.	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	264.	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	276.	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	264.	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	273.	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	98.	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	83.	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	267.	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	355.	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	175.	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	4.	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	186.	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	273.	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	95.	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	85.	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	266.	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	355.	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	176.	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	3.	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum PP-04 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum PP-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. San Pabl NBA	9	-150	9	0	AG	1945	1.7	.0	13.5
B. San Pabl NBD	9	0	9	150	AG	1960	1.1	.0	11.8
C. San Pabl NBL	5	-150	0	0	AG	242	1.8	.0	10.0
D. San Pabl SBA	-9	150	-9	0	AG	1734	1.6	.0	13.5
E. San Pabl SBD	-9	0	-9	-150	AG	1815	1.1	.0	11.8
F. San Pabl SBL	-5	150	0	0	AG	237	1.8	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	797	1.4	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	1094	1.0	.0	11.8
I. Powell S EBL	-150	-5	0	0	AG	133	1.7	.0	10.0
J. Powell S WBA	150	9	0	9	AG	506	1.4	.0	13.5
K. Powell S WBD	0	9	-150	9	AG	825	1.0	.0	11.8
L. Powell S WBL	150	5	0	0	AG	100	1.7	.0	10.0
M. San Pab NBAX	9	-750	9	-150	AG	2187	1.0	.0	13.5
N. San Pab NBDX	9	150	9	750	AG	1960	1.0	.0	11.8
O. San Pab SBAX	-9	750	-9	150	AG	1971	1.0	.0	13.5
P. San Pab SBDX	-9	-150	-9	-750	AG	1815	1.0	.0	11.8
Q. Powell EBAX	-750	-9	-150	-9	AG	930	1.0	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	1094	1.0	.0	11.8
S. Powell WBAX	750	9	150	9	AG	606	1.0	.0	13.5
T. Powell WBDX	-150	9	-750	9	AG	825	1.0	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum PP-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-16	1.8
2. NW	-17	16	1.8
3. SW	-16	-17	1.8
4. NE	16	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-17	150	1.8
11. SW mdblk	-16	-150	1.8
12. NE mdblk	16	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	17	-600	1.8
18. NW blk	-17	600	1.8
19. SW blk	-16	-600	1.8
20. NE blk	16	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum PP-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	349.	.6	.1	.2	.0	.0	.0	.0	.0	.0
2. NW	169.	.6	.1	.0	.0	.0	.2	.0	.0	.0
3. SW	8.	.6	.0	.0	.0	.3	.0	.0	.0	.0
4. NE	188.	.6	.3	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	277.	.3	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	98.	.3	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	82.	.3	.0	.0	.0	.0	.0	.0	.1	.0
8. EN mdblk	262.	.3	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	351.	.6	.4	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	.6	.0	.0	.0	.3	.0	.0	.0	.0
11. SW mdblk	8.	.5	.0	.0	.0	.0	.3	.0	.0	.0
12. NE mdblk	188.	.5	.0	.3	.0	.0	.0	.0	.0	.0
13. ES blk	276.	.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.2	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.4	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum PP-05 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.1	.0	.0	.3	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum PP-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Hollis S NBA	7	-150	7	0	AG	397	1.7	.0	10.0
B. Hollis S NBD	7	0	7	150	AG	521	1.7	.0	10.0
C. Hollis S NBL	5	-150	0	0	AG	123	1.7	.0	10.0
D. Hollis S SBA	-7	150	-7	0	AG	465	1.6	.0	10.0
E. Hollis S SBD	-7	0	-7	-150	AG	729	1.2	.0	10.0
F. Hollis S SBL	-5	150	0	0	AG	177	1.7	.0	10.0
G. 40th Str EBA	-150	-9	0	-9	AG	1006	1.4	.0	13.5
H. 40th Str EBD	0	-9	150	-9	AG	1210	1.1	.0	11.8
I. 40th Str EBL	-150	-5	0	0	AG	56	1.7	.0	10.0
J. 40th Str WBA	150	9	0	9	AG	965	1.4	.0	13.5
K. 40th Str WBD	0	9	-150	9	AG	912	1.1	.0	11.8
L. 40th Str WBL	150	5	0	0	AG	183	1.7	.0	10.0
M. Hollis NBAX	7	-750	7	-150	AG	520	1.0	.0	10.0
N. Hollis NBDX	7	150	7	750	AG	521	1.0	.0	10.0
O. Hollis SBAX	-7	750	-7	150	AG	642	1.0	.0	10.0
P. Hollis SBDX	-7	-150	-7	-750	AG	729	1.0	.0	10.0
Q. 40th St EBAX	-750	-9	-150	-9	AG	1062	1.0	.0	13.5
R. 40th St EBDX	150	-9	750	-9	AG	1210	1.0	.0	11.8
S. 40th St WBAX	750	9	150	9	AG	1148	1.0	.0	13.5
T. 40th St WBDX	-150	9	-750	9	AG	912	1.0	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum PP-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-16	1.8
2. NW	-14	16	1.8
3. SW	-14	-17	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	14	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum PP-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	.4	.0	.0	.0	.0	.0	.0	.2	.0
2. NW	98.	.4	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	81.	.4	.0	.0	.0	.0	.0	.0	.0	.1
4. NE	260.	.3	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	278.	.3	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	97.	.3	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	82.	.3	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	262.	.3	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	353.	.3	.1	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	.3	.0	.0	.0	.1	.0	.0	.0	.0
11. SW mdblk	7.	.3	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	187.	.3	.0	.1	.0	.0	.0	.0	.0	.0
13. ES blk	277.	.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	84.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.2	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.2	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum PP-06 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum PP-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Seventh NBA	9	-150	9	0	AG	781	1.6	.0	13.5
B. Seventh NBD	9	0	9	150	AG	969	1.2	.0	11.8
C. Seventh NBL	5	-150	0	0	AG	315	1.8	.0	10.0
D. Seventh SBA	-7	150	-7	0	AG	1180	1.8	.0	10.0
E. Seventh SBD	-7	0	-7	-150	AG	715	1.8	.0	10.0
F. Seventh SBL	-5	150	0	0	AG	198	1.7	.0	10.0
G. Ashby Av EBA	-150	-9	0	-9	AG	969	1.4	.0	13.5
H. Ashby Av EBD	0	-9	150	-9	AG	1118	1.0	.0	11.8
I. Ashby Av EBL	-150	-5	0	0	AG	297	1.8	.0	10.0
J. Ashby Av WBA	150	9	0	9	AG	1083	1.4	.0	13.5
K. Ashby Av WBD	0	9	-150	9	AG	2130	1.1	.0	11.8
L. Ashby Av WBL	150	5	0	0	AG	109	1.7	.0	10.0
M. Seventh NBAX	9	-750	9	-150	AG	1096	1.0	.0	13.5
N. Seventh NBDX	9	150	9	750	AG	969	1.0	.0	11.8
O. Seventh SBAX	-7	750	-7	150	AG	1378	1.0	.0	10.0
P. Seventh SBDX	-7	-150	-7	-750	AG	715	1.0	.0	10.0
Q. Ashby A EBAX	-750	-9	-150	-9	AG	1266	1.0	.0	13.5
R. Ashby A EBDX	150	-9	750	-9	AG	1118	1.0	.0	11.8
S. Ashby A WBAX	750	9	150	9	AG	1192	1.0	.0	13.5
T. Ashby A WBDX	-150	9	-750	9	AG	2130	1.0	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum PP-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-16	1.8
2. NW	-14	16	1.8
3. SW	-14	-17	1.8
4. NE	16	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	16	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	16	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	16	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	17	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	16	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum PP-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	.5	.0	.0	.0	.0	.0	.0	.1	.0
2. NW	169.	.6	.0	.0	.0	.0	.1	.0	.0	.0
3. SW	8.	.6	.0	.0	.0	.2	.0	.0	.0	.0
4. NE	261.	.6	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	277.	.4	.0	.0	.0	.0	.0	.0	.0	.1
6. WN mdblk	99.	.5	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	81.	.4	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	263.	.4	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	352.	.4	.2	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	.5	.0	.0	.0	.3	.0	.0	.0	.0
11. SW mdblk	7.	.4	.0	.0	.0	.0	.2	.0	.0	.0
12. NE mdblk	189.	.4	.0	.2	.0	.0	.0	.0	.0	.0
13. ES blk	277.	.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.4	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	354.	.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.3	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum PP-07 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. SE blk	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum PP-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	91. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	10.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Christie NBA	9	-150	9	0	AG	296	1.6	.0	11.8
B. Christie NBD	9	0	9	150	AG	731	1.2	.0	10.0
C. Christie NBL	5	-150	0	0	AG	334	1.7	.0	10.0
D. Christie SBA	-7	150	-7	0	AG	1845	1.8	.0	15.3
E. Christie SBD	-7	0	-7	-150	AG	1692	1.8	.0	10.0
F. Christie SBL	-2	150	0	0	AG	312	1.8	.0	10.0
G. Powell S EBA	-150	-14	0	-14	AG	1663	1.4	.0	17.0
H. Powell S EBD	0	-14	150	-14	AG	1256	1.0	.0	11.8
I. Powell S EBL	-150	-9	0	0	AG	468	1.8	.0	10.0
J. Powell S WBA	150	9	0	9	AG	1126	1.4	.0	13.5
K. Powell S WBD	0	9	-150	9	AG	2685	1.3	.0	10.0
L. Powell S WBL	150	5	0	0	AG	320	1.8	.0	10.0
M. Christi NBAX	9	-750	9	-150	AG	630	1.0	.0	11.8
N. Christi NBDX	9	150	9	750	AG	731	1.0	.0	10.0
O. Christi SBAX	-7	750	-7	150	AG	2157	1.0	.0	15.3
P. Christi SBDX	-7	-150	-7	-750	AG	1692	1.0	.0	10.0
Q. Powell EBAX	-750	-14	-150	-14	AG	2131	1.0	.0	17.0
R. Powell EBDX	150	-14	750	-14	AG	1256	1.0	.0	11.8
S. Powell WBAX	750	9	150	9	AG	1446	1.0	.0	13.5
T. Powell WBDX	-150	9	-750	9	AG	2685	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum PP-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	16	-21	1.8
2. NW	-16	15	1.8
3. SW	-14	-24	1.8
4. NE	15	17	1.8
5. ES mdblk	150	-21	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-24	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	16	-150	1.8
10. NW mdblk	-16	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	15	150	1.8
13. ES blk	600	-21	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-24	1.8
16. EN blk	600	17	1.8
17. SE blk	16	-600	1.8
18. NW blk	-16	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	15	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum PP-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	278.	.6	.0	.0	.0	.0	.0	.0	.2	.0
2. NW	169.	.8	.0	.0	.0	.0	.3	.0	.0	.0
3. SW	7.	.8	.0	.0	.0	.3	.1	.0	.1	.0
4. NE	260.	.7	.0	.0	.0	.1	.0	.0	.0	.0
5. ES mdblk	278.	.4	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	100.	.6	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	78.	.5	.0	.0	.0	.0	.0	.0	.3	.0
8. EN mdblk	263.	.5	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	351.	.4	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	.6	.0	.0	.0	.4	.0	.0	.0	.0
11. SW mdblk	7.	.6	.0	.0	.0	.0	.4	.0	.0	.0
12. NE mdblk	190.	.4	.0	.1	.0	.1	.0	.0	.0	.0
13. ES blk	277.	.3	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	98.	.5	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	82.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	264.	.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.3	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	6.	.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.3	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum PP-08 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. SE blk	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum PP-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. EB I-80 NBA	7	-150	7	0	AG	1615	1.8	.0	11.8
B. EB I-80 NBD	7	0	7	150	AG	960	1.5	.0	10.0
C. EB I-80 NBL	5	-150	0	0	AG	940	1.8	.0	10.0
D. EB I-80 SBA	0	150	0	0	AG	0	1.0	.0	10.0
E. EB I-80 SBD	0	0	0	-150	AG	0	1.0	.0	10.0
F. EB I-80 SBL	-2	150	0	0	AG	0	1.0	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	1196	1.4	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	2534	1.2	.0	13.5
I. Powell S EBL	-150	-5	0	0	AG	174	1.7	.0	10.0
J. Powell S WBA	150	7	0	7	AG	2149	1.6	.0	17.0
K. Powell S WBD	0	7	-150	7	AG	2580	1.2	.0	13.5
L. Powell S WBL	150	2	0	0	AG	0	1.0	.0	10.0
M. EB I-80 NBAX	7	-750	7	-150	AG	2555	1.0	.0	11.8
N. EB I-80 NBDX	7	150	7	750	AG	960	1.0	.0	10.0
O. EB I-80 SBAX	0	750	0	150	AG	0	1.0	.0	10.0
P. EB I-80 SBDX	0	-150	0	-750	AG	0	1.0	.0	10.0
Q. Powell EBAX	-750	-9	-150	-9	AG	1370	1.0	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	2534	1.0	.0	13.5
S. Powell WBAX	750	7	150	7	AG	2149	1.0	.0	17.0
T. Powell WBDX	-150	7	-750	7	AG	2580	1.0	.0	13.5

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum PP-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	14	-17	1.8
2. NW	-7	15	1.8
3. SW	-7	-17	1.8
4. NE	14	17	1.8
5. ES mdblk	150	-17	1.8
6. WN mdblk	-150	15	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	14	-150	1.8
10. NW mdblk	-7	150	1.8
11. SW mdblk	-7	-150	1.8
12. NE mdblk	14	150	1.8
13. ES blk	600	-17	1.8
14. WN blk	-600	15	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	14	-600	1.8
18. NW blk	-7	600	1.8
19. SW blk	-7	-600	1.8
20. NE blk	14	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum PP-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	280.	.7	.2	.0	.0	.0	.0	.0	.2	.0
2. NW	171.	.7	.2	.0	.2	.0	.0	.0	.0	.0
3. SW	81.	.8	.1	.0	.1	.0	.0	.0	.0	.3
4. NE	187.	.8	.3	.0	.1	.0	.0	.0	.0	.0
5. ES mdblk	278.	.6	.0	.0	.0	.0	.0	.0	.0	.3
6. WN mdblk	98.	.6	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	83.	.5	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	261.	.6	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	350.	.6	.4	.0	.2	.0	.0	.0	.0	.0
10. NW mdblk	175.	.3	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	12.	.4	.2	.0	.1	.0	.0	.0	.0	.0
12. NE mdblk	185.	.4	.0	.2	.0	.0	.0	.0	.0	.0
13. ES blk	277.	.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	97.	.5	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.4	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	262.	.5	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.4	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	174.	.2	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	7.	.3	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	185.	.2	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum PP-09 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.1	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.1
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.3	.0
17. SE blk	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum PP-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Frontage NBA	0	-150	0	0	AG	0	1.0	.0	10.0
B. Frontage NBD	0	0	0	150	AG	1983	1.8	.0	10.0
C. Frontage NBL	2	-150	0	0	AG	0	1.0	.0	10.0
D. Frontage SBA	-9	150	-9	0	AG	355	1.6	.0	10.0
E. Frontage SBD	-9	0	-9	-150	AG	566	1.7	.0	10.0
F. Frontage SBL	-9	150	0	0	AG	1017	1.8	.0	10.0
G. Powell S EBA	-150	-9	0	-9	AG	1093	1.4	.0	13.5
H. Powell S EBD	0	-9	150	-9	AG	1544	1.0	.0	11.8
I. Powell S EBL	-150	-5	0	0	AG	171	1.7	.0	10.0
J. Powell S WBA	150	7	0	7	AG	2362	1.6	.0	17.0
K. Powell S WBD	0	7	-150	7	AG	905	1.0	.0	11.8
L. Powell S WBL	150	2	0	0	AG	0	1.0	.0	10.0
M. Frontag NBAX	0	-750	0	-150	AG	0	1.0	.0	10.0
N. Frontag NBDX	0	150	0	750	AG	1983	1.0	.0	10.0
O. Frontag SBAX	-9	750	-9	150	AG	1372	1.0	.0	10.0
P. Frontag SBDX	-9	-150	-9	-750	AG	566	1.0	.0	10.0
Q. Powell EBAX	-750	-9	-150	-9	AG	1264	1.0	.0	13.5
R. Powell EBDX	150	-9	750	-9	AG	1544	1.0	.0	11.8
S. Powell WBAX	750	7	150	7	AG	2362	1.0	.0	17.0
T. Powell WBDX	-150	7	-750	7	AG	905	1.0	.0	11.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum PP-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	7	-16	1.8
2. NW	-15	14	1.8
3. SW	-15	-17	1.8
4. NE	7	17	1.8
5. ES mdblk	150	-16	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-17	1.8
8. EN mdblk	150	17	1.8
9. SE mdblk	7	-150	1.8
10. NW mdblk	-15	150	1.8
11. SW mdblk	-15	-150	1.8
12. NE mdblk	7	150	1.8
13. ES blk	600	-16	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-17	1.8
16. EN blk	600	17	1.8
17. SE blk	7	-600	1.8
18. NW blk	-15	600	1.8
19. SW blk	-15	-600	1.8
20. NE blk	7	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum PP-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	353.	.9	.0	.3	.0	.0	.0	.2	.0	.0
2. NW	96.	.8	.0	.1	.0	.0	.0	.0	.0	.0
3. SW	10.	.6	.0	.2	.0	.0	.0	.1	.0	.0
4. NE	350.	.7	.0	.4	.0	.0	.0	.2	.0	.0
5. ES mdblk	283.	.5	.0	.0	.0	.0	.0	.0	.0	.2
6. WN mdblk	95.	.4	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	82.	.4	.0	.0	.0	.0	.0	.0	.2	.0
8. EN mdblk	262.	.6	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	357.	.3	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	167.	.6	.0	.2	.0	.0	.0	.3	.0	.0
11. SW mdblk	5.	.4	.0	.0	.0	.0	.1	.0	.0	.0
12. NE mdblk	190.	.7	.0	.5	.0	.0	.0	.1	.0	.0
13. ES blk	278.	.4	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.3	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	83.	.3	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	263.	.4	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	357.	.1	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	.4	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	5.	.2	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	187.	.4	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum PP-10 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.1	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	.0
17. SE blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.1	.2	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Papermill
RUN: Cum PP-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 91. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 10. DEGREES TEMP= 10.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Frontage NBA	9	-150	9	0	AG	2814	1.7	.0	13.5
B. Frontage NBD	9	0	9	150	AG	798	1.1	.0	10.0
C. Frontage NBL	5	-150	0	0	AG	33	1.7	.0	10.0
D. Frontage SBA	-7	150	-7	0	AG	768	1.4	.0	10.0
E. Frontage SBD	-7	0	-7	-150	AG	1280	1.1	.0	10.0
F. Frontage SBL	-5	150	0	0	AG	440	1.8	.0	10.0
G. WB I-80 EBA	-150	-7	0	-7	AG	390	1.7	.0	10.0
H. WB I-80 EBD	0	-7	150	-7	AG	2851	1.8	.0	10.0
I. WB I-80 EBL	-150	-5	0	0	AG	100	1.7	.0	10.0
J. WB I-80 WBA	150	7	0	7	AG	17	1.6	.0	10.0
K. WB I-80 WBD	0	7	-150	7	AG	118	1.1	.0	10.0
L. WB I-80 WBL	150	5	0	0	AG	485	1.8	.0	10.0
M. Frontag NBAX	9	-750	9	-150	AG	2847	1.0	.0	13.5
N. Frontag NBDX	9	150	9	750	AG	798	1.0	.0	10.0
O. Frontag SBAX	-7	750	-7	150	AG	1208	1.0	.0	10.0
P. Frontag SBDX	-7	-150	-7	-750	AG	1280	1.0	.0	10.0
Q. WB I-80 EBAX	-750	-7	-150	-7	AG	490	1.0	.0	10.0
R. WB I-80 EBDX	150	-7	750	-7	AG	2851	1.0	.0	10.0
S. WB I-80 WBAX	750	7	150	7	AG	502	1.0	.0	10.0
T. WB I-80 WBDX	-150	7	-750	7	AG	118	1.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Papermill
RUN: Cum PP-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. SE	17	-14	1.8
2. NW	-14	14	1.8
3. SW	-14	-14	1.8
4. NE	15	14	1.8
5. ES mdblk	150	-14	1.8
6. WN mdblk	-150	14	1.8
7. WS mdblk	-150	-14	1.8
8. EN mdblk	150	14	1.8
9. SE mdblk	17	-150	1.8
10. NW mdblk	-14	150	1.8
11. SW mdblk	-14	-150	1.8
12. NE mdblk	15	150	1.8
13. ES blk	600	-14	1.8
14. WN blk	-600	14	1.8
15. WS blk	-600	-14	1.8
16. EN blk	600	14	1.8
17. SE blk	17	-600	1.8
18. NW blk	-14	600	1.8
19. SW blk	-14	-600	1.8
20. NE blk	15	600	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Papermill
RUN: Cum PP-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. SE	311.	.8	.3	.0	.0	.0	.0	.0	.0	.4
2. NW	131.	.5	.1	.0	.0	.0	.0	.0	.0	.2
3. SW	83.	.9	.2	.0	.0	.0	.0	.0	.0	.5
4. NE	186.	.8	.5	.0	.0	.0	.0	.0	.0	.2
5. ES mdblk	280.	.7	.0	.0	.0	.0	.0	.0	.0	.6
6. WN mdblk	96.	.3	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	87.	.3	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	253.	.4	.0	.0	.0	.0	.0	.0	.0	.2
9. SE mdblk	351.	.7	.5	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	172.	.5	.0	.0	.0	.2	.0	.0	.0	.0
11. SW mdblk	14.	.5	.2	.0	.0	.0	.2	.0	.0	.0
12. NE mdblk	185.	.4	.0	.1	.0	.0	.0	.0	.0	.0
13. ES blk	277.	.5	.0	.0	.0	.0	.0	.0	.0	.0
14. WN blk	96.	.1	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	87.	.2	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	262.	.3	.0	.0	.0	.0	.0	.0	.0	.0
17. SE blk	353.	.5	.0	.0	.0	.0	.0	.0	.0	.0
18. NW blk	173.	.3	.0	.0	.0	.0	.0	.0	.0	.0
19. SW blk	8.	.4	.0	.0	.0	.0	.0	.0	.0	.0
20. NE blk	186.	.3	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Papermill
RUN: Cum PP-11 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. ES mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. WN mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. WS mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. EN mdblk	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. SE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. NW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. SW mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. NE mdblk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. ES blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0
14. WN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. WS blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. EN blk	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
17. SE blk	.0	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0
18. NW blk	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
19. SW blk	.0	.0	.0	.0	.1	.0	.0	.2	.0	.0	.0	.0
20. NE blk	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

BASELINE CONDITIONS
GREENHOUSE GAS EMISSIONS WORKSHEET

Greenhouse Gas Emissions Worksheet

Project Parameters	
	2009
Vehicles (trips/day)	807
(MWh/year)	1,300
(cf/day)	3,000

	Emissions (tons per year)				
Emission Source	CO_2	CH_4	N_2O	CO_2e	
Vehicles	1,100	0.076	0.12	1,100	69%
Electricity Production	400	0.0044	0.0024	400	25%
Natural Gas Combustion	66	0.0013	0.0012	66	4%
Total Annual Emissions	1,600	0.082	0.12	1,600	

Note: Numbers in table may not appear to add up correctly due to rounding of all numbers to two significant digits.

Emission Source	Total CO_2e (Tg per year)
Vehicles	0.001
Electricity Production	0.00036
Natural Gas Combustion	0.00006
Total (CO_2e)	0.0014
% of Bay Area* 2002 total	0.0018%
% of State 2004 total	0.00028%

1.1025 tons/metric tonne
1,000,000 metric tonne/Tg

Comparison Area GHG Usage			Year of data
Bay Area*	77.47	Tg/year	2002
State	492	Tg/year	2004

Global warming potentials (GWPs) are used to compare the abilities of different GHGs to trap heat in the atmosphere. GWPs are based on the radiative efficiency (heat-absorbing ability) of each gas relative to that of CO_2, as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years) relative to that of CO_2. The GWP provides a construct for converting emissions of various gases into a common measure, which allows climate analysts to aggregate the radiative impacts of various GHGs into a uniform measure denominated in carbon or CO_2 equivalents. The generally accepted authority on GWPs is the Intergovernmental Panel on Climate Change (IPCC). In 2001, the IPCC updated its estimates of GWPs for key GHGs. The table below lists the GWPs to calculate carbon dioxide equivalents (CO2e.)

Global Warming Potential

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)
Carbon Dioxide	50-200	1
Methane	12 ± 3	21
Nitrous Oxide	120	310
HFC-23	264	11700
HFC-134a	14.6	1300
HFC-152a	1.5	140
PFC: Tetrafluoromethane (CF_4)	50000	6500
PFC: Hexafluoromethane (C_2F_6)	10000	9200
Sulfur Hexafluoride (SF_6)	3200	23900

Electricity Emissions Worksheet

Commercial Electricity Usage (2003 data):

Commercial Building Type	Electricity Consumption per Building by Building Type	Electricity Consumption per Square Foot by Building Type	Project Info (either # of bldgs or total sf, not both)		Annual Electricity Consumption
	thousand kWH	kWh	# of bldgs	total sf	MWh
All Commercial	202	14.1			
Retail (Other than Mall)	139	14.3			
Education	283	11			
Food Sales	276	49.4			
Food Service	213	38.4			
Health Care (All)	564	22.9			
Inpatient Health	6,628	27.5			
Outpatient Health	168	16.1			
Lodging	483	13.5			
Office	256	17.3		45,416	786
Other	510	22.5			
Public Assembly	179	12.5			
Public Order and Safety	237	15.3			
Religious Worship	49	4.9			
Service	73	11			
Vacant	42	2.4			
Warehouse and Storage	154	7.6		66,337	504

Note: Health Care (All) includes both "Inpatient Health" and "Outpatient Health".

Source: Energy Information Administration, www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/detailed_tables_2003.html, Table C14.

Residential Energy Usage (2001 data):

	Mountain	Pacific	Total US.	Project Info # of units	Annual Consumption MWh
Electricity (kWh)	9,926	7,622	10,656		

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-457 A-G of the 2001 Residential Energy Consumption Survey.

	CO_2			CH_4	N_2O
Electricity production emission factors for CA	lb/kWh 0.61	short tons/MWh 0.303	tons/MWh 0.275	lb/MWh 0.0067	lb/MWh 0.0037
U.S. Average	1.34	0.668	0.606	0.0111	0.0192

Source: Energy Information Administration, Updated State-and Regional-level Greenhouse Gas Emission Factors for Electricity (March 2002), http://www.eia.doe.gov/pub/oiaf/1605/cdrom/pdf/e-supdoc.pdf. (http://www.eia.doe.gov/oiaf/1605/ee-factors.html accessed 4/14/2008)

Natural Gas Emissions Worksheet

Commercial Natural Gas Usage (2003 data):

Commercial Building Type	Natural Gas Consumption per Building by Building Type	Natural Gas Consumption per Square Foot by Building Type	Project Info (enter values on Electricity worksheet)		Annual Natural Gas Consumption
	thousand cf	cf	# of bldgs	total sf	thousand cf
All Commercial	782	43			
Retail (Other than Mall)	362	30.9			
Education	1223	36.9			
Food Sales	383	50.2			
Food Service	870	141.2			
Health Care (All)	3283	92.5			
Inpatient Health	28,222	109.8			
Outpatient Health	574	50.2			
Lodging	2432	48.9			
Office	535	31.8		45416	1,444
Other	1885	67.6			
Public Assembly	678	36.4			
Public Order and Safety	771	43.7			
Religious Worship	362	30.3			
Service	481	54.1			
Vacant	557	23			
Warehouse and Storage	687	23.4		66337	1,552

Note: Health Care (All) includes both "Inpatient Health" and "Outpatient Health".

Source: Energy Information Administration, www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/detailed_tables_2003.html, Table C24.

Residential Energy Usage (2001 data):

	Mountain	Pacific	Total US.	Project Info # of units	Annual Consumption thousand cf
Natural Gas (thousand cf/year)	67	48	70		

Source: Table CE1-12c. Total Energy Consumption in U.S. Households by West Census Region, 2001 (http://www.eia.doe.gov/emeu/recs/recs2

	CO_2	CH_4	N_2O
Natural gas combustion	lb/10^6 scf	lb/10^6 scf	lb/10^6 scf
	120,000	2.3	2.2

Source: EPA AP-42 Vol I Chapter 1.4, Table 1.4-2

PLUS PROJECT CONDITIONS
GREENHOUSE GAS EMISSIONS WORKSHEET

Greenhouse Gas Emissions Worksheet

Project Parameters	
	2009
Vehicles (trips/day)	1,666
(MWh/year)	1,500
(cf/day)	8,800

	Emissions (tons per year)				
Emission Source	CO_2	CH_4	N_2O	CO_2e	
Vehicles	2,200	0.16	0.24	2,300	77%
Electricity Production	460	0.005	0.0028	460	15%
Natural Gas Combustion	190	0.0037	0.0035	190	6%
Total Annual Emissions	2,900	0.17	0.25	3,000	

Note: Numbers in table may not appear to add up correctly due to rounding of all numbers to two significant digits.

Emission Source	Total CO_2e (Tg per year)
Vehicles	0.0021
Electricity Production	0.00042
Natural Gas Combustion	0.00017
Total (CO_2e)	0.0027
% of Bay Area* 2002 total	0.0035%
% of State 2004 total	0.00055%

1.1025 tons/metric tonne
1,000,000 metric tonne/Tg

Comparison Area GHG Usage			Year of data
Bay Area*	77.47	Tg/year	2002
State	492	Tg/year	2004

Global warming potentials (GWPs) are used to compare the abilities of different GHGs to trap heat in the atmosphere. GWPs are based on the radiative efficiency (heat-absorbing ability) of each gas relative to that of CO_2, as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years) relative to that of CO_2. The GWP provides a construct for converting emissions of various gases into a common measure, which allows climate analysts to aggregate the radiative impacts of various GHGs into a uniform measure denominated in carbon or CO_2 equivalents. The generally accepted authority on GWPs is the Intergovernmental Panel on Climate Change (IPCC). In 2001, the IPCC updated its estimates of GWPs for key GHGs. The table below lists the GWPs to calculate carbon dioxide equivalents (CO2e.)

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Nitrous Oxide	120	310
HFC-23	264	11700
HFC-134a	14.6	1300
HFC-152a	1.5	140
PFC: Tetrafluoromethane (CF_4)	50000	6500
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	thousand kWH	kWh	# of bldgs	total sf	MWh
All Commercial	202	14.1			
Retail (Other than Mall)	139	14.3		10,516	150
Education	283	11			
Food Sales	276	49.4			
Food Service	213	38.4			
Health Care (All)	564	22.9			
Inpatient Health	6,628	27.5			
Outpatient Health	168	16.1			
Lodging	483	13.5			
Office	256	17.3			
Other	510	22.5			
Public Assembly	179	12.5			
Public Order and Safety	237	15.3			
Religious Worship	49	4.9			
Service	73	11			
Vacant	42	2.4			
Warehouse and Storage	154	7.6			

Note: Health Care (All) includes both "Inpatient Health" and "Outpatient Health".

Source: Energy Information Administration, www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/detailed_tables_2003.html, Table C14.

Residential Energy Usage (2001 data):

	Mountain	Pacific	Total US.	Project Info # of units	Annual Consumption MWh
Electricity (kWh)	9,926	7,622	10,656	177	1,349

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-457 A-G of the 2001 Residential Energy Consumption Survey.

	CO_2			CH_4	N_2O
Electricity production emission factors for CA	lb/kWh 0.61	short tons/MWh 0.303	tons/MWh 0.275	lb/MWh 0.0067	lb/MWh 0.0037
U.S. Average	1.34	0.668	0.606	0.0111	0.0192

Source: Energy Information Administration, Updated State-and Regional-level Greenhouse Gas Emission Factors for Electricity (March 2002), http://www.eia.doe.gov/pub/oiaf/1605/cdrom/pdf/e-supdoc.pdf. (http://www.eia.doe.gov/oiaf/1605/ee-factors.html accessed 4/14/2008)

Natural Gas Emissions Worksheet

Commercial Natural Gas Usage (2003 data):

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	thousand cf	cf	# of bldgs	total sf	thousand cf
All Commercial	782	43			
Retail (Other than Mall)	362	30.9		10516	325
Education	1223	36.9			
Food Sales	383	50.2			
Food Service	870	141.2			
Health Care (All)	3283	92.5			
Inpatient Health	28,222	109.8			
Outpatient Health	574	50.2			
Lodging	2432	48.9			
Office	535	31.8			
Other	1885	67.6			
Public Assembly	678	36.4			
Public Order and Safety	771	43.7			
Religious Worship	362	30.3			
Service	481	54.1			
Vacant	557	23			
Warehouse and Storage	687	23.4			

Note: Health Care (All) includes both "Inpatient Health" and "Outpatient Health".

Source: Energy Information Administration, www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/detailed_tables_2003.html, Table C24.

Residential Energy Usage (2001 data):

	Mountain	Pacific	Total US.	Project Info # of units	Annual Consumption thousand cf
Natural Gas (thousand cf/year)	67	48	70	177	8,496

Source: Table CE1-12c. Total Energy Consumption in U.S. Households by West Census Region, 2001 (http://www.eia.doe.gov/emeu/recs/recs2

	CO_2	CH_4	N_2O
Natural gas combustion	lb/10^6 scf	lb/10^6 scf	lb/10^6 scf
	120,000	2.3	2.2

Source: EPA AP-42 Vol I Chapter 1.4, Table 1.4-2

APPENDIX C

NOISE CALCULATIONS

TABLE Existing-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - I-80 EB Ramps to Christie Avenue
NOTES: Papermill - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33800 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 48 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
76.3	136.5	279.5	595.0

TABLE Existing-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - Christie Avenue to Hollis Street
NOTES: Papermill - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19800 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.62

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	92.8	194.7	416.8

TABLE Existing-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - Hollis Street to Doyle Street
NOTES: Papermill - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.82

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	72.2	148.6	316.9

TABLE Existing-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - Doyle Street to Stanford Avenue
NOTES: Papermill - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	71.6	147.2	313.7

TABLE Existing-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Hollis Street - 59th Street to Powell Street
NOTES: Papermill - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9100 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	93.2	200.3

TABLE Existing-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Hollis Street - Powell Street to Stanford Avenue
NOTES: Papermill - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10500 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	102.9	220.4

TABLE Existing-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Hollis Street - Stanford Avenue to 53rd Street
NOTES: Papermill - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10600 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.42

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	103.5	221.8

TABLE Existing-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Stanford Avenue - Hollis Street to Doyle Street
NOTES: Papermill - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1600 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.58

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	63.3

TABLE Existing-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Doyle Street - 59th Street to Powell Street
NOTES: Papermill - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1600 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.58

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	63.3

TABLE Existing-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Doyle Street - Powell Street to Stanford Avenue
NOTES: Papermill - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 900 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.09

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	0.0

TABLE Existing Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - I-80 EB Ramps to Christie Avenue
NOTES: Papermill - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 34000 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 48 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.65

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
76.5	137.0	280.6	597.4

TABLE Existing Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - Christie Avenue to Hollis Street
NOTES: Papermill - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 20000 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.66

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	93.4	196.0	419.6

TABLE Existing Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - Hollis Street to Doyle Street
NOTES: Papermill - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13400 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.92

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	73.2	150.8	321.7

TABLE Existing Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - Doyle Street to Stanford Avenue
NOTES: Papermill - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13000 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.79

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	71.9	147.9	315.3

TABLE Existing Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Hollis Street - 59th Street to Powell Street
NOTES: Papermill - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9100 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	93.2	200.3

TABLE Existing Plus Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Hollis Street - Powell Street to Stanford Avenue
NOTES: Papermill - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10200 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.25

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	100.9	216.2

TABLE Existing Plus Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Hollis Street - Stanford Avenue to 53rd Street
NOTES: Papermill - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10600 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.42

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	103.5	221.8

TABLE Existing Plus Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Stanford Avenue - Hollis Street to Doyle Street
NOTES: Papermill - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1600 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.58

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	63.3

TABLE Existing Plus Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Doyle Street - 59th Street to Powell Street
NOTES: Papermill - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1600 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.58

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	63.3

TABLE Existing Plus Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Doyle Street - Powell Street to Stanford Avenue
NOTES: Papermill - Existing Plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 900 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.09

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	0.0

TABLE Cumulative without Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - I-80 EB Ramps to Christie Avenue
NOTES: Papermill - Cumulative without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 48000 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 48 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
89.0	168.5	351.2	750.8

TABLE Cumulative without Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - Christie Avenue to Hollis Street
NOTES: Papermill - Cumulative without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.95

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
56.4	112.6	238.2	510.9

TABLE Cumulative without Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - Hollis Street to Doyle Street
NOTES: Papermill - Cumulative without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.98

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	84.8	176.8	378.2

TABLE Cumulative without Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - Doyle Street to Stanford Avenue
NOTES: Papermill - Cumulative without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16700 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.88

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	83.6	174.1	372.3

TABLE Cumulative without Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Hollis Street - 59th Street to Powell Street
NOTES: Papermill - Cumulative without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13100 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	55.6	118.7	255.2

TABLE Cumulative without Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Hollis Street - Powell Street to Stanford Avenue
NOTES: Papermill - Cumulative without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15000 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	61.3	130.1	279.3

TABLE Cumulative without Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Hollis Street - Stanford Avenue to 53rd Street
NOTES: Papermill - Cumulative without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15400 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.04

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	62.4	132.4	284.3

TABLE Cumulative without Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Stanford Avenue - Hollis Street to Doyle Street
NOTES: Papermill - Cumulative without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2100 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	75.7

TABLE Cumulative without Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Doyle Street - 59th Street to Powell Street
NOTES: Papermill - Cumulative without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2200 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.97

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	78.1

TABLE Cumulative without Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Doyle Street - Powell Street to Stanford Avenue
NOTES: Papermill - Cumulative without Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1800 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.10

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	68.4

TABLE Cumulative plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - I-80 EB Ramps to Christie Avenue
NOTES: Papermill - Cumulative plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 48200 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 48 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
89.2	168.9	352.1	752.9

TABLE Cumulative plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - Christie Avenue to Hollis Street
NOTES: Papermill - Cumulative plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.98

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
56.7	113.1	239.3	513.5

TABLE Cumulative plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - Hollis Street to Doyle Street
NOTES: Papermill - Cumulative plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17400 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.06

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	85.7	178.9	382.6

TABLE Cumulative plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Powell Street - Doyle Street to Stanford Avenue
NOTES: Papermill - Cumulative plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16800 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	83.9	174.8	373.7

TABLE Cumulative plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Hollis Street - 59th Street to Powell Street
NOTES: Papermill - Cumulative plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13100 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	55.6	118.7	255.2

TABLE Cumulative plus Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Hollis Street - Powell Street to Stanford Avenue
NOTES: Papermill - Cumulative plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15000 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	61.3	130.1	279.3

TABLE Cumulative plus Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Hollis Street - Stanford Avenue to 53rd Street
NOTES: Papermill - Cumulative plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15400 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.04

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	62.4	132.4	284.3

TABLE Cumulative plus Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Stanford Avenue - Hollis Street to Doyle Street
NOTES: Papermill - Cumulative plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2100 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	75.7

TABLE Cumulative plus Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Doyle Street - 59th Street to Powell Street
NOTES: Papermill - Cumulative plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2200 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.97

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	78.1

TABLE Cumulative plus Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 08/06/2008
ROADWAY SEGMENT: Doyle Street - Powell Street to Stanford Avenue
NOTES: Papermill - Cumulative plus Project

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1200 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	NIGHT
AUTOS	88.08	9.34
M-TRUCKS	1.65	0.19
H-TRUCKS	0.66	0.08

ACTIVE HALF-WIDTH (FT): 8 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

Ldn AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 54.34

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO Ldn

70 Ldn	65 Ldn	60 Ldn	55 Ldn
0.0	0.0	0.0	52.5