Notice of Preparation and Initial Study Checklist

A
APPENDIX

COMMUNITY AND ECONOMIC DEVELOPMENT DEPARTMENT

Mark J. Hendrickson
Director

Steve Maxey
Deputy Director

2222 “M” Street
Merced, CA 95340
(209) 385-7654
(209) 726-1710 Fax
www.co.merced.ca.us

Equal Opportunity Employer

NOTICE OF PREPARATION

Date: April 4, 2022

To: State Clearinghouse, Responsible Agencies, Trustee Agencies, Interested Parties and individuals

Lead Agency:
County of Merced
Department of Community and Economic Development
2222 “M” Street
Merced, CA 95340
(209) 385-7654

Public Review Period: April 6, 2022 to May 5, 2022

Contact: Diana Lowrance, Planner III

Subject: Notice of Preparation of a Draft Delhi Community Plan Supplemental Environmental Impact Report (Delhi SEIR) for the proposed Bradbury Master Plan

Merced County, as the Lead Agency, will prepare a Supplemental Environmental Impact Report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information, which is germane to your agency’s statutory responsibilities in connection with the proposed project.

The project description, location and the potential environmental effects are contained in the attached Initial Study Checklist.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to the contact at the address shown above.

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4005
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

May 5, 2022

Diana Lowrance, Planner III
Merced County Community and Economic Development Department
2222 M Street
Merced, California 95340
Diana.Lowrance@countyofmerced.com

Subject: Notice of Preparation of a Draft Delhi Community Plan Supplemental Environmental Impact Report for the Bradbury Master Plan (Project)
SCH No.: 2022040085

Dear Ms. Lowrance:

The California Department of Fish and Wildlife (CDFW) received a Notice of Preparation from the Merced County Community and Economic Development Department (County) for the above-referenced Project pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under Fish and Game Code. While the comment period may have ended, CDFW would appreciate if you will still consider our comments.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id*., § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts,

---

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 et seq.). Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), related authorization as provided by the Fish and Game Code will be required.

Nesting Birds: CDFW has jurisdiction over actions with potential to result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code sections that protect birds, eggs and nests include, sections 3503 (regarding unlawful take, possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird).

PROJECT DESCRIPTION SUMMARY

Proponent: Merced County

Objective: The applicant is requesting approval of a general plan amendment to modify the land use designations in the Delhi Community Plan that apply to the Bradbury Master Plan area. The primary proposed changes are to eliminate the Business Park use, reduce the size of the area designated Medium Density Residential, and increase the size of the area designed Low Density Residential.

Location: The Project site is located in the community of Delhi. The Project site is bounded by Bradbury Road on the north, Vincent Road on the east, Shanks Road on the south, and State Route 99 and Union Pacific Railroad tracks on the west.

Timeframe: N/A

COMMENTS AND RECOMMENDATIONS

Several special-status species have been documented in the Project area vicinity. Records from the California Natural Diversity Database (CNDDB) demonstrate that special status species may include, but not limited to, the State threatened Swainson's hawk (*Buteo swainsoni*), the State threatened tricolored blackbird (*Agelaius tricolor*), and the State species of special concern burrowing owl (*Athene cunicularia*). CDFW recommends the Supplemental Environmental Impact Report prepared for the Project analyze potential impacts to these species and provide measurable mitigation measures that, as needed, will reduce impacts to less than significant levels. More information on survey and monitoring protocols for sensitive species can be found at CDFW's website (https://www.wildlife.ca.gov/Conservation/Survey-Protocols).

Nesting Birds: CDFW encourages implementation of ground disturbing projects during the bird non-nesting season. However, if ground-disturbing activities must occur during the breeding season (i.e., February through mid-September), CDFW recommends pre-construction surveys for nesting birds and an appropriate no-disturbance buffer be implemented around active nests. The Project's applicant is responsible for ensuring that implementation of the Project does not result in violation of the Migratory Bird Treaty Act or relevant Fish and Game Codes as referenced above.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database that may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to the CNDDB. The CNDDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be emailed to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

FILING FEES

If it is determined that the Project will impact fish and/or wildlife, an assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089). With this cursory review, CDFW anticipates that the Project will require the payment of fees.

CDFW appreciates the opportunity to comment on the Project to assist the County in identifying and mitigating the Project's impacts on biological resources. If you have any questions, please contact Jim Vang, Environmental Scientist, at the address provided on this letterhead, by telephone at (559) 580-3203, or by electronic mail at Jim.Vang@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Valerie Cook
96D42C58E092466...

Valerie Cook
Acting Regional Manager

LITERATURE CITED

CDFW. 2022. Biogeographic Information and Observation System (BIOS). https://www.wildlife.ca.gov/Data/BIOS.

CITY OF
TURLOCK
INC. 1908

KATIE QUINTERO
DIRECTOR OF DEVELOPMENT SERVICES
kquintero@turlock.ca.us

DEVELOPMENT SERVICES
PLANNING DIVISION

156 S. BROADWAY, SUITE 120 | TURLOCK, CALIFORNIA 95380 | PHONE 209-668-5542 EXT 2215 | FAX 209-668-5107 | TDD 1-800-735-2929

May 13, 2022

Diana Lowrance
Planner III
County of Merced
2222 M Street
Merced, CA 95340

Dear Ms. Lowrance:

RE: PD18-001 (Bradbury Master Plan)

The City of Turlock received a Notice of Preparation from the Merced County Community and Economic Development Department for the above referenced project pursuant to the California Environmental Quality Act (CEQA).

Thank you for the opportunity to review and comment on the project referenced above. The City of Turlock Planning Division has:

☒No Comment at this time.

Please contact me if you have any questions or additional information regarding the project is submitted.

Sincerely,

Katie Quin

Katie Quintero
Deputy Director of Development Services

Department of Toxic Substances Control

Jared Blumenfeld
Secretary for
Environmental Protection

Meredith Williams, Ph.D.
Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Gavin Newsom
Governor

SENT VIA ELECTRONIC MAIL

April 18, 2022

Ms. Diana Lowrance
Planner III
Merced County
Community & Economic Development Dept.
2222 M Street
Merced, California 95340
Diana.Lowrance@countyofmerced.com

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE BRADBURY MASTER PLAN – DATED APRIL 4, 2022
(STATE CLEARINGHOUSE NUMBER: 2022040085)

Dear Ms. Lowrance:

The Department of Toxic Substances Control (DTSC) received a Notice of Preparation of an Environmental Impact Report (EIR) for the Bradbury Master Plan (Project). The Lead Agency is receiving this notice from DTSC because the Project includes one or more of the following: groundbreaking activities, work in close proximity to a roadway, work in close proximity to mining or suspected mining or former mining activities, backfill soil, and/or work on or in close proximity to an agricultural or former agricultural site.

DTSC recommends that the following issues be evaluated in the Hazards and Hazardous Materials section of the EIR:

1. The EIR should acknowledge the potential for historic or future activities on or near the project site to result in the release of hazardous wastes/substances on the project site. In instances in which releases have occurred or may occur, further studies should be carried out to delineate the nature and extent of the contamination, and the potential threat to public health and/or the environment should be evaluated. The EIR should also identify the mechanism(s) to initiate any required investigation and/or remediation and the government agency who will be responsible for providing appropriate regulatory oversight.

2. Refiners in the United States started adding lead compounds to gasoline in the 1920s in order to boost octane levels and improve engine performance. This practice did not officially end until 1992 when lead was banned as a fuel additive in California. Tailpipe emissions from automobiles using leaded gasoline contained lead and resulted in aerially deposited lead (ADL) being deposited in and along roadways throughout the state. ADL-contaminated soils still exist along roadsides and medians and can also be found underneath some existing road surfaces due to past construction activities. Due to the potential for ADL-contaminated soil DTSC, recommends collecting soil samples for lead analysis prior to performing any intrusive activities for the project described in the EIR.

3. If any sites within the project area or sites located within the vicinity of the project have been used or are suspected of having been used for mining activities, proper investigation for mine waste should be discussed in the EIR. DTSC recommends that any project sites with current and/or former mining operations onsite or in the project site area should be evaluated for mine waste according to DTSC's 1998 Abandoned Mine Land Mines Preliminary Assessment Handbook.

4. If buildings or other structures are to be demolished on any project sites included in the proposed project, surveys should be conducted for the presence of lead-based paints or products, mercury, asbestos containing materials, and polychlorinated biphenyl caulk. Removal, demolition and disposal of any of the above-mentioned chemicals should be conducted in compliance with California environmental regulations and policies. In addition, sampling near current and/or former buildings should be conducted in accordance with DTSC's 2006 *Interim Guidance Evaluation of School Sites with Potential Contamination from Lead Based Paint, Termiticides, and Electrical Transformers*.

5. If any projects initiated as part of the proposed project require the importation of soil to backfill any excavated areas, proper sampling should be conducted to ensure that the imported soil is free of contamination. DTSC recommends the imported materials be characterized according to *DTSC's 2001 Information Advisory Clean Imported Fill Material*.

6. If any sites included as part of the proposed project have been used for agricultural, weed abatement or related activities, proper investigation for organochlorinated pesticides should be discussed in the EIR. DTSC recommends the current and former agricultural lands be evaluated in accordance with DTSC's 2008 *Interim Guidance for Sampling Agricultural Properties (Third Revision)*.

DTSC appreciates the opportunity to comment on the EIR. Should you need any assistance with an environmental investigation, please visit DTSC's Site Mitigation and Restoration Program page to apply for lead agency oversight. Additional information regarding voluntary agreements with DTSC can be found at DTSC's Brownfield website.

If you have any questions, please contact me at (916) 255-3710 or via email at Gavin.McCreary@dtsc.ca.gov.

Sincerely,

Gavin McCreary

Gavin McCreary
Project Manager
Site Evaluation and Remediation Unit
Site Mitigation and Restoration Program
Department of Toxic Substances Control

cc: (via email)

Governor's Office of Planning and Research
State Clearinghouse
State.Clearinghouse@opr.ca.gov

Mr. Dave Kereazis
Office of Planning & Environmental Analysis
Department of Toxic Substances Control
Dave.Kereazis@dtsc.ca.gov

STATE OF CALIFORNIA **Gavin Newsom, Governor**

NATIVE AMERICAN HERITAGE COMMISSION

April 15, 2022

Diano Lowrance, Planner III
Merced County Community & Economic Development Dept.
2222 M Street
Merced, CA 95340

Re: 2022040085, Bradbury Master Plan Project, Merced County

Dear Ms. Lowrance:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. <u>Conclusion of Consultation:</u> Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. <u>Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document:</u> Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. <u>Required Consideration of Feasible Mitigation:</u> If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. <u>Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:</u>

a. Avoidance and preservation of the resources in place, including, but not limited to:

  i. Planning and construction to avoid the resources and protect the cultural and natural context.

  ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

  i. Protecting the cultural character and integrity of the resource.

  ii. Protecting the traditional use of the resource.

  iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. <u>Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource:</u> An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    - **a.** The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    - **b.** Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    - **a.** If part or all of the APE has been previously surveyed for cultural resources.
    - **b.** If any known cultural resources have already been recorded on or adjacent to the APE.
    - **c.** If the probability is low, moderate, or high that cultural resources are located in the APE.
    - **d.** If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    - **a.** The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    - **b.** The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Pricilla.Torres-Fuentes@nahc.ca.gov.

Sincerely,

Pricilla Torres-Fuentes

Pricilla Torres-Fuentes
Cultural Resources Analyst

cc: State Clearinghouse

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING

June 6, 2022

Diana Lowrance
County of Merced
Department of Community and Economic Development
2222 "M" Street
Merced, CA 95340

Project: PD18-001-Notice of Preparation of a Draft Delhi Community Plan Supplemental Environmental Impact Report for the Proposed Bradbury Master Plan

District CEQA Reference No: 20220625

Dear Ms. Lowrance:

The San Joaquin Valley Air Pollution Control District (District) has reviewed the Notice of Preparation (NOP) for the Draft Delhi Community Plan Supplemental EIR (SEIR) for the project referenced above, for the County of Merced (County). Per the NOP, the project consists of a general plan amendment to modify the land use designations in the community plan that apply to the Bradbury Master Plan (Project). The primary proposed changes are to eliminate the Business Park use, reduce the area size for Medium Density Residential and increase the size of the Low Density Residential. Future development will include residential, commercial, schools and parks, as well as bike trails. The Project is located bound by Bradbury Road on the north, Vincent Road on the east, Shanks Road on the south, and State Route 99/Union Pacific Railroad on the west, in Delhi,

The Project is a program level project and, while project-specific data may not be available until specific approvals are being granted, the SEIR should include a discussion of policies, which when implemented, will reduce or mitigate impacts on air quality at the individual project level.

Furthermore, the SEIR by the County will evaluate potential impacts associated within the proposed Project. The NOP proposes revised land use and zoning designations, specific design guidelines, and process improvements. Future development projects would be required to comply with the proposed SEIR land use designations, development standards, and policy framework.

Samir Sheikh
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: (661) 392-5500 FAX: (661) 392-5585

www.valleyair.org www.healthyairliving.com

Printed on recycled paper. ♲

The District offers the following comments regarding the Project:

1) Land Use Planning

Nearly all development projects within the San Joaquin Valley Air Basin, from the Bradbury Master Plan to individual projects have the potential to generate air pollutants, making it more difficult to attain state and federal ambient air quality standards. Land use decisions are critical to improving air quality within the San Joaquin Valley Air Basin because land use patterns greatly influence transportation needs, and motor vehicle emissions are the largest source of air pollution in the Valley. Land use decisions and project design elements such as preventing urban sprawl, encouraging mix-use development, and project design elements that reduce vehicle miles traveled (VMT) have proven to be beneficial for air quality. The District recommends that the SEIR incorporate strategies that reduce VMTs and require the cleanest available Heavy Heavy-Duty (HHD) trucks and vehicles, including zero and near-zero technologies. VMTs can be reduced through encouragement of mix-use development, walkable communities, etc. Additional design element options can be found at: http://www.valleyair.org/transportation/Mitigation-Measures.pdf

In addition, the District recommends that the SEIR incorporate strategies that will advance implementation of the best practices listed in Tables 5 and 6 of California Air Resource Board's (CARB's) Freight Handbook Concept Paper, to the extent feasible. This document compiles best practices designed to address air pollution impacts as "practices" which may apply to the siting, design, construction, and operation of freight facilities to minimize health impacts on nearby communities. The concept paper is available at:
https://ww2.arb.ca.gov/sites/default/files/2020-03/2019.12.12%20-%20Concept%20Paper%20for%20the%20Freight%20Handbook_1.pdf

2) Project Siting

The Bradbury Master Plan is the blueprint for future growth and provides guidance for the community's development. Without appropriate mitigation and associated policy, future development projects within the County may contribute to negative impacts on air quality due to increased traffic and ongoing operational emissions. Appropriate project siting helps ensure there is adequate distance between differing land uses, which can prevent or reduce localized and cumulative air pollution impacts from business operations that are in close proximity to receptors (e.g., residences, schools, health care facilities, etc.). The Bradbury Master Plan siting-related goals, policies, and objectives should include measures and concepts outlined in the following resources:

- CARB's Air Quality and Land Use Handbook: A Community Health Perspective. The document includes tables with recommended buffer distances associated with various types of common sources (e.g., distribution centers, chrome platers, gasoline dispensing facilities, etc.), and can be found at: https://ww3.arb.ca.gov/ch/handbook.pdf

- CARB's Freight Handbook Concept Paper: This document compiles best practices designed to address air pollution impacts, which may apply to the siting, design, construction, and operation of freight facilities to minimize health impacts on nearby communities, and can be found at: https://ww2.arb.ca.gov/sites/default/files/2020-03/2019.12.12%20-%20Concept%20Paper%20for%20the%20Freight%20Handbook_1.pdf

3) Project Related Emissions

At the federal level under the National Ambient Air Quality Standards (NAAQS), the District is designated as extreme nonattainment for the 8-hour ozone standards and serious nonattainment for the particulate matter less than 2.5 microns in size (PM2.5) standards. At the state level under California Ambient Air Quality Standards (CAAQS), the District is designated as nonattainment for the 8-hour ozone, PM10, PM2.5 standards.

As such, the District recommends that the SEIR stipulate that future development projects within the Bradbury Master Plan identify and characterize project construction and operational air emissions. The District recommends the air emissions be compared to the District significance thresholds as identified in the District's Guidance for Assessing and Mitigating Air Quality Impacts: https://www.valleyair.org/transportation/GAMAQI.pdf. The District recommends that future projects be mitigated to the extent feasible, and that future projects with air emissions above the aforementioned thresholds be mitigated to below these thresholds.

The District understands that the Bradbury Master Plan is a program-level project where future individual project-specific data may not be available at this time. As such, the SEIR should include a discussion of policies, which when implemented, will require assessment and characterization of project-level emissions, and subsequently require mitigation of air quality impacts to the extent feasible at the individual project-specific level. Environmental reviews of potential impacts on air quality should incorporate the following items:

3a) Construction Emissions

The District recommends, to reduce impacts from construction-related diesel exhaust emissions, the Project should utilize the cleanest available off-road construction equipment, including the latest tier equipment.

3b) Operational Emissions

Operational (ongoing) air emissions from mobile sources and stationary sources should be analyzed separately. For reference, the District's significance thresholds are identified in the District's Guidance for Assessing and Mitigating Air Quality Impacts: https://www.valleyair.org/transportation/GAMAQI.pdf.

Recommended Mitigation Measure: At a minimum, project related impacts on air quality should be reduced to levels of significance through incorporation of design elements such as the use of cleaner Heavy Heavy-Duty (HHD) trucks and vehicles, measures that reduce Vehicle Miles Traveled (VMTs), and measures that increase energy efficiency. More information on transportation mitigation measures can be found at: http://www.valleyair.org/transportation/Mitigation-Measures.pdf.

3c) Recommended Model for Quantifying Air Emissions

Project-related criteria pollutant emissions from construction and operational sources should be identified and quantified. Emissions analysis should be performed using the California Emission Estimator Model (CalEEMod), which uses the most recent CARB-approved version of relevant emissions models and emission factors. CalEEMod is available to the public and can be downloaded from the CalEEMod website at: www.caleemod.com.

4) Health Risk Screening/Assessment

The County should evaluate the risk associated with the Project for sensitive receptors (residences, businesses, hospitals, day-care facilities, health care facilities, etc.) in the area and mitigate any potentially significant risk to help limit exposure of sensitive receptors to emissions.

To determine potential health impacts on surrounding receptors (residences, businesses, hospitals, day-care facilities, health care facilities, etc.) a Prioritization and/or a Health Risk Assessment (HRA) should be performed for future development projects. These health risk determinations should quantify and characterize potential Toxic Air Contaminants (TACs) identified by the Office of Environmental Health Hazard Assessment/California Air Resources Board (OEHHA/CARB) that pose a present or potential hazard to human health.

Health risk analyses should include all potential air emissions from the project, which include emissions from construction of the project, including multi-year construction, as well as ongoing operational activities of the project. Note, two common sources of TACs can be attributed to diesel exhaust emitted from heavy-duty off-road earth moving equipment during construction, and from ongoing operation of heavy-duty on-road trucks.

Prioritization (Screening Health Risk Assessment):
A "Prioritization" is the recommended method for a conservative screening-level health risk assessment. The Prioritization should be performed using the California Air Pollution Control Officers Association's (CAPCOA) methodology.

The District recommends that a more refined analysis, in the form of an HRA, be performed for any project resulting in a Prioritization score of 10 or greater. This is because the prioritization results are a conservative health risk representation, while the detailed HRA provides a more accurate health risk evaluation.

To assist land use agencies and project proponents with Prioritization analyses, the District has created a prioritization calculator based on the aforementioned CAPCOA guidelines, which can be found here:
http://www.valleyair.org/busind/pto/emission_factors/Criteria/Toxics/Utilities/PRIORITIZATION-CALCULATOR.xls

Health Risk Assessment:
Prior to performing an HRA, it is strongly recommended that land use agencies/ project proponents develop and submit for District review a health risk modeling protocol that outlines the sources and methodologies that will be used to perform the HRA. This step will ensure all components are addressed when performing the HRA.

A development project would be considered to have a potentially significant health risk if the HRA demonstrates that the project-related health impacts would exceed the District's significance threshold of 20 in a million for carcinogenic risk, or 1.0 for either the Acute or Chronic Hazard Indices.

A project with a significant health risk would trigger all feasible mitigation measures. The District strongly recommends that development projects that result in a significant health risk not be approved by the land use agency.

The District is available to review HRA protocols and analyses. For HRA submittals please provide the following information electronically to the District for review:

- HRA (AERMOD) modeling files
- HARP2 files
- Summary of emissions source locations, emissions rates, and emission factor calculations and methodologies.

For assistance, please contact the District's Technical Services Department by:

- E-Mailing inquiries to: hramodeler@valleyair.org
- Calling (559) 230-5900

Recommended Measure: Development projects resulting in TAC emissions should be located an adequate distance from residential areas and other sensitive receptors in accordance to CARB's Air Quality and Land Use Handbook: A Community Health Perspective located at https://ww3.arb.ca.gov/ch/handbook.pdf.

5) Ambient Air Quality Analysis

An Ambient Air Quality Analysis (AAQA) uses air dispersion modeling to determine if emissions increases from a project will cause or contribute to a violation of State or National Ambient Air Quality Standards. The District recommends an AAQA be performed for any future development projects with emissions that exceed 100 pounds per day of any pollutant.

An acceptable analysis would include emissions from both project-specific permitted and non-permitted equipment and activities. The District recommends consultation with District staff to determine the appropriate model and input data to use in the analysis.

Specific information for assessing significance, including screening tools and modeling guidance, is available online at the District's website: www.valleyair.org/ceqa.

6) Voluntary Emission Reduction Agreement

Future development projects within the Bradbury Master Plan could have a significant impact on air quality. The District recommends the SEIR include a feasibility discussion on implementing a Voluntary Emission Reduction Agreement (VERA) as a mitigation measure for future development projects that are determined to exceed the District's CEQA significance thresholds.

A VERA is a mitigation measure by which the project proponent provides pound-for-pound mitigation of emissions increases through a process that develops, funds, and implements emission reduction projects, with the District serving a role of administrator of the emissions reduction projects and verifier of the successful mitigation effort. To implement a VERA, the project proponent and the District enter into a contractual agreement in which the project proponent agrees to mitigate project specific emissions by providing funds for the District's incentives programs. The funds are disbursed by the District in the form of grants for projects that achieve emission reductions. Thus, project-related impacts on air quality can be mitigated. Types of emission reduction projects that have been funded in the past include electrification of stationary internal combustion engines (such as agricultural irrigation pumps), replacing old heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks, and replacement of old farm tractors.

In implementing a VERA, the District verifies the actual emission reductions that have been achieved as a result of completed grant contracts, monitors the emission reduction projects, and ensures the enforceability of achieved reductions. After the project is mitigated, the District certifies to the Lead Agency that the mitigation is completed, providing the Lead Agency with an enforceable mitigation measure demonstrating that project-related emissions have been mitigated. To assist the Lead Agency and project proponent in ensuring that the environmental document is compliant with CEQA, the District recommends the environmental document includes an assessment of the feasibility of implementing a VERA.

7) Allowed Uses Not Requiring Project-Specific Discretionary Approval

In some cases, for future development projects, the County may determine that a project be approved as an allowed use not requiring a project-specific discretionary approval from the County. The District recommends the SEIR include language supported by policy requiring such projects to prepare a technical assessment in consultation with the District, and recommending that a VERA be considered for development projects determined to result in a significant impact on air quality. For example, this requirement would apply to large development projects (e.g., large residential project, large shopping center, etc.) that would have the potential to significantly impact air quality and is determined by the County to be allowed by use, not requiring a project specific discretionary approval from the County.

8) Truck Routing

Truck routing involves the assessment of which roads Heavy Heavy-Duty (HHD) trucks take to and from their destination, and the emissions impact that the HHD trucks may have on residential communities and sensitive receptors.

The District recommends the County evaluate HHD truck routing patterns for future development projects, with the aim of limiting exposure of residential communities and sensitive receptors to emissions. This evaluation would consider the current truck routes, the quantity and type of each truck (e.g., Medium Heavy-Duty, HHD, etc.), the destination and origin of each trip, traffic volume correlation with the time of day or the day of the week, overall Vehicle Miles Traveled (VMT), and associated exhaust emissions. The truck routing evaluation would also identify alternative truck routes and their impacts on VMT and air quality.

9) Cleanest Available Heavy-Duty Trucks

The San Joaquin Valley will not be able to attain stringent health-based federal air quality standards without significant reductions in emissions from HHD trucks, the single largest source of NOx emissions in the San Joaquin Valley. The District's CARB-approved 2018 PM2.5 Plan includes significant new reductions from HHD trucks, including emissions reductions by 2023 through the implementation of

CARB’s Statewide Truck and Bus Regulation, which requires truck fleets operating in California to meet the 2010 standard of 0.2 g-NOx/bhp-hr by 2023. Additionally, to meet federal air quality attainment standards, the District’s Plan relies on a significant and immediate transition of HHD fleets to zero or near-zero emissions technologies, including the near-zero truck standard of 0.02 g/bhp-hr NOx established by CARB.

For future development projects, the District recommends that the following measures be considered by the Countyto reduce Project-related operational emissions:

- *Recommended Measure*: Fleets associated with operational activities utilize the cleanest available HHD trucks, including zero and near-zero (0.02 g/bhp-hr NOx) technologies.

- *Recommended Measure*: All on-site service equipment (cargo handling, yard hostlers, forklifts, pallet jacks, etc.) utilize zero-emissions technologies.

10) **Reduce Idling of Heavy-Duty Trucks**

The goal of this strategy is to limit the potential for localized PM2.5 and toxic air contaminant impacts associated with failure to comply with the state’s Heavy-Duty anti-idling regulation (e.g., limiting vehicle idling to specific time limits). The diesel exhaust from excessive idling has the potential to impose significant adverse health and environmental impacts.

Since future development projects may have the potential to result in HHD truck trips, the County should consider deploying strategies to ensure compliance of the anti-idling regulation, especially near sensitive receptors, and discuss the importance of limiting the amount of idling.

Recommended Measure: Construction and operational fleets limit vehicle idling pursuant to 13 CCR § 2485 and 13 CCR § 2480.

11) **Electric On-Site Off-Road and On-Road Equipment**

Since future development projects may have the potential to result in increased use of off-road equipment (e.g., forklifts) and on-road equipment (e.g., mobile yard trucks with the ability to move materials). The District recommends that the SEIR stipulate requirements for project proponents to utilize electric or zero emission off-road and on-road equipment.

12)Under-fired Charbroilers

Future development projects have the potential to occupy restaurants with under-fired charbroilers. Such charbroilers may pose the potential for immediate health risk, particularly when located in densely populated areas or near sensitive receptors.

Since the cooking of meat can release carcinogenic PM2.5 species, such as polycyclic aromatic hydrocarbons, controlling emissions from new under-fired charbroilers will have a substantial positive impact on public health. The air quality impacts on neighborhoods near restaurants with under-fired charbroilers can be significant on days when meteorological conditions are stable, when dispersion is limited and emissions are trapped near the surface within the surrounding neighborhoods. This potential for neighborhood-level concentration of emissions during evening or multi-day stagnation events raises air quality concerns.

Furthermore, reducing commercial charbroiling emissions is essential to achieving attainment of multiple federal PM2.5 standards. Therefore, the District recommends that the SEIR include a measure requiring the assessment and potential installation, as technologically feasible, of particulate matter emission control systems for new large restaurants operating under-fired charbroilers.

The District is available to assist the County and project proponents with this assessment. Additionally, the District is currently offering substantial incentive funding that covers the full cost of purchasing, installing, and maintaining the system during a demonstration period covering two years of operation. Please contact the District at (559) 230-5800 or technology@valleyair.org for more information, or visit: http://valleyair.org/grants/rctp.htm

13)Vegetative Barriers and Urban Greening

For future development projects within the Project area, and at strategic locations throughout the Project area in general, the District suggests the County consider incorporating vegetative barriers and urban greening as a measure to further reduce air pollution exposure on sensitive receptors (e.g., residences, schools, healthcare facilities).

While various emission control techniques and programs exist to reduce air quality emissions from mobile and stationary sources, vegetative barriers have been shown to be an additional measure to potentially reduce a population’s exposure to air pollution through the interception of airborne particles and the update of gaseous pollutants. Examples of vegetative barriers include, but are not limited to the following: trees, bushes, shrubs, or a mix of these. Generally, a higher and thicker vegetative barrier with full coverage will result in greater reductions in downwind pollutant concentrations. In the same manner, urban greening is also a way to help improve air quality and public health in addition to enhancing the overall beautification of a community with drought tolerant, low-maintenance greenery.

14) Clean Lawn and Garden Equipment in the Community

Since the Project consists of residential and commercial development, gas-powered residential and commercial lawn and garden equipment have the potential to result in an increase of NOx and PM2.5 emissions. Utilizing electric lawn care equipment can provide residents with immediate economic, environmental, and health benefits. The District recommends the Project proponent consider the District's Clean Green Yard Machines (CGYM) program which provides incentive funding for replacement of existing gas powered lawn and garden equipment. More information on the District CGYM program and funding can be found at:
http://www.valleyair.org/grants/cgym.htm
and http://valleyair.org/grants/cgym-commercial.htm.

15) On-Site Solar Deployment

It is the policy of the State of California that renewable energy resources and zero-carbon resources supply 100% of retail sales of electricity to California end-use customers by December 31, 2045. While various emission control techniques and programs exist to reduce air quality emissions from mobile and stationary sources, the production of solar energy is contributing to improving air quality and public health. The District suggests that the County consider incorporating solar power systems as an emission reduction strategy for future development projects.

16) Electric Vehicle Chargers

To support and accelerate the installation of electric vehicle charging equipment and development of required infrastructure, the District offers incentives to public agencies, businesses, and property owners of multi-unit dwellings to install electric charging infrastructure (Level 2 and 3 chargers). The purpose of the District's Charge Up! Incentive program is to promote clean air alternative-fuel technologies and the use of low or zero-emission vehicles. The District recommends that the County and project proponents install electric vehicle chargers at project sites, and at strategic locations.

Please visit www.valleyair.org/grants/chargeup.htm for more information.

17) District's Bikeway Incentive Program

Incorporating design elements (e.g., installing bikeways) within the Project that enhance walkability and connectivity can result in an overall reduction of vehicles miles traveled (VMT) and improve air quality within the area. Future development projects are expected to result in an overall reduction in VMT by installing bikeways,

and may be eligible for funding through the District's Bikeway Incentive Program. The Bikeway Incentive Program provides funding for eligible Class 1 (Bicycle Path Construction), Class II (Bicycle Lane Striping), or Class III (Bicycle Route) projects. These incentives are designed to support the construction of new bikeway projects to promote clean air through the development of a widespread, interconnected network of bike paths, lanes, or routes and improving the general safety conditions for commuter bicyclists. Only municipalities, government agencies, or public educational institutions are eligible to apply. More information on the grant program can be found at:
http://valleyair.org/grants/bikepaths.htm

Guidelines and Project Eligibility for the grant program can be found at:
http://valleyair.org/grants/documents/bikepaths/2015_Bikeway_Guidelines.pdf

18) District Rules and Regulations

The District issues permits for many types of air pollution sources, and regulates some activities that do not require permits. A project subject to District rules and regulations would reduce its impacts on air quality through compliance with the District's regulatory framework. In general, a regulation is a collection of individual rules, each of which deals with a specific topic. As an example, Regulation II (Permits) includes District Rule 2010 (Permits Required), Rule 2201 (New and Modified Stationary Source Review), Rule 2520 (Federally Mandated Operating Permits), and several other rules pertaining to District permitting requirements and processes.

The list of rules below is neither exhaustive nor exclusive. Current District rules can be found online at: www.valleyair.org/rules/1ruleslist.htm. To identify other District rules or regulations that apply to future projects, or to obtain information about District permit requirements, the project proponents are strongly encouraged to contact the District's Small Business Assistance (SBA) Office at (209) 557-6446.

18a) District Rules 2010 and 2201 - Air Quality Permitting for Stationary Sources

Stationary Source emissions include any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission. District Rule 2010 (Permits Required) requires operators of emission sources to obtain an Authority to Construct (ATC) and Permit to Operate (PTO) from the District. District Rule 2201 (New and Modified Stationary Source Review) requires that new and modified stationary sources of emissions mitigate their emissions using Best Available Control Technology (BACT).

Future development projects may be subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review) and may require District permits. Prior to construction, the project proponents should submit to the District an application for an ATC.

Recommended Mitigation Measure: For projects subject to permitting by the San Joaquin Valley Air Pollution Control District, demonstration of compliance with District Rule 2201 shall be provided to the City before issuance of the first building permit.

For further information or assistance, project proponents may contact the District's SBA Office at (209) 557-6446.

18b) District Rule 9510 - Indirect Source Review

The purpose of District Rule 9510 is to reduce the growth in both NOx and PM emissions associated with development and transportation projects from mobile and area sources; specifically, the emissions associated with the construction and subsequent operation of development projects. The Rule requires developers to mitigate their NOx and PM emissions by incorporating clean air design elements into their projects. Should the proposed development project clean air design elements be insufficient to meet the required emission reductions, developers must pay a fee that ultimately funds incentive projects to achieve off-site emissions reductions.

Accordingly, future development projects within the Bradbury Master Plan may be subject to District Rule 9510 if upon full buildout, the project would equal or exceed any of the following applicability thresholds, depending on the type of development and public agency approval mechanism:

Table 1: ISR Applicability Thresholds

Development Type	**Discretionary Approval Threshold**	**Ministerial Approval / Allowed Use / By Right Thresholds**
Residential	50 dwelling units	250 dwelling units
Commercial	2,000 square feet	10,000 square feet
Light Industrial	25,000 square feet	125,000 square feet
Heavy Industrial	100,000 square feet	500,000 square feet
Medical Office	20,000 square feet	100,000 square feet
General Office	39,000 square feet	195,000 square feet
Educational Office	9,000 square feet	45,000 square feet
Government	10,00 square feet	50,000 square feet
Recreational	20,000 square feet	100,000 square feet
Other	9,000 square feet	45,000 square feet

District Rule 9510 also applies to any transportation or transit development projects where construction exhaust emissions equal or exceed two tons of NOx or two tons of PM.

In the case the individual development project is subject to Rule 9510, an Air Impact Assessment (AIA) application is required no later than applying for project-level approval from a public agency, and the District recommends that demonstration of compliance with the rule prior to issuance of the first building permit, be made a condition of project approval.
Information about how to comply with District Rule 9510 can be found online at: http://www.valleyair.org/ISR/ISRHome.htm.

The AIA application form can be found online at: http://www.valleyair.org/ISR/ISRFormsAndApplications.htm.

District staff is available to provide assistance with determining if the Project OR future development projects will be subject to Rule 9510, and can be reached by phone at (559) 230-5900 or by email at ISR@valleyair.org.

18c) District Rule 9410 (Employer Based Trip Reduction)

Future development projects may be subject to District Rule 9410 (Employer Based Trip Reduction) if the project would result in employment of 100 or more “eligible” employees. District Rule 9410 requires employers with 100 or more “eligible” employees at a worksite to establish an Employer Trip Reduction Implementation Plan (eTRIP) that encourages employees to reduce single-occupancy vehicle trips, thus reducing pollutant emissions associated with work commutes. Under an eTRIP plan, employers have the flexibility to select the options that work best for their worksites and their employees.

Information about District Rule 9410 can be found online at: www.valleyair.org/tripreduction.htm.

For additional information, you can contact the District by phone at 559-230-6000 or by e-mail at etrip@valleyair.org

18d) District Rule 4002 (National Emissions Standards for Hazardous Air Pollutants)

In the event an existing building will be renovated, partially demolished or removed, future development projects may be subject to District Rule 4002. This rule requires a thorough inspection for asbestos to be conducted before any regulated facility is demolished or renovated. Information on how to comply with District Rule 4002 can be found online at: http://www.valleyair.org/busind/comply/asbestosbultn.htm.

18e) District Regulation VIII (Fugitive PM10 Prohibitions)

The project proponent may be required to submit a Construction Notification Form or submit and receive approval of a Dust Control Plan prior to commencing any earthmoving activities as described in Regulation VIII, specifically Rule 8021 – *Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities.*

Should the project result in at least 1-acre in size, the project proponent shall provide written notification to the District at least 48 hours prior to the project proponents intent to commence any earthmoving activities pursuant to District Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities). Also, should the project result in the disturbance of 5-acres or more, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials, the project proponent shall submit to the District a Dust Control Plan pursuant to District Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities). For additional information regarding the written notification or Dust Control Plan requirements, please contact District Compliance staff at (559) 230-5950.

The application for both the Construction Notification and Dust Control Plan can be found online at:
https://www.valleyair.org/busind/comply/PM10/forms/DCP-Form.docx

Information about District Regulation VIII can be found online at:
http://www.valleyair.org/busind/comply/pm10/compliance_pm10.htm

18f) District Rule 4901 - Wood Burning Fireplaces and Heaters

The purpose of this rule is to limit emissions of carbon monoxide and particulate matter from wood burning fireplaces, wood burning heaters, and outdoor wood burning devices. This rule establishes limitations on the installation of new wood burning fireplaces and wood burning heaters. Specifically, at elevations below 3,000 feet in areas with natural gas service, no person shall install a wood burning fireplace, low mass fireplace, masonry heater, or wood burning heater.

Information about District Rule 4901 can be found online at:
http://valleyair.org/rule4901/

18g) Other District Rules and Regulations

Future development projects may also be subject to the following District rules: Rule 4102 (Nuisance), Rule 4601 (Architectural Coatings), and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations).

19) Additional Air Quality Evaluation and Discussion to Include in the SEIR

a. A discussion of the methodology, model assumptions, inputs and results used in characterizing the Project's impact on air quality. To comply with CEQA requirements for full disclosure, the District recommends that the modeling outputs be provided as appendices to the SEIR .The District further recommends that the District be provided with an electronic copy of all input and output files for all modeling.

b. A discussion of the components and phases of the Project and the associated air emissions projections, including ongoing emissions from each previous phase.

c. A discussion of whether the Project would result in a cumulatively considerable net increase of any criteria pollutant or precursor for which the San Joaquin Valley Air Basin is in non-attainment. For reference and guidance, more information can be found in the District’s Guidance for Assessing and Mitigating Air Quality Impacts at: https://www.valleyair.org/transportation/GAMAQI.pdf

d. As required by the decision in Sierra Club v. County of Fresno (2018) 6 Cal.41h 502, a reasonable effort to discuss relevant specifics regarding the connection between potential adverse air quality impacts from the Project with the likely nature and magnitude of potential health impacts. If the potential health impacts from the Project cannot be specifically correlated, explain what is known and why, given scientific constraints, potential health impacts cannot be translated.

   Therefore, the District recommends that the environmental document include a discussion of how a project will conform to the Court’s holding.

20) Future Projects / Land Use Agency Referral Documents

Future development projects may require an environmental review and air emissions mitigation. A project’s referral documents and environmental review documents provided to the District for review should include a project summary, the land use designation, project size, air emissions quantifications and impacts, and proximity to sensitive receptors and existing emission sources, and air emissions mitigation measures. For reference and guidance, more information can be found in the District's Guidance for Assessing and Mitigating Air Quality Impacts at: https://www.valleyair.org/transportation/GAMAQI.pdf

21) **District Comment Letter**

The District recommends that a copy of the District's comments be provided to the Project proponent.

If you have any questions or require further information, please contact Cherie Clark by e-mail at Cherie.Clark@valleyair.org or by phone at (559) 230-5940.

Sincerely,

Brian Clements
Director of Permit Services

For: Mark Montelongo
Program Manager

Initial Study

Delhi Community Plan Supplemental EIR

March 31, 2022

Prepared by

EMC Planning Group

INITIAL STUDY

DELHI COMMUNITY PLAN SUPPLEMENTAL EIR

PREPARED FOR

Merced County Community & Economic Development Department
Diana Lowrance, Planner III
2222 M. Street
Merced, CA 95340
Tel 290.385.7654, x4163

PREPARED BY

EMC Planning Group Inc.
301 Lighthouse Avenue, Suite C
Monterey, CA 93940
Tel 831.649.1799
Fax 831.649.8399
Ron Sissem, Senior Principal
sissem@emcplanning.com
www.emcplanning.com

March 31, 2022

TABLE OF CONTENTS

Tables

Figures

A. BACKGROUND

Project Title	Bradbury Master Plan
Lead Agency Contact Person and Phone Number	Diana Lowrance, Planner III Merced County Community & Economic Development Department (209) 385-7654. x4163
Date Prepared	March 31, 2022
Study Prepared by	EMC Planning Group Inc. 301 Lighthouse Avenue, Suite C Monterey, CA 93940
Project Location	Community of Delhi, Merced County. Project site bound by Bradbury Road on the north, Vincent Road on the east, Shanks Road on the south, and State Route 99 and the Union Pacific Railroad tracks on the west.
Project Sponsor Name and Address	RBK Development Belgravia Land and Development 18 Arbor Way, Turlock, California 95380
General Plan Designation	Various per the Delhi Community Plan
Zoning	A-1 General Agriculture

Setting

The approximately 273-acre project site, known as the Bradbury Ranch, is within the northeastern portion of the *Delhi Community Plan* ("community plan") boundary in unincorporated Merced County. The community plan is a component of the *2030 Merced County General Plan* ("Merced County general plan"). The project site is bound by Bradbury Road on the north, Vincent Road on the east, Shanks Road on the south, and State Route 99/Union Pacific Railroad on the west. The community plan requires that a master plan be prepared for the Bradbury Ranch site. Master plans serve as a planning implementation tools. The community plan identifies land use designations for the project site as Low Density Residential, Medium Density Residential, Business Park, and Neighborhood Commercial. An elementary school site, middle school site, two neighborhood parks, and a community park are also planned within the project site. The community plan also defines the need for a fire station site within the project site boundary. The existing zoning is A-1, General Agriculture.

Several residences are located within the project site boundary, which is otherwise undeveloped and primarily in agricultural use. Agricultural land is adjacent to the project site on the north, east, and south. Significant infrastructure features located adjacent to the site include State Route 99 and the Union Pacific Railroad, both on the west, and a Turlock Irrigation District canal that traverses the northwest site boundary. The site topography is generally level.

Figure 1, Location Map, shows both the regional and vicinity location of the project site. Figure 2, Existing Conditions, is an aerial photograph which shows existing site features and uses, as well as adjacent features and uses.

Description of Project

The applicant is requesting approval of a general plan amendment to modify the land use designations in the community plan that apply to the Bradbury Master Plan ("Bradbury master plan") area as illustrated in the community plan. Figure 3, Delhi Community Plan Land Use Designations for the Bradbury Master Plan Area, shows the current land use designations. Figure 4, Proposed Bradbury Master Plan Area Land Use, illustrates the proposed land uses. The primary proposed changes are to eliminate the Business Park use, reduce the size of the area designated Medium Density Residential, and increase the size of the area designated Low Density Residential. Table 1, Community Plan/Master Plan Development Capacity Comparison, summarizes how the proposed land use changes would affect projected development capacity.

The applicant is not proposing amendments to community plan policies, guidelines, or development standards. Future individual projects proposed within the master plan boundary would, therefore, be developed consistent with existing community plan guidance. A zoning amendment is required to establish a planned development district for the site. A master plan approval is also required to implement the planned development zoning as codified in Chapter 18.20.020, Planned Development Zone Approval Process, of the Merced County Zoning Code.

After County approval of the requested entitlements, applications for future individual developments within the master plan boundary would be submitted and processed. No such applications have yet been submitted and there is no known timeframe for when such submittals might occur. Future individual projects would be subject to CEQA review, with that review potentially tiering from the *Delhi Community Plan Environmental Impact Report* ("community plan EIR") and the supplemental EIR to be prepared for the proposed project as described below.

Purpose of this Initial Study

The County has determined that a supplemental EIR (SEIR) is required to evaluate the environmental impacts of development as would be allowed per the proposed amended land uses, and to evaluate impacts associated with greenhouse gas emissions, vehicle miles traveled, tribal cultural resources, and wildfire; new environmental topics that are now addressed under CEQA for which evaluation was not required at the time the community plan EIR was prepared. The purpose and required contents of a SEIR are described in CEQA Guidelines section 15163. This initial study has been prepared pursuant to CEQA Guidelines section 15063(c)(3), which states that an initial study may be used to focus an EIR on the effects of a proposed project that are determined to be significant.

Table 1 Community Plan/Proposed Master Plan Development Capacity Comparison

Land Use	Community Plan Development Capacity[1]	Proposed Development Capacity[2]	Proposed Change
Residential			
Low Density Residential[3]			
Acres[4]	105	173.2	+68.2 Acres
Dwelling Units	590	883	+293 Dwelling Units
Medium Density Residential[5]			
Acres	41	23	-18 Acres
Dwelling Units	279	186	- 93 Dwelling Units
Non-Residential			
Neighborhood Commercial			
Acres	10	10.1	+ 0.1 Acres
Building Square Feet	136,680	136,680	No Change
Business Park			
Acres	50	0	- 50 Acres
Building Square Feet	457,380	0	- 457,380 Square Feet
Public Facilities			
Schools			
Acres	30	23.8	- 6.2 Acres
School Types	Elementary School Middle School	Elementary School Middle School	
Parks/Detention/Paths			
Acres	25	37.4	+ 12.4 Acres
Park Types	Two Neighborhood Parks One Community Park Class I Bike Path	Two Neighborhood Parks One Community Park Class I Bike Path	
Fire Station			
Acres	None	2.8	+2.8 Acres
Totals			
Acres	261	273.1	+ 12.1 Acres[6]
Dwelling Units	869	1,069	+ 200 Dwelling Units
Building Square Feet	594,060	136,680	- 457,380 Square Feet

SOURCE: Merced County 2005, GDR Engineering 2022

NOTES:

1.Community Plan development capacity numbers for Bradbury Ranch are from Table 3.2, Master and Special Plan Areas Land Use Summary

2. Proposed Bradbury Ranch Master Plan development capacity numbers are from Table 4-X in this SEIR

3. The Low Density Residential designation allows for densities from 3.5 to 8.0 units/acre. Low Density Residential density is assumed at 4.5 dwelling units/acre in the community plan, and 5.1 dwelling units/ acre in the proposed master plan

4. All acreages represent gross acreage and exclude Highway 99, Union Pacific Railroad, arterials, major and minor collectors and canals

5. Medium Density Residential density assumed at 9.0 dwelling units/acre in the community plan, 8.1 dwelling units per acre in the proposed master plan

6. Community plan acreages are not as precise as identified for the proposed master plan. Acreage discrepancy does not affect the analysis in the SEIR

The methodology used in this initial study for determining whether the proposed project may have one or more significant impacts is based on review of the environmental checklist included in Chapter 5 of the community plan EIR and on review of the community plan EIR, which was certified by the County in 2006. The community plan EIR environmental checklist was used to focus the scope of the community plan EIR. Where the community plan environmental checklist found that implementing the community plan, including planned development within the Bradbury master plan boundary, would have no or less-than-significant impacts, this same determination is generally made in this initial study for the proposed project. In some cases, the community plan EIR environmental checklist included mitigation measures to reduce impacts to less than significant. These too are addressed in this initial study as applicable to reducing significant impacts of the proposed project. Mitigation measures included in the community plan EIR are also addressed in this initial study for the same purpose.

Where impacts of the proposed project are found to be potentially significant after the application of community plan policies and programs that serve as mitigation (as described in the community plan environmental checklist and EIR), mitigation measures contained in the community plan EIR environmental checklist, mitigation measures included in the community plan EIR, and/or uniformly applied development standards, the impact is identified as significant and requires further detailed analysis in the SEIR. Analysis of impacts for environmental topics that were not addressed under CEQA at the time the community plan EIR was certified include greenhouse gas emissions, vehicle miles traveled, tribal cultural resources, and wildfire. Per the analysis in this initial study, greenhouse gas emissions and vehicle miles traveled impacts are identified as requiring further detailed analysis in the SEIR.

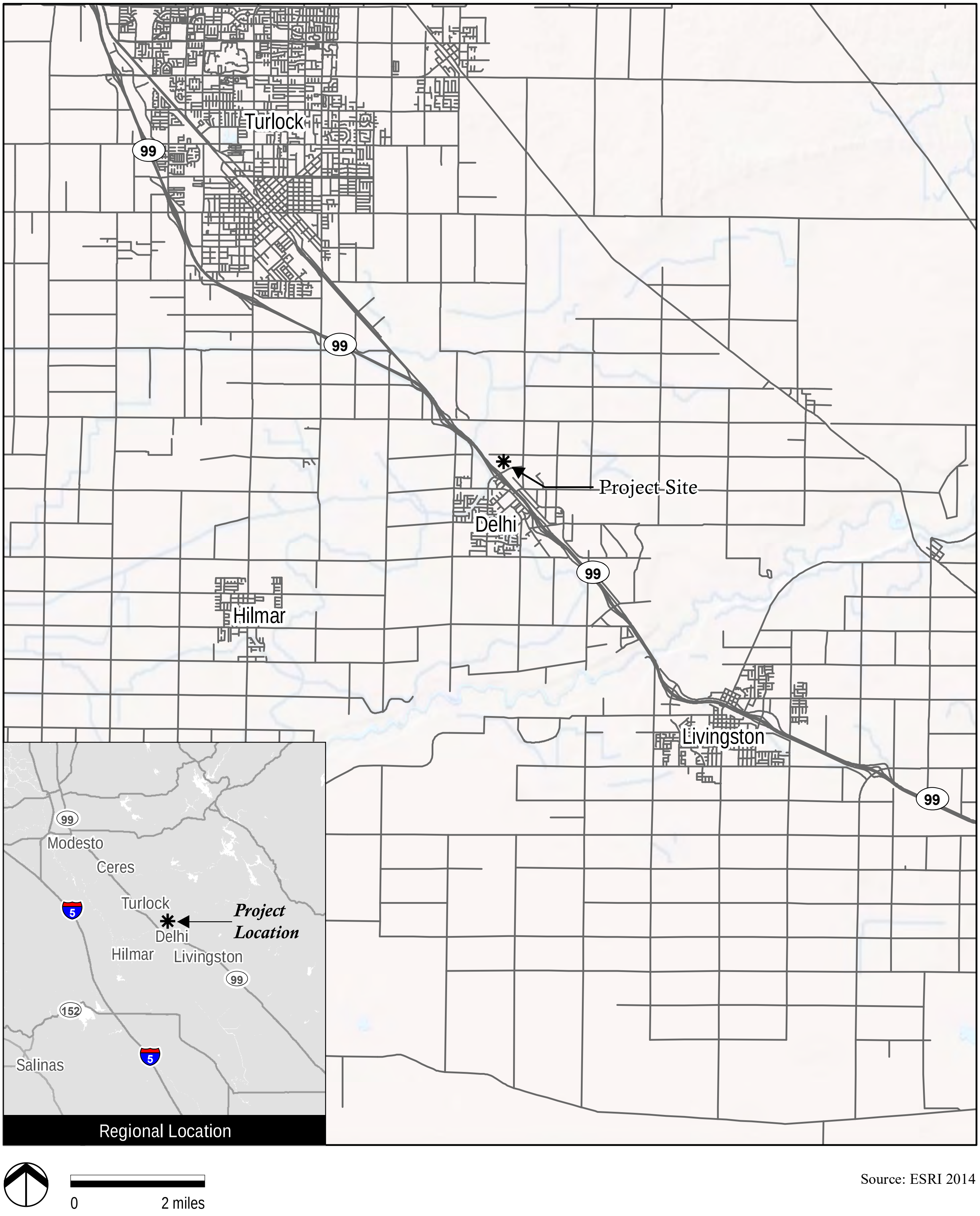
Other Public Agencies Whose Approval is Required

Merced County is the only public agency whose approval is required for the proposed project.

Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Merced County has not received formal requests in writing for consultation pursuant to Public Resources Code section 21080.3.1. The County sent out twelve tribal consultation letters on February 25, 2022 in accordance with the requirements of Senate Bill 18. The subject tribes have up to 90 days to respond regarding their interest in being consulted.

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.



Source: ESRI 2014

Figure 1

Location Map

Delhi Community Plan Supplemental EIR Initial Study

This side intentionally left blank.

Source: Google Earth 2022

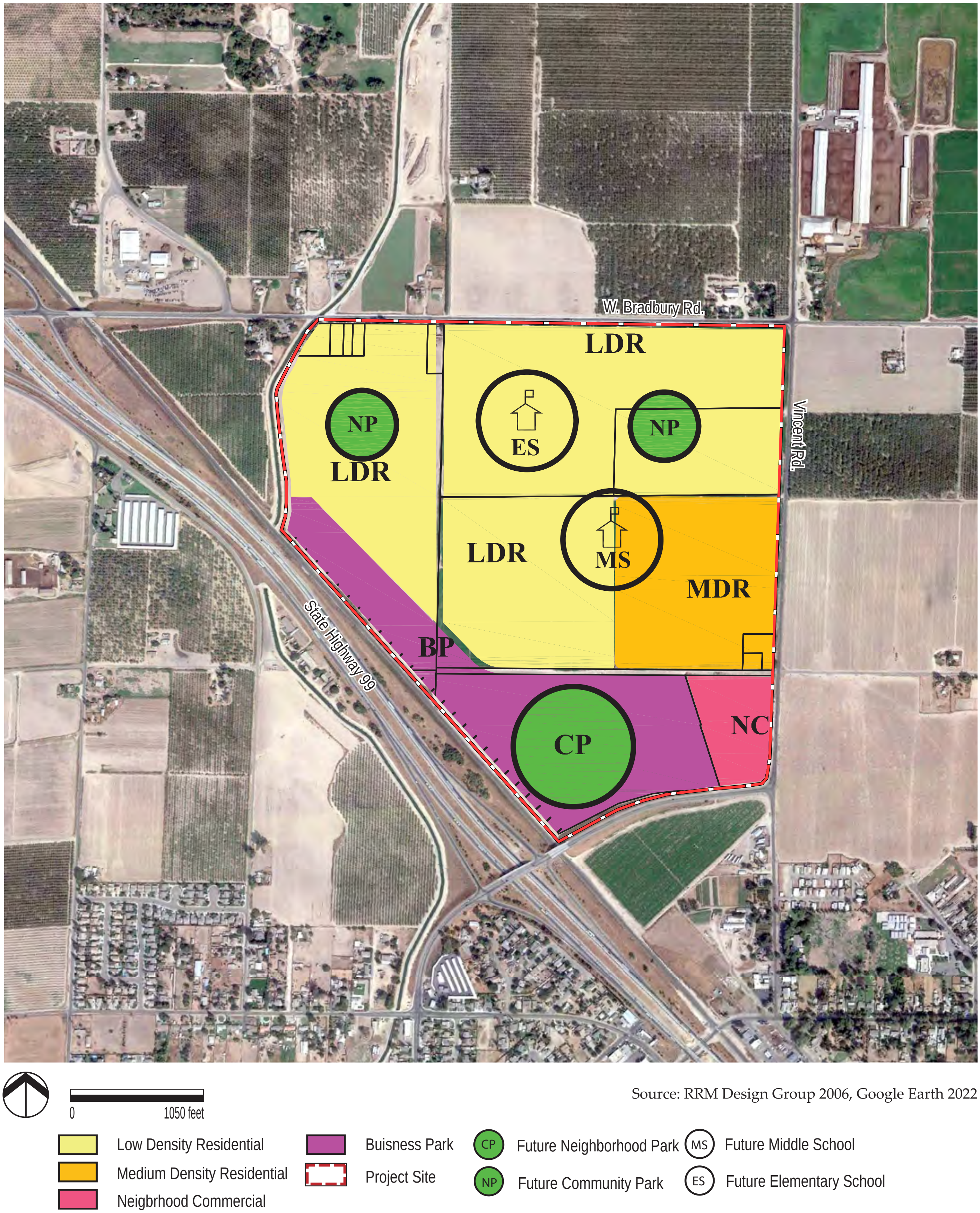
Figure 2

Existing Conditions

Delhi Community Plan Supplemental EIR Initial Study

E M C

This side intentionally left blank.

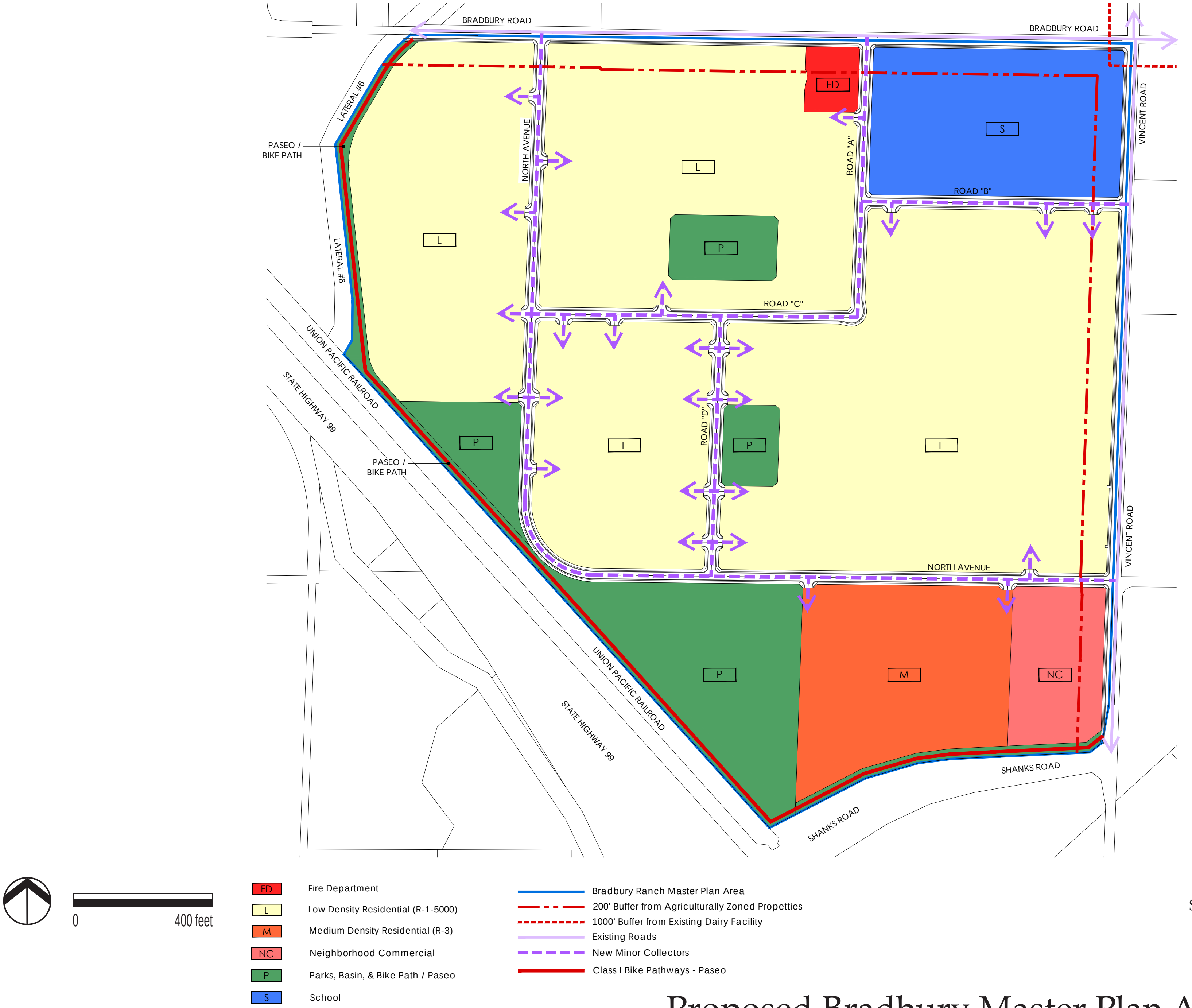


Source: RRM Design Group 2006, Google Earth 2022

Figure 3

Delhi Community Plan Land Use Designations for the Bradbury Master Plan Area

This side intentionally left blank.



Source: GDR Engineering 2022

Figure 4

Proposed Bradbury Master Plan Area Land Use

Delhi Community Plan Supplemental EIR Initial Study

This side intentionally left blank.

B. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

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

C. 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 (1) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (2) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Name and Title　　　　　　　　　　Date

D. EVALUATION OF ENVIRONMENTAL IMPACTS

Notes

1. All answers take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
2. Once it has been determined that a particular physical impact may occur, then the checklist answers indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
3. “Negative Declaration: Less-Than-Significant Impact with Mitigation Measures Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less-Than-Significant Impact.” The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less-than-significant level (mitigation measures from section XVII, “Earlier Analyses,” may be cross-referenced).
4. Earlier analyses are used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. [Section 15063(c)(3)(D)] In this case, a brief discussion would identify the following:
    a. “Earlier Analysis Used” identifies and states where such document is available for review.
    b. “Impact Adequately Addressed” identifies which effects from the checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and states whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. “Mitigation Measures”—For effects that are “Less-Than-Significant Impact with Mitigation Measures Incorporated,” mitigation measures are described which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
5. Checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances, etc.) are incorporated. Each reference to a previously prepared or outside document, where appropriate, includes a reference to the page or pages where the statement is substantiated.
6. “Supporting Information Sources”—A source list is attached, and other sources used or individuals contacted are cited in the discussion.
7. The explanation of each issue identifies:
    a. The significance criteria or threshold, if any, used to evaluate each question; and
    b. The mitigation measure identified, if any to reduce the impact to less than significant.

1. AESTHETICS

Except as provided in Public Resources Code Section 21099 (Modernization of Transportation Analysis for Transit-Oriented Infill Projects), would the project:

		Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a.	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b.	Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c.	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d.	Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Comments:

a,b. The environmental checklist in Chapter 5 of the community plan EIR found that implementing the community plan, including development within the Bradbury master plan boundary, would have no impact. No further analysis in the SEIR is required.

c,d. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have less-than-significant impacts from degrading visual character or quality or creating substantial sources of light or glare.

The proposed Bradbury master plan includes land use types that are consistent with those assumed to develop within the within the Bradbury master plan boundary, except that it would eliminate the business park land use designation. The business park land use allows lighting types (e.g., parking lot and building lighting) that commonly have general light and glare effects that differ from those associated with the proposed master plan land uses and which have potential to generate greater light and glare than the residential uses that would replace them. The proposed master plan would have less-than-significant visual and lighting impacts. No further analysis is required in the SEIR.

2. AGRICULTURE AND FOREST RESOURCES

In determining whether impacts on agricultural resources are significant environmental effects and in assessing impacts on agriculture and farmland, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

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

Comments:

a,e. The community plan EIR concluded that implementing the community plan would have a direct significant impact from converting Farmland within the community plan boundary to non-agricultural use, and would have an indirect significant impact from potential to convert Farmland located adjacent to, but outside the community plan (and project site) boundary to non-agricultural use. These direct and indirect impacts were found to be significant unavoidable under community plan and cumulative conditions, even with implementation of community plan policies and implementation measures that would lessen the impacts.

The proposed master plan project would have the same direct unavoidable significant impact, as the project site is classified as Farmland. This impact will be identified in the SEIR. No further detailed analysis will be required in the SEIR.

The proposed master plan includes agricultural buffers within and along the northern and eastern boundaries of the site. The setbacks are proposed in part per implementation measure LU 4.2.a in the community plan EIR, which is designed to reduce land use incompatibilities between urban uses within the community plan boundary and adjacent agricultural uses. The setbacks are also designed to implement Merced County zoning code section 18.10.040 M, which requires new residential dwellings to be setback so as to provide a physical separation of 200 feet, as measured from dwelling units to any abutting parcels used for agricultural production. In combination with Bradbury Road on the north and Vincent Road on the east, these buffers would further separate future development within the project site from on-going, adjacent agricultural operations to the north and east. This would reduce the potential for land use conflicts between proposed urban and existing adjacent agricultural uses, and reduce indirect impacts from conversion of Farmland adjacent to the project site to less than significant. This potentially significant impact will be identified in the SEIR. No further detailed analysis will be required in the SEIR.

b. The community plan EIR identified that no land within the community plan boundary was under Williamson Contract at that the time the EIR was certified in 2006. However, the community plan EIR concluded that implementing the community plan could have a significant impact from conflicting with a Williamson Act zoning by indirectly putting pressure on landowners with land under Williamson Act contract that is located adjacent to the community plan boundary to terminate their contracts. The community plan EIR did not make a separate impact significance determination for this. Rather, it concluded that this indirect effect would contribute to loss of Farmland; an impact found to be significant and unavoidable.

The project site is not under Williamson Act contract. The County has not been accepting new Williamson Act contract applications since 2009. One of two parcels that border the site on the north and one parcel bordering the site on the northeast were under Williamson Act contract as of 2010. As of March 2022, the County Assessor's office has confirmed that there has been no change in the status of Williamson Act contracts on properties adjacent to the project site since that time.

The proposed master plan includes agricultural buffers within the northern and eastern boundaries of the site. The purpose is, along with Bradbury Road on the north and Vincent Road on the east, to further buffer future uses within the site from on-going agricultural operations to the north and east that are outside the community plan and master plan boundaries. This would reduce potential for land use conflicts between urban development within the project site and adjacent land under Williamson Act contract. The setbacks implement implementation measure LU 4.2.a in the community plan EIR, which is defined as mitigating impacts from land use incompatibilities between urban uses within the community plan boundary and adjacent agricultural uses.

Because the project site is not under Williamson Act contract and the project includes agricultural setbacks to reduce conflicts with adjacent land that is under Williamson Act contract, the proposed project would have less-than-significant direct and indirect impacts from conflict with Williamson Act zoning. No further analysis is needed in the SEIR.

c,d. The project site is currently zoned for agricultural use. Forest land, timberland, and timberland production zoning does not apply. Neither the project site nor adjacent lands contain forest land. No further analysis is needed in the SEIR.

3. AIR QUALITY

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

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?	☒	☐	☐	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
d. Result in other emissions, such as those leading to odors adversely affecting a substantial number of people?	☐	☐	☐	☒

Comments:

a-c. The community plan EIR examined air quality impacts associated with implementing the community plan as a whole. The proposed master plan is not consistent with the land use and development capacity assumptions for the master plan area as identified in Table 3-2 of the community. Consequently, the potential air quality impacts of the proposed master plan will be evaluated in the SEIR. As part of the analysis, a health risk assessment will be prepared to evaluate potential impacts of exposure of future project site residents to toxic air contaminants generated by traffic on State Route 99 and from other sources.

d. The environmental checklist in Chapter 5 of the community plan EIR concluded that uses proposed in the community plan area unlikely to generate substantial odors, but that such uses could be exposed to odors from adjacent agricultural activities and dairy farms. Exposure to substantial odors from these activities was found to be a potentially significant impact that was evaluated in the community plan EIR.

In 2015, in California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal.4th 369, 377, the California Supreme Court held that “agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project’s future users or residents”. The court stated that “ordinary CEQA analysis is concerned with a project’s impact on the environment, rather than with the environment’s impact on a project and its users or residents”. The court did not hold, however, that CEQA never requires consideration of the effects of existing environmental conditions on the future occupants or users of a proposed project. But the circumstances in which such conditions may be considered are narrow: "when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the project's impact on the environment, and not the environment's impact on the project, that compels an evaluation of how future residents or users could be affected by exacerbated conditions".

As a result of this court case, which was decided after the community plan EIR was certified, and because the community plan EIR environmental checklist found that proposed uses within the community plan would not be a source of odors, no further analysis of odor impacts is required in the SEIR.

4. BIOLOGICAL RESOURCES

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or US 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, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☒	☐	☐	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.), through direct removal, filing, 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?	☒	☐	☐	☐

Comments:

a-f. The environmental checklist in Chapter 5 of the community plan EIR concluded that with one exception, implementing the community plan would have no impacts on biological resources. The exception was the potential for significant impacts on a range of candidate, sensitive, or special status species. Potential impacts on the subject species were evaluated in detail in the environmental checklist. Potentially significant impacts were mitigated to less than significant, based largely on mitigation measures included in the community plan checklist itself. Consequently, biological resource impacts of implementing the community plan were not evaluated in detail in the body of the community plan EIR.

It is possible that biological resources conditions within the community plan boundary, including the Bradbury master plan boundary, have changed since the community plan EIR (and associated environmental checklist), were certified in 2006. Under existing conditions, it is possible that implementing the proposed master plan could result in significant biological resources impacts that were not identified in the community plan EIR environmental checklist. For this reason, the SEIR will include detailed evaluation of biological resource impacts, based in significant part on a biological resources reconnaissance that will be conducted as part of the evaluation.

5. CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to section 15064.5?	☐	☐	☒	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to section 15064.5?	☐	☐	☒	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

Comments:

a. The environmental checklist in Chapter 5 of the community plan EIR concluded that historic resource impacts of implementing the community plan could be potentially significant. This determination was made based on the presence of 17 potentially historic properties within the community plan boundary, none of which are located within the project site. The community plan EIR concluded that potential impacts on historic resources would be significant and unavoidable, even with implementation of community plan policy 5.1 and associated implementation measures 5.1.a through 5.1.d. Implementation measure OS 5.1.c requires that master plan plans that could result in remodeling or demolishing buildings 45 years or older must first evaluate such structures for historical significance, with recommendations provided prior to approval.

Potential impacts on subsurface historical resources were not evaluated in detail in the Chapter 5 environmental checklist or in the cultural resources section of the EIR.

As part of the CEQA process for the proposed project, an archival search was conducted by the Central California Information Center at California State University, Stanislaus in January 2022 at the request of EMC Planning Group. There are records of three resources within a quarter mile radius of the site. Four reports pertain to the project site. One was a field survey for historic architectural resources; the properties that were surveyed did not meet the criteria of eligibility for inclusion in the National Register of Historical Places. A second was a field survey that concluded no cultural resources were located. The third report referenced a concrete canal and the Southern Pacific San Joaquin Valley Mainline, neither of which would be affected by the proposed project. The final report identified that two prehistoric isolates (isolated individual artifacts not believed to be part of a larger complex or site) were discovered within the site, but their origin is unknown.

The proposed project would not directly cause the several existing residential structures within the project site to be demolished. It is currently unknown if and when any one or more of the structures would be demolished. Future individual projects whose construction would require demolishing structures would be required to implement implementation measure OS 5.1.c as a condition of project approval. As described under item "b' below, such projects would also be conditioned to implement community plan programs to evaluate potential impacts of future individual projects on archaeological resources, with such evaluations also considering impacts on subsurface historical resources. Impacts of the proposed master plan project on historical resources would be less than significant.

b. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have a less-than-significant impact on archaeological resources with implementation of policy OS 5.2 and associated implementation measures OS 5.2.a to OS 5.2.c. The policy and implementation measures were included in the community plan primarily to address archaeological sensitivity of properties within the community plan that are located near the Merced River; the Bradbury master plan site is not one of these properties. Refer to item "a" above for a summary of the Central California Information Center records regarding cultural resources – none are confirmed to exist within the project.

Implementation measure OS 5.2.b requires that master plan projects prepare an archaeological survey if they would require grading. The proposed project would not directly result in grading. Future individual projects within the master plan boundary that do require grading would be conditioned to implement this measure. Impacts of the proposed project on archaeological resources would be less than significant. No further analysis is required in the SEIR.

c. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have a less-than-significant impact on human remains with implementation of policy OS 5.2 and implementation measure OS 5.2.c. The implementation measure requires that if human remains are uncovered during development, specific procedures are followed pursuant to state law to protect the remains and notify the Native American Heritage Commission of the remains are identified as of Native American origin. This implementation measure would be a condition of approval of future individual development projects within the project site. Therefore, no further analysis is required in the SEIR.

6. ENERGY

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Comments:

a. The topic of energy effects was not explicitly part the environmental analysis conducted in the community plan EIR. The topic of energy was added to Appendix G of the CEQA Guidelines in 2018, years after the community plan was certified in 2006.

The analysis of energy impacts here is qualitative because there is no quantified threshold of energy demand for a project at which its demand could be considered wasteful, inefficient or unnecessary, either during construction or operations. Rather, the energy effects of the proposed project are examined in light of related development guidance provided in the community plan and in light of the robust suite of plans and regulations promulgated by the state that directly and indirectly result in reduced energy consumption.

A project could be considered to result in significant wasteful, inefficient, or unnecessary energy consumption if its energy demand is extraordinary relative to common land use types. The community plan designates the Bradbury master plan site with land use types that are common in urban development contexts. While the proposed master plan modifies the community plan land use designations, the residential and commercial uses included in the master plan are common and do not inherently represent use types whose energy demand would be considered wasteful or unnecessary.

Energy Related County Land Use Plan Policy Guidance

The Merced County general plan contains numerous energy related policies and programs with which development in the community plan boundary, including the project site, must be consistent. The Land Use and Community Character Element includes policies calling for energy efficient design in new development, (e.g., passive/active solar and green building design, enhanced energy conservation standards, etc.) which would result in reduced building energy (electricity and natural gas). The Circulation Element includes policies and programs whose implementation would reduce vehicle miles traveled (VMT) and correspondingly, demand for transportation fuel. The Natural Resources Element includes policies to promote renewable energy and energy conservation. The Air Quality Element includes policies for reducing air emissions that indirectly would result in reduced energy demand.

The community plan includes development guidance that would result in reduced energy demand, particularly transportation fuel demand. by requiring new development to integrate improvements to promote bicycle, pedestrian and transit mobility that would reduce VMT. The community plan includes features and policies that would encourage pedestrian and biking activities as an alternative to vehicle use. These include constructing Class I and Class II bicycle lanes on major collectors and minor collectors, respectively, and requiring transit stops and shelters in locations to be coordinated with the transit provider. The community plan EIR also includes mitigation measure 4.3-3. This mitigation references the need for individual projects within the community plan boundary to comply with the emission reduction measures listed in Appendix D-2 of the community plan EIR. The appendix includes a multitude of measures primarily designed to reduce air emissions from residential, office and retail development, but with co-benefit of reducing electricity and natural gas demand.

Energy Related Regulatory Summary

A multitude of state regulations and legislative acts are aimed at reducing electricity/natural gas demand and improving energy efficiency in new construction, promoting alternative energy production and use efficiency, and enhancing vehicle fuel efficiency. Required compliance with many of the regulations is not within the direct control of local agencies or individual project developers, but their implementation can reduce energy demand from land use projects both directly and indirectly. Representative examples include:

- California Energy Action Plan, which includes strategies for expanding use of zero-emission vehicles, and encouraging urban design to reduce VMT and increase pedestrian and bicycle access;
- California Renewables Portfolio Standard to increase the percentage of utility-provided electricity derived from renewable sources;
- Statutes and regulations to improve vehicle fuel efficiency such as Advanced Clean Cars;
- Statues to reduce VMT and related transportation fuel demand such as SB 375, the Sustainable Communities Strategy;
- The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires doubling of the energy efficiency savings in electricity and natural gas for retail customers through energy efficiency and conservation by December 31, 2030;
- The California Energy Code, Building Energy Efficiency Standards (Title 24, Part 6) that create uniform building codes to reduce energy consumption and provide energy-efficiency standards for residential and nonresidential buildings;

- The California Green Building Standards (Title 24, Part 11), also known as CALGreen, is a reach code (i.e., optional standards that exceed the requirements of mandator codes) that provides green building standards for statewide residential and nonresidential construction that are equivalent to or more stringent than those of the California Energy Code for energy efficiency, water efficiency, waste diversion, and indoor air quality; and
- Senate Bill 743 is designed to reduce VMT and associated GHGs, with the co-benefit of reducing transportation fuel consumption.

Given the considerations summarized above, the proposed project would have a less-than-significant energy impact. No further analysis of energy resource impacts is required in the SEIR.

b. At this time, there are no regulations at the state or local level that would mandate that the proposed project as a whole must include on-site renewable energy sources. However, the current 2019 California Building Standards Code would require that the planned residential uses be constructed to be net zero energy demand. This standard is commonly met, at least in part, by installing solar photovoltaic systems. Additional on-site renewable energy generation may be required in subsequent updates to the California Building Standards Code that would be applicable at the time building permits for individual developments within the master plan boundary are requested. By incorporating energy efficiency measures per the Building Energy Efficiency Standards, future development within the project would comply with existing state and local energy standards and would not conflict with or obstruct a state or local plan for energy efficiency. Therefore, no further analysis of conflicts with energy plans is required in the SEIR.

7. GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
(1) 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?	☐	☐	☒	☐
(2) Strong seismic ground shaking?	☐	☐	☒	☐
(3) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
(4) Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☒	☐
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Comments:

a-f. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have less-than-significant geology and soils impacts. The impact determinations from that checklist have been mirrored in the checklist table above. The proposed master plan includes land uses that were assumed in the community plan for the Bradbury master plan area. The proposed project does not include land use or development intensity changes that could give rise to geology and soils impacts that were not addressed in the community plan environmental checklist. Therefore, no further analysis of geology and soils impacts is required in the SEIR.

The need to analyze geology and soils impacts in the SEIR is generally made moot by the California Building Industry Association v. Bay Area Air Quality Management District case from 2015 that is summarized in Section 3, Air Quality, in this initial study. Pursuant to that judgement, an analysis of the impact of existing environmental conditions on a project's future users or residents is generally not required under CEQA. Geology and soils conditions are existing environmental conditions. The determinations of impact significance for geology and soils impacts shown in the checklist above are for informational purposes.

The impact question in item "f" above regarding paleontological resources impacts was relocated to the geology and soils section of CEQA Guidelines Appendix G in 2018. At the time the community plan environmental checklist was prepared, the question was located in the cultural resources section of Appendix D as item 5.d. The analysis in the community plan EIR environmental checklist concluded that implementing the community plan would have no impact on paleontological resources or unique geologic features. Therefore, no further analysis of paleontological resources impacts is required in the SEIR.

8. GREENHOUSE GAS EMISSIONS

Would the project:

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

Comments:

a,b. The topic of GHGs was not considered in the environmental checklist in Chapter 5 of the community plan EIR. The CEQA Guidelines were subsequently amended to include GHGs as an environmental topic, with Appendix G of the Guidelines amended to include the topic. Therefore, neither the community plan environmental checklist nor the community plan EIR evaluated GHG impacts of implementing the community plan.

Future development within the master plan boundary will generate GHGs during its construction and operation. The SEIR will include detailed analysis of the potential impacts of these emissions.

9. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

		Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c.	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d.	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, 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 a public-use airport, result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒	☐
f.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g.	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Comments:

a. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have a less-than-significant impact from hazards related to transport, use, and disposal of hazardous materials. The checklist noted that planned residential, commercial and office uses would involve the use of some hazardous, but at minimal amounts that would unlikely to be harmful. Conversely, the checklist noted that the industrial, industrial park, and general commercial uses identified in the community plan could involve relatively large amounts of hazardous materials, with associated hazardous materials risks minimized through required compliance with a range of uniformly applied state and federal regulations.

The proposed master plan amends the land uses within the master plan boundary in part by removing the business park use and replacing it largely with residential and other non-residential uses with lower hazardous materials risks. Therefore, the proposed project could be considered to reduce the less-than-significant impact identified in the community plan checklist. The proposed master plan impact would be less than significant. Therefore, no further analysis is required in the SEIR.

b,d. Per the discussion in item "a" above, the land uses types planned as part of proposed master plan would not involve significant transport, use or disposal of hazardous materials such that significant risks from reasonably foreseeable hazardous materials releases to the environmental are unlikely.

Hazardous materials could be released to the environment if existing hazardous materials conditions (e.g., the site contains a known hazardous materials condition, known underground storage tanks, etc.) exist on the site and hazardous materials are inadvertently released due to accidents during grading or excavations. At the time the community plan environmental checklist was prepared, there were no properties within the community plan boundary listed by the California Department of Water Resources on the Cortese List (a list maintained at that time which identifies locations of known reported hazardous materials sites). The California Department of Toxic Substances Control now maintains the Envirostor database, which functions as the Cortese List. The database was accessed to determine if changes to the previous list of hazardous materials sites has occurred. Five sites are on the Envirostor list. Three of these were evaluations of hazardous materials conditions at a school for which no further action is required. Two are inactive, but are noted as requiring evaluation - the Arroyo Garage at 10059 Vincent Road and Bettencourt Agricultural Flying Service at 10831 North Palm, both in Delhi. Neither of these is within the project site boundary.

The community plan EIR environmental checklist includes a mitigation measure requiring a Phase I Environmental Site Assessment for properties within the community plan boundary that are shown on Figure 5-1 in the checklist. The Bradbury master plan site is not one of the properties; the mitigation measure does not apply.

Given the information above, the proposed master plan would have less-than-significant impacts associated with creating hazards to the public and the environmental from hazardous materials accidents or accidental releases. Therefore, no further analysis of is required in the SEIR.

c. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have less-than-significant impacts because existing and proposed school sites are located in areas proposed for low density residential development and/or more than one-quarter mile from existing or planned industrial sites where use of hazardous materials is more likely. The analysis also noted that hazardous materials risks would be reduced due required compliance with uniformly applied development regulations.

As described above, the non-school land uses within the proposed project site would not be sources of significant hazardous materials risk that could adversely affect the planned school sites within the project site boundary. By eliminating the business park use identified in the community plan for the master plan area, the less-than-significant impact would be further reduced. Therefore, no further analysis is required in the SEIR.

e. The environmental checklist in Chapter 5 of the community plan EIR concluded that the community plan area is not within an airport land use plan or within two miles of a public airport or private airport. However, an agricultural airstrip was located approximately one-half mile east of the plan area on North Palm Street. Development in the plan area was identified as being outside of the aircraft over flight safety zone, and would be buffered from the airstrip by agricultural land and urban reserve, so implementing the proposed community plan, including development within the proposed master plan boundary would have a less-than-significant impact regarding air safety hazards for people residing or working in the plan area. The airstrip has since ceased operation. No further analysis is required in the SEIR.

f. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have no impact with regards to emergency access or implementing emergency response plans. The proposed master plan does not alter transportation facilities or routes identified in the community plan that would serve as access for emergency vehicles or as may serve the function of emergency evacuation routes. The proposed project would have not impact. Therefore, no further analysis is required in the SEIR.

g. Per state law, CAL FIRE is required to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones, define the range of various mitigation strategies that could be applied to reduce risk associated with wildland fires. Areas developed with urban uses for which local fire protection services are provided are generally included in Local Responsibility Areas. The community plan area is within a local Responsibility Area, as it is served by the Merced County Fire Department. CAL FIRE determined in November 2008 that Merced County has no Very High Fire Hazard Severity Zones within Local Responsibility Areas. No further analysis is required in the SEIR.

10. HYDROLOGY AND WATER QUALITY

Would the project:

		Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a.	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☒	☐	☐
b.	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☒	☐	☐	☐
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(1)	Result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
(2)	Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒	☐
(3)	Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
(4)	Impede or redirect flood flows?	☐	☐	☒	☐
d.	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e.	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☒	☐	☐	☐

Comments:

a,c. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have a potentially significant impact from violating water quality standards or discharge requirements due to new urban development being a source of polluted storm water runoff during construction and operations of new development. The environmental checklist described uniform development regulations to which all new development within the community plan must comply that would serve to reduce related impacts to less than significant. The water quality control performance standards for construction activities are identified in Water Quality Control Board's General Construction Activity Stormwater Permit, which requires a permit under the National Pollutant Discharge Elimination System. The water quality performance standards for post-construction conditions are identified as based on the County's Stormwater Management Plan that had been submitted to the Regional Water Quality Control Board, but had not yet been approved at the time the community plan EIR had been prepared. Consequently, the environmental checklist included mitigation measure 5-8, which requires applicants to identify and commit to implementing water quality best management practices that are consistent with Regional Water Quality Control Board guidelines, or the County's Stormwater Management Plan once approved.

Subsequent to the community plan EIR being certified, water quality requirements as promulgated by the Regional Water Quality Control Board were revised/updated. The more current performance standards to reduce water quality impacts from new urban (non-industrial) development of the types included in the proposed master plan are described in detail in the Merced County Ordinance No. 1923, regarding regulating stormwater. The ordinance includes performance standards designed to meet National Pollutant Discharge Elimination System Phase II requirements for municipal separate storm sewer systems.

Ordinance No. 1923 includes standards for construction site storm water runoff controls (e.g., to minimize potential release of contaminants and minimize potential for soil erosion), and post-construction storm water management goals for new and redeveloped areas. The latter include best management practices for controlling and treating runoff from new impervious and other surfaces prior to discharge to a storm water system. These practices require, in part, that the volume and rate of runoff from a new development site under cannot exceed that which occurred from the subject development site under pre-development conditions. This requirement assures that runoff from new impervious surface would not increase the potential for flooding on- or off-site or exceed the capacity of storm drainage systems. New development must comply with the uniformly applied performance standards in the Storm Water Management Program. The general plan EIR concludes that adherence of future development with the Storm Water Management Program would ensure that pollutants are not released to nearby surface water bodies or groundwater during short-term construction or long-term operations of development.

Given the more recent Storm Water Management Program requirements, the need to apply mitigation measure 5-8 in the environmental checklist to new development within the community plan boundary is eliminated, and required compliance with the Storm Water Management Program would ensure that the water quality impacts of new development within the Bradbury master plan boundary would be less than significant. Therefore, no further analysis is required in the SEIR.

The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have no impacts related to flood hazards (e.g., locating housing within a flood hazard zone or placing structures in a flood hazard zone that would result in redirecting flood flows). Therefore, no further analysis is required in the SEIR.

b,e. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have a significant impact from potentially depleting groundwater supplies. The topic of development consistency with a groundwater sustainability plan was not considered in the environmental checklist in Chapter 5 of the community plan EIR. The CEQA Guidelines were subsequently amended to include this environmental topic, with Appendix G of the Guidelines amended to also include the topic. Therefore, neither the community plan EIR environmental checklist nor the community plan EIR evaluated this impact of implementing the community plan.

Changes in groundwater demand reported in the community plan EIR that would occur with the proposed project and project impacts on groundwater supply sustainability will be examined in detail in the SEIR.

d. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have no impact from potential inundation during a flood, seiche or tsunami. Therefore, there would be no impact associated with releasing pollutants during such an inundation event. Therefore, no further analysis is required in the SEIR.

11. LAND USE AND PLANNING

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause any significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Comments:

a. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have no impact from physically dividing a community. No further analysis is required in the SEIR.

b. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have potentially significant impacts associated with potential conflicts with the Merced County general plan and/or Merced County Local Agency Formation Commission policies. Potential for conflicts was examined in detail in Chapter 4.1, Land Use and Agriculture, of the community plan EIR. With one exception, impacts from inconsistencies with Merced County general plan policies were less than significance or reduced to less than significant with mitigation measures described in that section. The one exception was conversion of Farmland to non-agricultural use. This impact was found to be significant and unavoidable. A finding of overriding consideration was made for this impact. The proposed project would result in the same impact.

Future development within the proposed project site will be required to comply with applicable mitigation measures included in the community plan EIR. The mitigation measures include a combination of compliance with policies and programs in the community plan, mitigation measures included in the Chapter 5 environmental checklist, and mitigation measures included in Chapter 4 of the community plan EIR. With this required compliance, the proposed project would have less-than-significant impacts from conflict with applicable policies and plans as evaluated in the community plan EIR.

Project consistency with other applicable plans, including air quality plans, biological resources conservation plans, GHG reduction plans, and groundwater sustainability plans will be evaluated in detail in the SEIR as part of the detailed analysis of these individual topics.

12. MINERAL RESOURCES

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Result in 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 in a local general plan, specific plan, or other land-use plan?	☐	☐	☐	☒

Comments:

a,b. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have no impact regarding loss of availability of mineral resources. Therefore, no further analysis is required in the SEIR.

13. NOISE

Would the project result in:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in applicable standards of other agencies?	☒	☐	☐	☐
b. Generation of excessive ground-borne vibration or ground borne noise levels?	☒	☐	☐	☐
c. For a project located within the vicinity of a private airstrip or 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, expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Comments:

a. The environmental checklist in Chapter 5 of the community plan EIR included analysis regarding exposure of people to noise levels in excess of standards, exposure of people to excessive groundborne vibration and exposure of people to excessive airport operations generated noise. These environmental topics are no longer included in Appendix G of the CEQA Guidelines, as evidenced above. Their exclusion from Appendix G was largely based on California Building Industry Association v. Bay Area Air Quality Management District court case described in Section 3, Air Quality, in this initial study. However, this same case concluded that when a project has potential to exacerbate an existing environmental condition, the impact of that existing condition on the project should be evaluated.

Based on information in Table 4.4-8, Predicted Distances to Future Plus Project Noise Contours, in the environmental checklist in Chapter 5 of the community plan EIR, up to about 981 feet of the project site as measured from the centerline of State Route 99 could be exposed to exterior noise levels that exceed normally acceptable for sensitive land uses, including residential uses included in the proposed master plan. The proposed project will contribute traffic to the road network and result in increased noise levels on the network, including State Route 99. Community plan implementation measures N 1.1.a and N 1.1.b require that a noise study be conducted, including during the master plan process. Consequently, potential noise impacts from the proposed project and noise impacts on planned sensitive receptors within the project site will be evaluated in detail in the SEIR.

b. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have a potentially significant impact related to groundborne noise levels. Impacts of groundborne vibration were not addressed. The proposed master plan places vibration sensitive residential land uses closer to the Union Pacific Railroad tracks than identified in the community plan. Vibration from the railroad could be considered a safety hazard if it could compromise the structural integrity of planned residential and other structures constructed near the rail line. Therefore, vibration and relative safety hazards will be investigated in detail in the SEIR.

c. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have no impact from public use airport noise, but a potentially significant impact from noise generated by a private airstrip located just east of the community plan boundary. That airstrip is no longer in operation. Therefore, no airport related potential noise impacts would occur. No further analysis is required in the SEIR.

14. POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

Comments:

a. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have less-than-significant impacts from both population growth and non-residential development, with the environmental effects of such growth examined as part of the environmental impact analysis for other topics in the checklist and in the community plan EIR. The same is the case with the proposed project. This environmental checklist and the SEIR evaluate the impacts of changes in population growth and non-residential development that would occur with implementation of the proposed project. No growth inducement would occur outside of the community plan boundary with implementation of the proposed project – it would have no related impact.

b. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have less-than-significant impacts from displacing substantial number of people because new housing provided by implementing the community plan would far exceed that lost as a result of such development. There are several residences located with the Bradbury master plan site. Over time, owners of these residences who sell their properties for development per the master plan would be displaced. The number of people that would be displaced is not substantial and housing constructing on the project site per the master plan would far exceed the number houses lost. No further analysis is required in the SEIR.

15. PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of or 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 following public services:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Fire protection?	☐	☐	☐	☒
b. Police protection?	☐	☐	☐	☒
c. Schools?	☐	☐	☐	☒
d. Parks?	☐	☐	☐	☒
e. Other public facilities?	☐	☐	☐	☒

Comments:

a. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have a less-than-significant impact on fire protection services provided that, per community plan implementation measure PS 4.1.b, a new fire station is constructed within the Bradbury master plan area or other appropriate location. As discussed in the Project Description section of this initial study, the applicant has reserved a fire station site for dedication to the Merced County Fire Department. The Merced County Fire Department would be responsible for constructing the new fire station at its own discretion.

A new fire station project would be subject to separate CEQA review with associated environmental impacts identified in separate CEQA documentation to be prepared for that project. These impacts would likely be similar to those associated with constructing other development within the master plan boundary and include, but may not be limited to: air emissions, cultural resource, GHG, water quality, hazardous materials, noise, and tribal cultural resource impacts. Potential operational impacts could include, but may not be limited to air emissions, GHG emissions, hazardous materials, water quality, and noise. Impacts of constructing and operating the fire station are generally addressed in other sections of this initial study, and would be considered in analysis of specific topics to be addressed in the SEIR. The proposed project would not generate demand for fire protection services that would require constructing new fire protection facilities in locations outside of the project site. Therefore, it would have no related impacts.

b. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have a less-than-significant impact on police protection services; no new police protection facilities are identified as being needed to implement the community plan. There is an existing Sheriff's Department substation in Delhi from which coverage for Delhi and other unincorporated areas in the vicinity is provided. No impacts from constructing such facilities would occur and no further analysis of this topic is required in the SEIR.

c. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have a less-than-significant impact on schools provided new school sites and funding are provided as described in the community plan. The proposed project includes a combined elementary school and middle school site consistent with school site needs and locations in the community plan.

The Delhi Unified School District would be responsible for constructing the schools. The school project(s) would be subject to separate CEQA review with associated environmental impacts identified in separate CEQA documentation to be prepared for that project by the school district acting as lead agency. Impacts of constructing the schools would likely be similar to those associated with constructing other development within the master plan boundary and include, but may not be limited to air emission, cultural resource, GHG, water quality, hazardous materials, noise, and tribal cultural resource impacts. Potential operational impacts could include, but may not be limited to air emissions, GHG emissions, hazardous materials, water quality and supply availability, noise, and VMT. Impacts of constructing and operating the schools are generally addressed in other sections of this initial study, and would be considered in analysis of specific topics to be addressed in the SEIR. The proposed project would not generate demand for constructing new school facilities in locations outside of the project site. Therefore, it would have no related impacts.

d. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have a less-than-significant impact on parks provided new parks are provided as described in the community plan. Consistent with the community plan, the proposed project includes two neighborhood and a regional park to meet and exceed the demand for recreation resources that would be generated by future residents residing within the site. Constructing and maintaining the parks would result in impacts that are within the scope of impacts for implementing future development within the master plan boundary in general. These include, but may not be limited to: construction phase air emission, cultural resource, GHG, water quality, hazardous materials, noise, and tribal cultural resource impacts. These potential impacts topics are addressed in other sections of this initial study as part of the analysis of impacts of implementing the proposed project as a whole. Several of these environmental topics will be evaluated in detail in the SEIR. The proposed project would not generate demand for park facilities that would require constructing new parks in locations outside of the project site. Therefore, it would have no related impacts.

e. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have a less-than-significant impact on other public facilities such as libraries. The community plan does not specifically identify that other new public facilities are needed. The proposed project would have no impact related to constructing or operating other public facilities. No further analysis is required in the SEIR.

16. RECREATION

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

Comments:

a,b. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have potentially significant impacts related to physical deterioration of parks and constructing or expanding recreational facilities. However, the checklist concluded that these impacts are addressed in the respective environmental topic sections of the environmental checklist or the community plan EIR.

The proposed project includes two neighborhood and one regional park that are planned within the site to meet demand for recreation resources. Constructing and maintaining the parks would result in impacts that are within the scope of impacts for implementing future development within the master plan boundary in general. These include, but may not be limited to construction phase air emission, cultural resource, GHG, water quality, hazardous materials, noise, and tribal cultural resource impacts. These potential impacts topics are addressed in other sections of this initial study as part of the analysis of impacts of implementing the proposed project as a whole. Several of these environmental topics will be evaluated in detail in the SEIR. The proposed project would not generate demand for park facilities that would require constructing new parks in locations outside of the project site. Therefore, it would have no related impacts.

17. TRANSPORTATION

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☒	☐	☐	☐
b. Conflict or be inconsistent with CEQA guidelines section 15064.3, subdivision (b)?	☒	☐	☐	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d. Result in inadequate emergency access?	☐	☐	☐	☒

Comments:

a. The community plan is the primary plan that addresses the circulation system which would be most affected by the proposed project. Future development within the Bradbury master plan site must implement roadway, bicycle, pedestrian, and transit improvements consistent with the plans, policies and standards contained in the community plan. The applicant has submitted roadway, bicycle and pedestrian circulation plans pursuant to direction provided in the community plan.

The Merced County general plan includes policy for the operational performance of the County's roadway system as measured by level of service. Policy CIR-1.5.c states that for roadways within urban communities, level of service "D" or better is the performance standard. A traffic impact analysis will be prepared for the proposed project. The analysis will determine whether this performance standard would be met with implementation of the proposed project. This topic will be evaluated in detail in the SEIR.

b. The topic of vehicle miles traveled per section 15064.3, subdivision (b) of the CEQA Guidelines was not considered in the environmental checklist in Chapter 5 of the community plan EIR. The CEQA Guidelines were subsequently to include vehicle miles traveled as an environmental topic, with Appendix G of the Guidelines also amended to include the topic. Therefore, neither the community plan environmental checklist nor the community plan EIR evaluated vehicle miles traveled impacts of implementing the community plan. This topic will be evaluated in detail in the SEIR.

c. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have less-than-significant impacts from increasing circulation hazards due to a design feature. The proposed project would be required to construct circulation network improvements to County standards, which are intended to minimize design hazards. No further analysis is required in the SEIR.

d. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have no impact from interfering with emergency access, as implementing the community plan would not alter the surrounding street system. No further analysis is required in the SEIR.

18. TRIBAL CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
(1) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources code section 5020.1(k), or	☐	☐	☒	☐
(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

Comments:

a. The topic of tribal cultural resources was not considered in the environmental checklist in Chapter 5 of the community plan EIR. The CEQA Guidelines were subsequently amended to include tribal cultural resources as an environmental topic, with Appendix G of the Guidelines also amended to include the topic. Therefore, neither the community plan environmental checklist nor the community plan EIR evaluated tribal cultural resources impacts of implementing the community plan.

Refer to Section 5, Cultural Resources, regarding historical resources issues. At the time the community plan EIR was prepared, there were no listed historical resources within the community plan boundary.

The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have a less-than-significant impact on subsurface archaeological resources and human remains with implementation of policy OS 5.2 and implementation measures OS 5.2.b and OS 5.2.c, respectively. The first requires that archaeological surveys be conducted for projects one acre or greater that require grading or excavation. The second requires that if human remains are uncovered during development, specific procedures are followed pursuant to state law to protect the remains and notify the Native American Heritage Commission if the remains are identified as of Native American origin. The requirement to implement policy OS 5.2 and implementation measures OS 5.2.b and OS 5.2.c would be a condition of approval of future development within the project site.

An updated Central California Information Center at California State University, Stanislaus, archival search was conducted in January 2022 to determine if tribal cultural resources could be located within the project site; there were no known tribal cultural resources reported. However, one record from within the project site found two prehistoric isolates. It is unknown if the flakes are true isolates or if their presence indicates the potential for a buried tribal cultural resource deposit. The California Native American Heritage Commission Sacred Land File request came back negative – indicating no known tribal cultural resources exist within the project site. This fact combined with requiring implementation measures OS 5.2.b and 5.2.c as conditions of future individual development projects would ensure that tribal cultural resource impacts would be less than significant.

19. UTILITIES AND SERVICES SYSTEMS

Would the project:

		Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a.	Require or result in the relocation or construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☒	☐	☐	☐
b.	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☒	☐	☐	☐
c.	Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☒	☐	☐	☐
d.	Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e.	Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Comments:

a,c. The proposed project would change development capacity within the project site relative to that assumed in the community plan. Changes in demand for water (and associated changes in wastewater generation that could result in the need to construct new facilities will be examined in the SEIR. Impacts of constructing storm water facilities would be similar to those for constructing other future improvements within the project site. These effects are evaluated in other sections of this initial study and for several environmental topics, will also be evaluated in detail in the SEIR.

b. Refer to the discussion for item "b" in Section 9, Hydrology and Water Quality regarding anticipated change in water demand from the project. The change in demand for groundwater and its potential impacts on adequacy of water supply will be examined in detail in the SEIR as part of the discussion of hydrology and water quality impacts.

d,e. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have a potentially significant impact related to solid waste management. Solid waste generated from uses within the project site would be delivered to the Highway 59 Landfill, which is operated by the Merced County Regional Waste Management Authority. The community plan EIR concluded that impacts related to adequacy of capacity at the Highway 59 Landfill would be less than significant given the significant available remaining permitted capacity at the landfill at the time. As referenced from CalRecycle's SWIS Facility report for the Highway 59 Landfill, the landfill has a projected service life to 2054. As reported in CalRecycle's Jurisdictional Review Report for the Merced County Solid Waste Regional Waste Management Authority, residential uses within the Authority boundary have a significantly lower rate of solid waste generation than employment generating uses such as business park. The proposed project would eliminate business park related sources of solid waste and replace that use largely with residential uses. Given the substantial disposal capacity remaining at the landfill and the assumed total reduction in solid waste generation that would occur with the proposed project, this impact is less than significant.

All new development at the project site would be required to implement solid waste programs that are implemented by the Merced County Regional Waste Management Authority to ensure the Authority is complying with uniformly applied local, state and federal regulations regarding solid waste management.

No further analysis is required in the SEIR.

20. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

		Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a.	Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b.	Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?	☐	☐	☒	☐
c.	Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d.	Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Comments:

a. The environmental checklist in Chapter 5 of the community plan EIR concluded that implementing the community plan would have no impact from impairing or interfering with an emergency response plan. Implementation of the proposed project would require that improvements be made to the local circulation network to accommodate new vehicle traffic and to accommodate emergency vehicles and facilitate ingress and egress from the project site during an emergency. Roadways would be improvement to standards identified in the community plan that are in part based on the need to accommodate emergency vehicles. No further analysis is required in the SEIR.

b-d. Per state law, CAL FIRE is required to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones, define the range of various mitigation strategies that could be applied to reduce risk associated with wildland fires. Areas developed with urban uses for which local fire protection services are provided are generally included in Local Responsibility Areas. The community plan area is within a local Responsibility Area, as it is served by the Merced County Fire Department. As reported in the Merced County General Plan Background Report, CAL FIRE determined in November 2008 that Merced County has no Very High Fire Hazard Severity Zones within Local Responsibility Areas. CAL FIRE's Fire Hazard Severity Zone Viewer was also accessed to determine if any changes to the wildfire severity zone classification had been made since 2008. The community of Delhi continues to be identified as within a Local Responsibility Area, with no high fire hazard zones in the vicinity. The nearest high fire hazard zone is located about 25 miles to the west; a distance at which under worst-case wind conditions, exposure of future project residents to substantial concentrations of wildfire related pollutants is not likely to occur. No further analysis is required in the SEIR.

21. MANDATORY FINDINGS OF SIGNIFICANCE

		Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a.	Does the project have the potential to substantially 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; substantially reduce the number or restrict the range of an endangered, rare, or threatened species; 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)	☒	☐	☐	☐
c.	Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Comments:

a-c. Biological resource and cumulative impacts of the proposed project will be evaluated in detail in the SEIR. Potential noise impacts of the project could result in adverse impacts on human beings. This potential impact will also be evaluated in detail in the SEIR.

E. SOURCES

Environmental Setting

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Project Description

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Aesthetics

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. Delhi Community Plan. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Agriculture

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Air Quality

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Cultural Resources

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Central California Information Center. January 21, 2022. *Archival Records Search.*

California Native American Heritage Commission. February 8, 2022. *Sacred Land File Request.*

Energy

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

----. 2012. *Merced County General Plan Update 2030 Environmental Impact Report.* Accessed January 21, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/generalplan/DraftGP/DEIR/merced_county_deir_2012_11_30.pdf

Geology and Soils

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Greenhouse Gas Emissions

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Hazards and Hazardous Materials

California Department of Toxic Substances Control. Envirostor Database. Accessed January 12, 2022 at: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=Delhi+California

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Hydrology and Water Quality

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

----. 2012. *Merced County General Plan Update 2030 Environmental Impact Report*. Accessed January 21, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/generalplan/DraftGP/DEIR/merced_county_deir_2012_11_30.pdf

Land Use and Planning

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Mineral Resources

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Noise

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Population and Housing

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Public Services

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Recreation

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Transportation

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Tribal Cultural Resources

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Central California Information Center. January 21, 2022. *Archival Records Search.*

California Native American Heritage Commission. February 8, 2022.*Sacred Land File Request.*

Utilities and Service Systems

CalRecycle. SWIS Facility/Site Activity Details for the Billy Wright Disposal Site (24-AA-0002). Accessed January 28, 2022 at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/2909?siteID=1864

----. Jurisdiction Review Reports. Accessed January 25, 2022 at: https://www2.calrecycle.ca.gov/LGCentral/AnnualReporting/ReviewReports

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

Wildfire

CalFire. Fire Hazard Severity Zone Viewer. Accessed January 22, 2022 at: https://egis.fire.ca.gov/FHSZ/

Merced County. 2005. *Draft Environmental Impact Report for the Delhi Community Plan*. Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_draft_eir.pdf

----. 2006. *Delhi Community Plan.* Accessed January 10, 2022 at: https://web2.co.merced.ca.us/pdfs/planning/cplan/completed/delhi/delhi_final_community_plan.pdf

----. 2013. *2030 Merced County General Plan Background Report.* Access January 10, 2022 at: https://www.co.merced.ca.us/DocumentCenter/View/6768/GP-Background-Report?bidId=

All documents in **bold** are available for review at the **Merced County Community and Economic Development Department** during normal business hours.

Air Pollutant and Greenhouse Gas Modeling Memo and Results

B

APPENDIX

EMC PLANNING GROUP INC.
A LAND USE PLANNING & DESIGN FIRM
601 Abrego Street, Monterey,CA 93940
Tel: 831-649-1799 / Fax: 831-649-8399
www.emcplanning.com

To:	**Ron Sissem, Principal, Project Manager**
From:	**Sally Rideout EMPA, Principal**
Cc:	**File, Jacob Cisneros, Associate Planner**
Date:	**December 21, 2022**

Re: **Bradbury Ranch Master Plan – CalEEMod Criteria Air Pollutant and Greenhouse Gas Emissions Modeling - Methodology, Assumptions, and Results**

PROJECT DESCRIPTION

The proposed 273-acre Bradbury Master Plan (proposed project) area is located adjacent to State Route 99 in northern Merced County, in the community of Delhi. The proposed project is located within the San Joaquin Valley Air Basin, which is within the jurisdiction of the San Joaquin Valley Air Pollution Control District ("air district"). The proposed project would modify land use designations in the Bradbury Master Plan area as currently identified in the Delhi Community Plan. The proposed project would consist of 883 low density residential units and 186 medium density residential units on 196.2 acres, a neighborhood commercial center, an elementary school, a middle school, two neighborhood parks, a community park, and a fire station. A supplement to the Delhi Community Plan EIR is being prepared to evaluate the environmental impacts of future development associated with the proposed project.

SCOPE OF ASSESSMENT

This assessment provides methodology, assumptions and an estimate of the proposed project's operational criteria air pollutant emissions and greenhouse gas (GHG) emissions using the California Emissions Estimator Model (CalEEMod) version 2020.4.0 software, a modeling platform recommended by the California Air Resources Board (CARB) and accepted by the air district. The CalEEMod software utilizes emissions models USEPA AP-42 emission factors, CARB vehicle emission models studies and studies commissioned by other California agencies. The model results will inform the SEIR discussions of air quality and GHG emissions. Model results are attached to this assessment.

The CalEEMod platform allows calculations of both construction and operational criteria pollutant and GHG emissions from land use projects. The model also calculates indirect emissions from processes "downstream" of the proposed project such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

CalEEMod is capable of estimating changes in the carbon sequestration potential of a site based on changes in natural vegetation communities and the net number of new trees that would be planted as part of the project. To do so, the model calculates a one-time only loss in the carbon sequestration potential of the site that would result from changes in land use such as converting vegetation to built or paved surfaces, and can calculate the estimated change in the carbon sequestration potential that would result from planting new trees in an amount that is greater than the number of trees to be removed (net number of new trees).

Methodology

Unless otherwise noted, model inputs are based upon the information provided by the applicant, as well as trip generation estimates provided by the traffic consultant (KD Anderson & Associates, Inc. 2022). The CalEEMod model defaults for construction emissions are based on equipment emissions factors and a project site that is 30 acres in size. Construction equipment and phasing information for future development of the specific plan uses is not yet available in detail or with sufficient certainty to modify the model defaults. Additionally, landscaping information is not yet available to estimate the change in carbon sequestration potential resulting from the change in the number of trees on the site that would occur with future development. Therefore, an estimate of carbon sequestration changes from landscaping also is not included in this assessment.

Project Characteristics and Emissions Sources

The size and type of proposed sources of operational criteria air pollutant and GHG emissions and their respective CalEEMod land use default categories used in the model are presented in Table 1, Project Characteristics.

Table 1 Project Characteristics

Project Components	CalEEMod Default Land Use[1]	Size Metrics	
		Existing	Proposed
Low Density Residential	Single-family housing	2 Dwelling Units	883 Dwelling Units
Medium Density Residential	Apartments Mid Rise		186 Dwelling Units
Commercial/Retail	Strip Mall	-	136,680 square feet
Parks/Detention/Paths	City Park	-	37.4 acres
Elementary School	Elementary School	-	12.8 acres
Middle School	Junior High School	-	11 acres
Fire Station	Government Building	-	30,000 square feet[2]
Agriculture	Cropland	267 acres[3]	0

SOURCE: Merced County 2005, GDR Engineering 2022, Trinity Consultants, 2021.

NOTES:

1. CalEEMod default land use subtype. Descriptions of the model default land use categories and subtypes are found in the User's Guide for CalEEMod Version 2020.4 available online at: http://www.aqmd.gov/caleemod/user's-guide.
2. Based on size metrics used in the traffic report (KD Anderson & Associates, Inc, 2022).
3. Agricultural acreage estimated by review of Google Earth October 10, 2022.

Model Scenarios

Operational criteria pollutant emissions and construction and operational GHG emissions were modeled under three scenarios. Modeled results are attached to this memorandum.

Construction GHG Emissions Estimate

This scenario provides an estimate of unmitigated GHG emissions generated during construction based on CalEEMod defaults. Project-specific development and construction information is not available in detail or with sufficient certainty to modify the model's construction phasing and equipment defaults. The following methodology is used in this scenario:

- Construction GHG emissions estimates are modeled during the earliest years of project construction, which may be conservative as GHG emissions volumes are anticipated to be reduced through emissions-reducing technology and lower carbon fuels that will become increasingly available over time;
- Construction duration is based on CalEEMod defaults;
- The construction emissions for each non-residential use are modeled separately based on the size metrics identified in Table 1;
- The construction emissions for the proposed residential uses identified in Table 1 are derived using the following method:
    - The model's residential construction emissions factors are based on the total building square footage and number of units to be constructed, not residential land use type.
    - Residential construction GHG emissions per acre are calculated based on the proposed residential density for a 30-acre site. A land area of 30 acres is used as it is the land area upon which the CalEEMod default number and types of construction equipment for residential development are based;
    - The total number of residential units (1,069) divided by the total acreage (196.2) equates to approximately 5.45 units per acre, which would then equate with approximately 164 units for a 30-acre development site (5.45 x 30 = 163.5);
    - The modeled GHG emissions results for the 30-acre land area are then divided by 30 acres to yield a per-acre emissions rate expressed in in MT CO_2e; and
    - The emissions rate is applied to the total number of proposed residential acres (196.2), which yields the total residential construction GHG emissions.
- The sum of modeled residential and non-residential construction GHG emissions are amortized over 30 years to yield an annual construction GHG emissions estimate expressed in MT CO_2e per year.

Unmitigated Operational Emissions Scenario

The unmitigated emissions scenario calculates operational criteria air pollutant and GHG emissions. This model scenario assumes compliance with existing uniformly-applied regulatory requirements that reduce emissions. These regulatory and design features are listed below and the corresponding California Pollution Control Officers Association (CAPCOA) emissions reduction measures found in the *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, referenced here parenthetically, were applied.

Compliance with the following regulations during operations is assumed:

- Title 24 Building Energy Efficiency Standards for certain low-rise residential uses require that 100 percent of electrical energy demand to be provided by renewable sources.
- State Model Water Efficient Landscape Ordinance (MWELO) (CAPCOA WUW-4);
- Landscaping equipment is set to electric only to reflect phasing out of gas-powered landscaping tools potentially by 2024 (AB 1346). It is assumed that these or similar requirements will be in effect at buildout (CAPCOA A-1);
- Solid waste diversion of 75 percent is applied consistent with waste diversion targets identified in AB 341. It is assumed that these or similar requirements will be in effect at buildout (CAPCOA SW-1); and
- Merced County General Plan Policy AQ-6.6, prohibits wood stoves and wood burning heaters in all newly constructed residences in unincorporated Merced County that have access to natural gas. Natural gas stoves have substantially lower PM_{10} and $PM_{2.5}$ emissions as compared to wood stoves. Compliance with this policy would also satisfy the air district's Rule 4901 for wood burning fireplaces and wood burning heaters.

Mitigated Operational Emissions Scenario

The Mitigated scenario adds project design features that increase transit accessibility (by approximately 20 percent) and pedestrian improvements that further reduce emissions. The results are reported as "mitigated emissions" in the CalEEMod results. The design features would implement CAPCOA emissions reduction measures LUT-3, TST-3, and SDT-1 for the project site, found in the *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*. This scenario also includes applicant -

proposed measures to reduce residential GHG emissions through elimination of natural gas energy demand.

Operational Emissions Data Inputs

Each air district (or county) assigns trip lengths for urban and rural settings, which are incorporated into the CalEEMod defaults. The model's defaults were set to "rural" and the location parameters are based on the model defaults for Merced County. Data inputs are based on the information in Table 1, trip generation information provided by the traffic consultant (KD Anderson & Associates, Inc, 2022), compliance with the identified regulatory requirements, and the primary assumptions identified above.

Changes in Carbon Sequestration Potential Data Inputs

CalEEMod estimates a one-time only change in sequestration potential resulting from changes in natural communities. CalEEMod default values for cropland were used to estimate the size of the corresponding loss of cropland areas. Existing dwelling units would not be demolished and would not contribute to the total acreage of carbon sequestration. Therefore, the proposed project would remove approximately 267 acres of cropland. An estimate of the one-time loss in carbon sequestration potential attributable to the loss of grassland was calculated using the model default for a "Cropland" natural community.

Assumptions

Unless otherwise noted, modeled unmitigated emissions are based on the following primary assumptions:

1. Operational air pollutant and construction and operational GHG emissions were estimated using the CalEEMod default land use subtypes identified in Table 1;
2. Emissions from post development consumer products (CalEEMod general category) were not calculated in the unmitigated or mitigated scenarios as the model tends to overestimate post-project operator usage rates at the plan-level analysis; and
3. The proposed project would be fully operational in 2045.

RESULTS

Criteria air pollutant emissions results are reported in tons per year. GHG emissions results are reported on an annual basis in MT CO_2e. The model results for both unmitigated and mitigated scenarios are attached to this memorandum.

Operational Criteria Air Pollutants

Unmitigated and mitigated operational criteria air pollutant emissions are summarized in Table 2, Unmitigated Operational Criteria Air Pollutant Emissions.

Table 2 Operational Criteria Air Pollutant Emissions

Annual Emissions	Reactive Organic Gases (ROG)^{1,2}	Nitrogen Oxides (NO_X)^{1,2}	Sulfur Oxides (SO_2)^{1,2}	Particulate Matter (PM_{10})^{1,2}	Respirable $PM_{2.5}$^{1,2}	Carbon Monoxide (CO)^{1,2}
Unmitigated	16	19	0.2	24	7	74
Mitigated	15	16	0.2	23	6	70

SOURCE: Trinity Consultants, 2021, EMC Planning Group 2022
NOTES:
1. Results may vary due to rounding.
2. Expressed in tons per year.

GHG Emissions

Unmitigated Construction GHG Emissions

Construction GHG emissions are presented in Table 3, Construction GHG Emissions. Construction activities could generate approximately 8,145 MT CO_2e. Amortized over 30 years, this equates to approximately 272 MT CO_2e per year.

Table 3 Unmitigated Construction GHG Emissions

Source	Modeled Construction Period	Construction Emissions (MT CO_2e)
Residential	2023-2025	5,775
Elementary School	2023-2024	580
Junior High School	2023-2024	582

Strip Mall	2023-2024	587
Fire Station	2023	267
City Park	2023	354
Total	-	8,145
Amortization	30-yr	272/year

Source: EMC Planning Group

Notes: Residential construction GHG volume is based on 29 MT CO_2e per acre multiplied by 196.2 acres of residential development (see also the CalEEMod results for residential construction attached to this memorandum).

Change in Carbon Sequestration Potential

The proposed project would result in a one-time loss of carbon sequestration potential from the conversion of cropland to urban uses. The one-time loss would be 1,665 MT CO_2e. Averaged over an assumed 30-year period, the average annual loss would be approximately 56 MT CO_2e per year.

Operational GHG Emissions

Unmitigated and mitigated annual GHG emissions volume estimates by source are summarized in Table 4, Operational GHG Emissions.

Table 4 Operational GHG Emissions

Emissions Sources	MT $CO_2e^{1,2}$	
	Unmitigated	Mitigated
Area	475	9
Energy	1,787	441
Mobile	17,788	16,749
Waste	199	199
Water	151	151
Total	20,399	17,548

SOURCE: Trinity Consultants 2021, EMC Planning Group 2022

NOTES:

1. Results may vary due to rounding.
2. Expressed in MT CO_2e per year.

Total GHG Emissions at Buildout

Total annual unmitigated and mitigated GHG emissions are presented in Table 5, Total Annual GHG Emissions.

Table 4 Total Annual GHG

Operational Emissions		Change in Carbon Sequestration Potential	Amortized Construction Emissions (Annual)	Total Annual Emissions
Unmitigated	20,399	56	272	20,727
Mitigated	17,548			17,876

SOURCE: EMC Planning Group 2022
NOTES:
1. All results are presented in MT CO_2e.
2. Results may vary due to rounding.

SOURCES

1. Trinity Consultants. May 2021. *California Emissions Estimator (CalEEMod) Version 2020.4.0*. http://www.aqmd.gov/caleemod/download-model
2. Trinity Consultants. May 2021. *CalEEMod User's Guide (Version 2020.40)*. http://www.aqmd.gov/caleemod/user's-guide
3. San Joaquin Valley Air Pollution Control District. https://www.valleyair.org/rules/1ruleslist.htm
4. GDR Engineering. March 2022. Bradbury Ranch Conceptual Land Use Plan
5. KD Anderson & Associates, Inc, April 2022. *Transportation Impact Analysis for Bradbury Ranch Master Plan in the Delhi Community Plan Area*

Bradbury Master Plan Unmitigated Emissions

Merced County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Government Office Building	30.00	1000sqft	2.80	30,000.00	0
Elementary School	850.00	Student	12.80	71,062.86	0
Junior High School	650.00	Student	11.00	76,415.09	0
City Park	37.40	Acre	37.40	1,629,144.00	0
Apartments Mid Rise	186.00	Dwelling Unit	23.00	186,000.00	612
Single Family Housing	883.00	Dwelling Unit	173.20	1,589,400.00	2905
Strip Mall	136.68	1000sqft	10.10	136,680.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	49
Climate Zone	4			**Operational Year**	2045
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - sizes adjusted per SEIR description. Population 3.29 pph

Vehicle Trips - Based on Project TIA trip generation

Woodstoves -

Energy Use - 100% renewable energy demand residential uses

Water And Wastewater - Connect to municipal sewer

Bradbury Master Plan Unmitigated Emissions - Merced County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	741.44	0.00
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	3,054.10	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	T24E	70.89	0.00
tblEnergyUse	T24E	68.41	0.00
tblLandUse	LotAcreage	0.69	2.80
tblLandUse	LotAcreage	1.63	12.80
tblLandUse	LotAcreage	1.75	11.00
tblLandUse	LotAcreage	4.89	23.00
tblLandUse	LotAcreage	286.69	173.20
tblLandUse	LotAcreage	3.14	10.10
tblLandUse	Population	532.00	612.00
tblLandUse	Population	2,525.00	2,905.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	ST_TR	4.91	6.74
tblVehicleTrips	ST_TR	1.96	0.78
tblVehicleTrips	ST_TR	0.00	4.80
tblVehicleTrips	ST_TR	9.54	9.43
tblVehicleTrips	ST_TR	42.04	86.74
tblVehicleTrips	SU_TR	4.09	6.74
tblVehicleTrips	SU_TR	2.19	0.78
tblVehicleTrips	SU_TR	0.00	4.80
tblVehicleTrips	SU_TR	8.55	9.43
tblVehicleTrips	SU_TR	20.43	86.74
tblVehicleTrips	WD_TR	5.44	6.74
tblVehicleTrips	WD_TR	1.89	2.27

tblVehicleTrips	WD_TR	22.59	4.80
tblVehicleTrips	WD_TR	2.13	2.10
tblVehicleTrips	WD_TR	9.44	9.43
tblVehicleTrips	WD_TR	44.32	86.74
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	23.00	0.00
tblWoodstoves	NumberCatalytic	173.20	0.00
tblWoodstoves	NumberNoncatalytic	23.00	0.00
tblWoodstoves	NumberNoncatalytic	173.20	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

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

Category	tons/yr										MT/yr					
Area	9.6235	0.4725	6.1832	2.8200e-003		0.0652	0.0652		0.0652	0.0652	0.0000	472.1879	472.1879	0.0154	8.4900e-003	475.1022
Energy	0.1541	1.3269	0.6358	8.4000e-003		0.1065	0.1065		0.1065	0.1065	0.0000	1,775.0515	1,775.0515	0.0697	0.0329	1,786.5873
Mobile	6.0178	16.6856	66.6893	0.1877	23.7800	0.1470	23.9270	6.3646	0.1390	6.5036	0.0000	17,436.3140	17,436.3140	0.7056	1.1202	17,787.7751
Waste						0.0000	0.0000		0.0000	0.0000	80.1687	0.0000	80.1687	4.7378	0.0000	198.6147
Water						0.0000	0.0000		0.0000	0.0000	31.6193	77.4859	109.1052	0.8391	0.0703	151.0266
Total	**15.7954**	**18.4850**	**73.5083**	**0.1989**	**23.7800**	**0.3186**	**24.0986**	**6.3646**	**0.3106**	**6.6753**	**111.7880**	**19,761.0393**	**19,872.8273**	**6.3676**	**1.2318**	**20,399.1058**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
Vegetation Land Change	-1,655.4000
Total	**-1,655.4000**

4.0 Operational Detail - Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated	6.0178	16.6856	66.6893	0.1877	23.7800	0.1470	23.9270	6.3646	0.1390	6.5036	0.0000	17,436.3140	17,436.3140	0.7056	1.1202	17,787.7751

4.2 Trip Summary Information

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,253.64	1,253.64	1253.64	4,834,865	4,834,865
City Park	29.17	29.17	29.17	71,944	71,944
Elementary School	1,929.50	0.00	0.00	4,127,998	4,127,998
Government Office Building	144.00	144.00	144.00	285,180	285,180
Junior High School	1,365.00	0.00	0.00	3,075,575	3,075,575
Single Family Housing	8,326.69	8,326.69	8326.69	32,113,224	32,113,224
Strip Mall	11,855.62	11,855.62	11855.62	18,921,206	18,921,206
Total	24,903.63	21,609.13	21,609.13	63,429,993	63,429,993

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	16.80	7.10	7.90	46.90	17.40	35.70	86	11	3
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
Elementary School	14.70	6.60	6.60	65.00	30.00	5.00	63	25	12
Government Office Building	14.70	6.60	6.60	33.00	62.00	5.00	50	34	16
Junior High School	14.70	6.60	6.60	72.80	22.20	5.00	63	25	12
Single Family Housing	16.80	7.10	7.90	46.90	17.40	35.70	86	11	3
Strip Mall	14.70	6.60	6.60	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.585284	0.050250	0.156065	0.105935	0.016326	0.004608	0.012807	0.046052	0.000844	0.000439	0.017912	0.001646	0.001830
City Park	0.585284	0.050250	0.156065	0.105935	0.016326	0.004608	0.012807	0.046052	0.000844	0.000439	0.017912	0.001646	0.001830
Elementary School	0.585284	0.050250	0.156065	0.105935	0.016326	0.004608	0.012807	0.046052	0.000844	0.000439	0.017912	0.001646	0.001830
Government Office Building	0.585284	0.050250	0.156065	0.105935	0.016326	0.004608	0.012807	0.046052	0.000844	0.000439	0.017912	0.001646	0.001830
Junior High School	0.585284	0.050250	0.156065	0.105935	0.016326	0.004608	0.012807	0.046052	0.000844	0.000439	0.017912	0.001646	0.001830
Single Family Housing	0.585284	0.050250	0.156065	0.105935	0.016326	0.004608	0.012807	0.046052	0.000844	0.000439	0.017912	0.001646	0.001830
Strip Mall	0.585284	0.050250	0.156065	0.105935	0.016326	0.004608	0.012807	0.046052	0.000844	0.000439	0.017912	0.001646	0.001830

5.0 Energy Detail

Historical Energy Use: N

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	250.2805	250.2805	0.0405	4.9100e-003	252.7553
NaturalGas Unmitigated	0.1541	1.3269	0.6358	8.4000e-003		0.1065	0.1065		0.1065	0.1065	0.0000	1,524.7710	1,524.7710	0.0292	0.0280	1,533.8320

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.55899e+006	8.4100e-003	0.0718	0.0306	4.6000e-004		5.8100e-003	5.8100e-003		5.8100e-003	5.8100e-003	0.0000	83.1938	83.1938	1.5900e-003	1.5300e-003	83.6882
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	1.29832e+006	7.0000e-003	0.0636	0.0535	3.8000e-004		4.8400e-003	4.8400e-003		4.8400e-003	4.8400e-003	0.0000	69.2832	69.2832	1.3300e-003	1.2700e-003	69.6949
Government Office Building	486000	2.6200e-003	0.0238	0.0200	1.4000e-004		1.8100e-003	1.8100e-003		1.8100e-003	1.8100e-003	0.0000	25.9348	25.9348	5.0000e-004	4.8000e-004	26.0889
Junior High School	1.3961e+006	7.5300e-003	0.0684	0.0575	4.1000e-004		5.2000e-003	5.2000e-003		5.2000e-003	5.2000e-003	0.0000	74.5014	74.5014	1.4300e-003	1.3700e-003	74.9441
Single Family Housing	2.35139e+007	0.1268	1.0835	0.4611	6.9200e-003		0.0876	0.0876		0.0876	0.0876	0.0000	1,254.7904	1,254.7904	0.0241	0.0230	1,262.2470
Strip Mall	319831	1.7200e-003	0.0157	0.0132	9.0000e-005		1.1900e-003	1.1900e-003		1.1900e-003	1.1900e-003	0.0000	17.0674	17.0674	3.3000e-004	3.1000e-004	17.1688
Total		**0.1541**	**1.3269**	**0.6358**	**8.4000e-003**		**0.1065**	**0.1065**		**0.1065**	**0.1065**	**0.0000**	**1,524.7710**	**1,524.7710**	**0.0292**	**0.0280**	**1,533.8320**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			

Apartments Mid Rise	0	0.0000	0.0000	0.0000	0.0000
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	370948	34.3215	5.5500e-003	6.7000e-004	34.6609
Government Office Building	515100	47.6590	7.7100e-003	9.3000e-004	48.1303
Junior High School	398887	36.9065	5.9700e-003	7.2000e-004	37.2715
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	1.42011e+006	131.3935	0.0213	2.5800e-003	132.6927
Total		**250.2805**	**0.0405**	**4.9000e-003**	**252.7554**

6.0 Area Detail

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

Use only Natural Gas Hearths

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated	9.6235	0.4725	6.1832	2.8200e-003		0.0652	0.0652		0.0652	0.0652	0.0000	472.1879	472.1879	0.0154	8.4900e-003	475.1022

6.2 Area by SubCategory

Unmitigated

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

SubCategory	tons/yr										MT/yr					
Architectural Coating	1.8848					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.5659					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0468	0.3999	0.1702	2.5500e-003		0.0323	0.0323		0.0323	0.0323	0.0000	463.0987	463.0987	8.8800e-003	8.4900e-003	465.8507
Landscaping	0.1260	0.0727	6.0131	2.7000e-004		0.0329	0.0329		0.0329	0.0329	0.0000	9.0892	9.0892	6.4900e-003	0.0000	9.2515
Total	**9.6235**	**0.4725**	**6.1832**	**2.8200e-003**		**0.0652**	**0.0652**		**0.0652**	**0.0652**	**0.0000**	**472.1879**	**472.1879**	**0.0154**	**8.4900e-003**	**475.1022**

7.0 Water Detail

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	109.1052	0.8391	0.0703	151.0266

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	12.1186 / 7.17398	12.6779	0.1134	9.4900e-003	18.3416
City Park	0 / 41.8432	13.5502	2.1900e-003	2.7000e-004	13.6842
Elementary School	2.0606 / 4.97548	3.3719	0.0195	1.6400e-003	4.3470
Government Office Building	5.95979 / 3.42996	6.2031	0.0558	4.6700e-003	8.9881
Junior High School	1.57576 / 3.80478	2.5785	0.0149	1.2500e-003	3.3241

Single Family Housing	57.531 / 34.0571	60.1861	0.5385	0.0451	87.0732
Strip Mall	10.1242 / 5.82666	10.5375	0.0948	7.9300e-003	15.2685
Total		**109.1051**	**0.8391**	**0.0703**	**151.0266**

8.0 Waste Detail

Institute Recycling and Composting Services

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	80.1687	4.7378	0.0000	198.6147

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	21.39	4.3420	0.2566	0.0000	10.7571
City Park	0.805	0.1634	9.6600e-003	0.0000	0.4048
Elementary School	38.7825	7.8725	0.4653	0.0000	19.5038
Government Office Building	6.975	1.4159	0.0837	0.0000	3.5077
Junior High School	29.6575	6.0202	0.3558	0.0000	14.9148
Single Family Housing	261.45	53.0720	3.1365	0.0000	131.4836
Strip Mall	35.8775	7.2828	0.4304	0.0000	18.0429

Total		**80.1688**	**4.7378**	**0.0000**	**198.6147**

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	- 1,655.4000	0.0000	0.0000	- 1,655.4000

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Cropland	267 / 0	- 1,655.4000	0.0000	0.0000	- 1,655.4000
Total		**- 1,655.4000**	**0.0000**	**0.0000**	**- 1,655.4000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Bradbury Master Plan Mitigated Operational Emissions

Merced County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Government Office Building	30.00	1000sqft	2.80	30,000.00	0
Elementary School	850.00	Student	12.80	71,062.86	0
Junior High School	650.00	Student	11.00	76,415.09	0
City Park	37.40	Acre	37.40	1,629,144.00	0
Apartments Mid Rise	186.00	Dwelling Unit	23.00	186,000.00	612
Single Family Housing	883.00	Dwelling Unit	173.20	1,589,400.00	2905
Strip Mall	136.68	1000sqft	10.10	136,680.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	49
Climate Zone	4			**Operational Year**	2045
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - sizes adjusted per SEIR description. Population 3.29 pph

Vehicle Trips - Based on Project TIA trip generation

Woodstoves - .

Energy Use - 100% renewable energy demand residential uses
No Natural Gas in Residential Uses

Bradbury Master Plan Mitigated Operational Emissions - Merced County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Water And Wastewater - Connect to municipal sewer

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	741.44	0.00
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	3,054.10	0.00
tblEnergyUse	NT24E	6,155.97	0.00
tblEnergyUse	NT24NG	3,155.00	0.00
tblEnergyUse	NT24NG	3,155.00	0.00
tblEnergyUse	T24E	70.89	0.00
tblEnergyUse	T24E	68.41	0.00
tblEnergyUse	T24NG	5,226.68	0.00
tblEnergyUse	T24NG	23,474.54	0.00
tblLandUse	LotAcreage	0.69	2.80
tblLandUse	LotAcreage	1.63	12.80
tblLandUse	LotAcreage	1.75	11.00
tblLandUse	LotAcreage	4.89	23.00
tblLandUse	LotAcreage	286.69	173.20
tblLandUse	LotAcreage	3.14	10.10
tblLandUse	Population	532.00	612.00
tblLandUse	Population	2,525.00	2,905.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	ST_TR	4.91	6.74
tblVehicleTrips	ST_TR	1.96	0.78
tblVehicleTrips	ST_TR	0.00	4.80
tblVehicleTrips	ST_TR	9.54	9.43
tblVehicleTrips	ST_TR	42.04	86.74
tblVehicleTrips	SU_TR	4.09	6.74
tblVehicleTrips	SU_TR	2.19	0.78

tblVehicleTrips	SU_TR	0.00	4.80
tblVehicleTrips	SU_TR	8.55	9.43
tblVehicleTrips	SU_TR	20.43	86.74
tblVehicleTrips	WD_TR	5.44	6.74
tblVehicleTrips	WD_TR	1.89	2.27
tblVehicleTrips	WD_TR	22.59	4.80
tblVehicleTrips	WD_TR	2.13	2.10
tblVehicleTrips	WD_TR	9.44	9.43
tblVehicleTrips	WD_TR	44.32	86.74
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	23.00	0.00
tblWoodstoves	NumberCatalytic	173.20	0.00
tblWoodstoves	NumberNoncatalytic	23.00	0.00
tblWoodstoves	NumberNoncatalytic	173.20	0.00

2.0 Emissions Summary

Bradbury Master Plan Mitigated Operational Emissions - Merced County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	9.5767	0.0727	6.0131	2.7000e-004		0.0329	0.0329		0.0329	0.0329	0.0000	9.0892	9.0892	6.4900e-003	0.0000	9.2515
Energy	0.0189	0.1716	0.1441	1.0300e-003		0.0130	0.0130		0.0130	0.0130	0.0000	437.0674	437.0674	0.0441	8.3300e-003	440.6522
Mobile	5.8219	15.9814	63.7078	0.1767	22.3258	0.1385	22.4642	5.9754	0.1309	6.1063	0.0000	16,414.4708	16,414.4708	0.6750	1.0651	16,748.7358
Waste						0.0000	0.0000		0.0000	0.0000	80.1687	0.0000	80.1687	4.7378	0.0000	198.6147
Water						0.0000	0.0000		0.0000	0.0000	31.6193	77.4859	109.1052	0.8391	0.0703	151.0266
Total	**15.4174**	**16.2256**	**69.8650**	**0.1780**	**22.3258**	**0.1844**	**22.5101**	**5.9754**	**0.1768**	**6.1522**	**111.7880**	**16,938.1132**	**17,049.9012**	**6.3025**	**1.1437**	**17,548.2807**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Diversity

Improve Pedestrian Network

Expand Transit Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.8219	15.9814	63.7078	0.1767	22.3258	0.1385	22.4642	5.9754	0.1309	6.1063	0.0000	16,414.4708	16,414.4708	0.6750	1.0651	16,748.7358
Unmitigated	6.0178	16.6856	66.6893	0.1877	23.7800	0.1470	23.9270	6.3646	0.1390	6.5036	0.0000	17,436.3140	17,436.3140	0.7056	1.1202	17,787.7751

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT

Apartments Mid Rise	1,253.64	1,253.64	1253.64	4,834,865	4,539,190
City Park	29.17	29.17	29.17	71,944	67,544
Elementary School	1,929.50	0.00	0.00	4,127,998	3,875,551
Government Office Building	144.00	144.00	144.00	285,180	267,740
Junior High School	1,365.00	0.00	0.00	3,075,575	2,887,489
Single Family Housing	8,326.69	8,326.69	8326.69	32,113,224	30,149,349
Strip Mall	11,855.62	11,855.62	11855.62	18,921,206	17,764,085
Total	24,903.63	21,609.13	21,609.13	63,429,993	59,550,949

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	16.80	7.10	7.90	46.90	17.40	35.70	86	11	3
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
Elementary School	14.70	6.60	6.60	65.00	30.00	5.00	63	25	12
Government Office Building	14.70	6.60	6.60	33.00	62.00	5.00	50	34	16
Junior High School	14.70	6.60	6.60	72.80	22.20	5.00	63	25	12
Single Family Housing	16.80	7.10	7.90	46.90	17.40	35.70	86	11	3
Strip Mall	14.70	6.60	6.60	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.585284	0.050250	0.156065	0.105935	0.016326	0.004608	0.012807	0.046052	0.000844	0.000439	0.017912	0.001646	0.001830
City Park	0.585284	0.050250	0.156065	0.105935	0.016326	0.004608	0.012807	0.046052	0.000844	0.000439	0.017912	0.001646	0.001830
Elementary School	0.585284	0.050250	0.156065	0.105935	0.016326	0.004608	0.012807	0.046052	0.000844	0.000439	0.017912	0.001646	0.001830
Government Office Building	0.585284	0.050250	0.156065	0.105935	0.016326	0.004608	0.012807	0.046052	0.000844	0.000439	0.017912	0.001646	0.001830
Junior High School	0.585284	0.050250	0.156065	0.105935	0.016326	0.004608	0.012807	0.046052	0.000844	0.000439	0.017912	0.001646	0.001830
Single Family Housing	0.585284	0.050250	0.156065	0.105935	0.016326	0.004608	0.012807	0.046052	0.000844	0.000439	0.017912	0.001646	0.001830
Strip Mall	0.585284	0.050250	0.156065	0.105935	0.016326	0.004608	0.012807	0.046052	0.000844	0.000439	0.017912	0.001646	0.001830

5.0 Energy Detail

Historical Energy Use: N

Bradbury Master Plan Mitigated Operational Emissions - Merced County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	250.2805	250.2805	0.0405	4.9100e-003	252.7553
NaturalGas Mitigated	0.0189	0.1716	0.1441	1.0300e-003		0.0130	0.0130		0.0130	0.0130	0.0000	186.7869	186.7869	3.5800e-003	3.4200e-003	187.8968

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	1.29832e+006	7.0000e-003	0.0636	0.0535	3.8000e-004		4.8400e-003	4.8400e-003		4.8400e-003	4.8400e-003	0.0000	69.2832	69.2832	1.3300e-003	1.2700e-003	69.6949
Government Office Building	486000	2.6200e-003	0.0238	0.0200	1.4000e-004		1.8100e-003	1.8100e-003		1.8100e-003	1.8100e-003	0.0000	25.9348	25.9348	5.0000e-004	4.8000e-004	26.0889
Junior High School	1.3961e+006	7.5300e-003	0.0684	0.0575	4.1000e-004		5.2000e-003	5.2000e-003		5.2000e-003	5.2000e-003	0.0000	74.5014	74.5014	1.4300e-003	1.3700e-003	74.9441
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	319831	1.7200e-003	0.0157	0.0132	9.0000e-005		1.1900e-003	1.1900e-003		1.1900e-003	1.1900e-003	0.0000	17.0674	17.0674	3.3000e-004	3.1000e-004	17.1688
Total		**0.0189**	**0.1716**	**0.1441**	**1.0200e-003**		**0.0130**	**0.0130**		**0.0130**	**0.0130**	**0.0000**	**186.7869**	**186.7869**	**3.5900e-003**	**3.4300e-003**	**187.8968**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	0	0.0000	0.0000	0.0000	0.0000
City Park	0	0.0000	0.0000	0.0000	0.0000
Elementary School	370948	34.3215	5.5500e-003	6.7000e-004	34.6609
Government Office Building	515100	47.6590	7.7100e-003	9.3000e-004	48.1303
Junior High School	398887	36.9065	5.9700e-003	7.2000e-004	37.2715
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	1.42011e+006	131.3935	0.0213	2.5800e-003	132.6927
Total		**250.2805**	**0.0405**	**4.9000e-003**	**252.7554**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

No Hearths Installed

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	9.5767	0.0727	6.0131	2.7000e-004		0.0329	0.0329		0.0329	0.0329	0.0000	9.0892	9.0892	6.4900e-003	0.0000	9.2515

Bradbury Master Plan Mitigated Operational Emissions - Merced County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.8848					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.5659					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1260	0.0727	6.0131	2.7000e-004		0.0329	0.0329		0.0329	0.0329	0.0000	9.0892	9.0892	6.4900e-003	0.0000	9.2515
Total	**9.5767**	**0.0727**	**6.0131**	**2.7000e-004**		**0.0329**	**0.0329**		**0.0329**	**0.0329**	**0.0000**	**9.0892**	**9.0892**	**6.4900e-003**	**0.0000**	**9.2515**

7.0 Water Detail

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	109.1052	0.8391	0.0703	151.0266

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	12.1186 / 7.17398	12.6779	0.1134	9.4900e-003	18.3416
City Park	0 / 41.8432	13.5502	2.1900e-003	2.7000e-004	13.6842
Elementary School	2.0606 / 4.97548	3.3719	0.0195	1.6400e-003	4.3470
Government Office Building	5.95979 / 3.42996	6.2031	0.0558	4.6700e-003	8.9881

Junior High School	1.57576 / 3.80478	2.5785	0.0149	1.2500e-003	3.3241
Single Family Housing	57.531 / 34.0571	60.1861	0.5385	0.0451	87.0732
Strip Mall	10.1242 / 5.82666	10.5375	0.0948	7.9300e-003	15.2685
Total		**109.1051**	**0.8391**	**0.0703**	**151.0266**

8.0 Waste Detail

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	80.1687	4.7378	0.0000	198.6147

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	21.39	4.3420	0.2566	0.0000	10.7571
City Park	0.805	0.1634	9.6600e-003	0.0000	0.4048
Elementary School	38.7825	7.8725	0.4653	0.0000	19.5038
Government Office Building	6.975	1.4159	0.0837	0.0000	3.5077
Junior High School	29.6575	6.0202	0.3558	0.0000	14.9148
Single Family Housing	261.45	53.0720	3.1365	0.0000	131.4836
Strip Mall	35.8775	7.2828	0.4304	0.0000	18.0429
Total		**80.1688**	**4.7378**	**0.0000**	**198.6147**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Bradbury Ranch Construction GHG Emissions - Residential

Merced County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	164.00	Dwelling Unit	30.00	295,200.00	469

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	49
Climate Zone	3			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	53.25	30.00

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2801	2.5501	2.6109	5.2200e-003	0.4662	0.1138	0.5799	0.2001	0.1061	0.3062	0.0000	458.5782	458.5782	0.1059	6.4700e-003	463.1539
2024	0.2158	1.8439	2.3338	4.4500e-003	0.0733	0.0801	0.1534	0.0198	0.0753	0.0951	0.0000	390.4960	390.4960	0.0744	7.7400e-003	394.6638
2025	2.7830	0.0980	0.1714	2.8000e-004	2.7500e-003	4.6800e-003	7.4300e-003	7.3000e-004	4.3800e-003	5.1100e-003	0.0000	24.6190	24.6190	6.1400e-003	6.0000e-005	24.7911
Maximum	**2.7830**	**2.5501**	**2.6109**	**5.2200e-003**	**0.4662**	**0.1138**	**0.5799**	**0.2001**	**0.1061**	**0.3062**	**0.0000**	**458.5782**	**458.5782**	**0.1059**	**7.7400e-003**	**463.1539**

Total GHGs = 883 MT CO2e per 30-acre site, Construction GHGs per acre = 29 MT CO2e
196.2 acres x 29 = 5,775 MT CO2e at Master Plan buildout.

Amortized Construction GHG emissions = 193 MT CO2e per year

Bradbury Ranch Construction GHG Emissions - Elementary School - Merced County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Bradbury Ranch Construction GHG Emissions - Elementary School

Merced County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	850.00	Student	12.80	71,062.86	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	49
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	1.63	12.80

Unmitigated Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2575	2.3720	2.4545	4.7000e-003	0.2725	0.1082	0.3807	0.1151	0.1011	0.2162	0.0000	411.1308	411.1308	0.0975	4.2400e-003	414.8324
2024	0.5857	0.8106	1.0272	1.8500e-003	0.0176	0.0362	0.0538	4.7700e-003	0.0340	0.0388	0.0000	160.9814	160.9814	0.0344	2.0500e-003	162.4533
Maximum	**0.5857**	**2.3720**	**2.4545**	**4.7000e-003**	**0.2725**	**0.1082**	**0.3807**	**0.1151**	**0.1011**	**0.2162**	**0.0000**	**411.1308**	**411.1308**	**0.0975**	**4.2400e-003**	**414.8324**

Total Emissions: 580 MT CO2e. Amortized = 19 MTCO2e per year

Bradbury Ranch Construction GHGs- Junior High School - Merced County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Bradbury Ranch Construction GHGs- Junior High School

Merced County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Junior High School	650.00	Student	11.00	76,415.09	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	49
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	1.75	11.00

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2583	2.3770	2.4619	4.7400e-003	0.2748	0.1082	0.3830	0.1157	0.1011	0.2169	0.0000	414.4039	414.4039	0.0975	4.5800e-003	418.2062
2024	0.6234	0.8130	1.0306	1.8600e-003	0.0187	0.0362	0.0550	5.0800e-003	0.0340	0.0391	0.0000	162.5824	162.5824	0.0345	2.2100e-003	164.1033
Maximum	**0.6234**	**2.3770**	**2.4619**	**4.7400e-003**	**0.2748**	**0.1082**	**0.3830**	**0.1157**	**0.1011**	**0.2169**	**0.0000**	**414.4039**	**414.4039**	**0.0975**	**4.5800e-003**	**418.2062**

Total GHGs = 582 MT CO2e; Amortized emissions = 19 MTCo2e per year

Bradbury Ranch Construction GHG - Commercial

Merced County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Strip Mall	136.68	1000sqft	10.10	136,680.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	49
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	3.14	10.10

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2581	2.3603	2.4881	4.9600e-003	0.2941	0.1056	0.3997	0.1210	0.0988	0.2199	0.0000	435.2971	435.2971	0.0940	8.1500e-003	440.0743
2024	1.0285	0.6894	0.8773	1.6500e-003	0.0218	0.0302	0.0520	5.9200e-003	0.0283	0.0343	0.0000	145.0335	145.0335	0.0290	2.9100e-003	146.6255
Maximum	**1.0285**	**2.3603**	**2.4881**	**4.9600e-003**	**0.2941**	**0.1056**	**0.3997**	**0.1210**	**0.0988**	**0.2199**	**0.0000**	**435.2971**	**435.2971**	**0.0940**	**8.1500e-003**	**440.0743**

Total Construction GHG emissions = 587 MT CO2e, Amortized Construction GHG emissions = 20 MT CO2e per year

Bradbury Ranch Construction GHGs - Fire Station - Merced County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Bradbury Ranch Construction - Fire Station

Merced County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	30.00	1000sqft	2.80	30,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	49
Climate Zone	3			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	0.69	2.80

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.4135	1.6410	1.7160	3.1600e-003	0.0371	0.0729	0.1099	0.0142	0.0697	0.0839	0.0000	265.0087	265.0087	0.0489	1.8600e-003	266.7850
Maximum	**0.4135**	**1.6410**	**1.7160**	**3.1600e-003**	**0.0371**	**0.0729**	**0.1099**	**0.0142**	**0.0697**	**0.0839**	**0.0000**	**265.0087**	**265.0087**	**0.0489**	**1.8600e-003**	**266.7850**

Amortized construction GHGs = 9 MT CO2e

Bradbury Ranch Construction GHGs - City Park - Merced County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Bradbury Ranch Construction GHGs - City Park

Merced County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	37.40	Acre	37.40	1,629,144.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 49

Climate Zone 3 **Operational Year** 2024

Utility Company Pacific Gas and Electric Company

CO2 Intensity (lb/MWhr) 203.98 **CH4 Intensity (lb/MWhr)** 0.033 **N2O Intensity (lb/MWhr)** 0.004

1.3 User Entered Comments & Non-Default Data

Table Name	Column Name	Default Value	New Value

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2172	2.0368	1.9296	3.9800e-003	0.6815	0.0886	0.7701	0.2996	0.0817	0.3813	0.0000	351.1220	351.1220	0.1019	1.1200e-003	354.0024
Maximum	**0.2172**	**2.0368**	**1.9296**	**3.9800e-003**	**0.6815**	**0.0886**	**0.7701**	**0.2996**	**0.0817**	**0.3813**	**0.0000**	**351.1220**	**351.1220**	**0.1019**	**1.1200e-003**	**354.0024**

Amortized Construction GHGs = 11.8 MT CO2e per year.

Health Risk Assessment

C
APPENDIX

BRADBURY MASTER PLAN

AIR QUALITY HEALTH RISK ASSESSMENT

Merced County, California

October 27, 2022

Prepared for:

Ron Sissem
EMC Planning Group
301 Lighthouse Avenue, Suite C
Monterey, CA 93940
rsissem@emcplanning.com

Prepared by:

James A. Reyff and William Popenuck

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
429 E. Cotati Avenue
Cotati, CA 94931
(707) 794-0400

I&R Project: 22-052

CONTENTS

Executive Summary

This report is an air quality health risk assessment for the Bradbury Ranch Master Plan that would be built out within the broader Delhi Community Plan that is located in northern Merced County, California. Health risks associated with the Master Plan were evaluated in two ways: (1) health risk impacts caused by construction and operation of the project to nearby existing sensitive receptors and (2) health risks caused by nearby emissions sources (e.g., freeway and railroad traffic) that would affect new sensitive receptors (i.e., residences and school children) at the Master Plan site. The San Joaquin Valley Air Pollution Control District (SJVAPCD) has adopted thresholds for determining the significance of health risks for this type of project that are based on increased cancer risk and a hazard index. These thresholds were used to evaluate impacts associated with the Master Plan construction and operation. SJVAPCD considers increased cancer risk caused by a Project that is greater than 20 chances per million to be significant.

Construction emissions associated with Master Plan build out have the potential to expose nearby sensitive receptors as well as new sensitive receptors to health risks that could be significant. Since specific project plans and timelines to construct components of the Master Plan are not available, this analysis considered the impacts significant and identified measures that could be implemented to reduce the impacts to less than significant. The appropriate measures to be implemented, in addition to those required by SJVAPCD (i.e., dust control and indirect source review) would have to be identified through subsequent project-specific analyses.

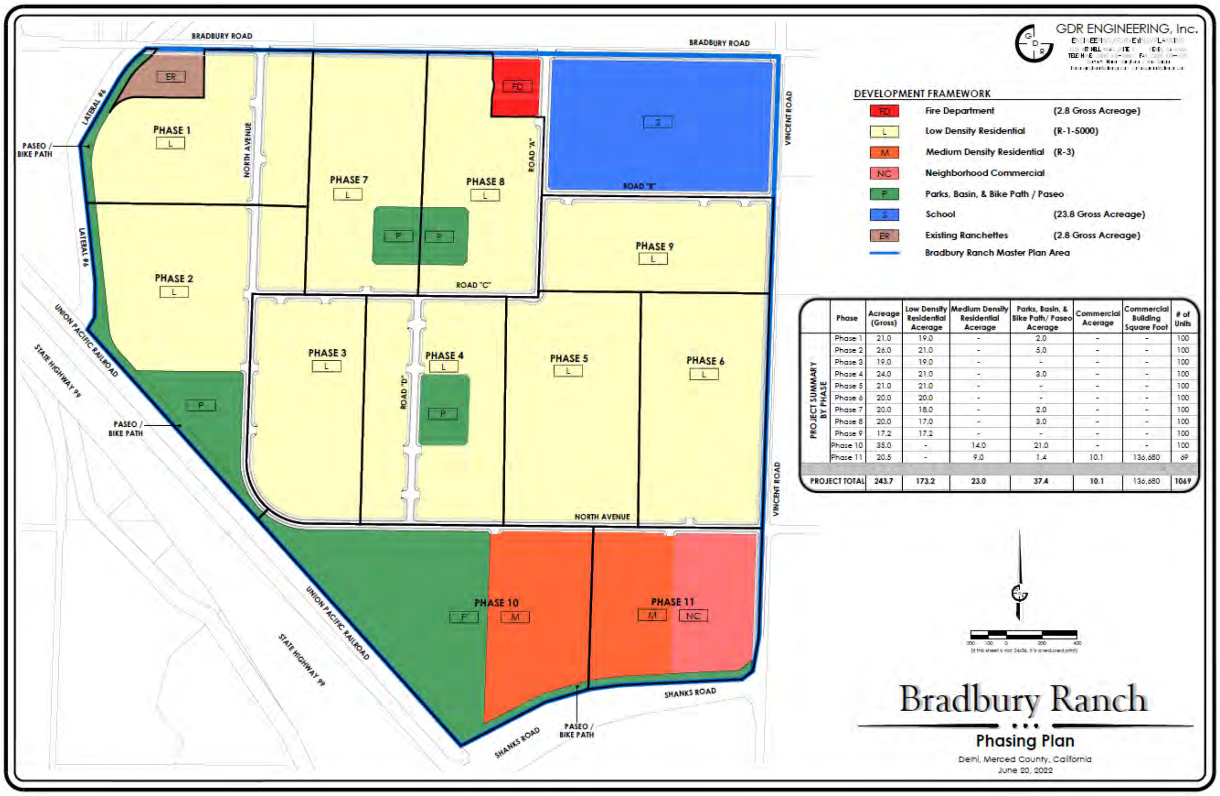
Operational health risks from the Master Plan build out were evaluated based on the increased amount of traffic using the nearby roadway network. Stationary sources of air pollution have not been identified with the Master Plan. The increased risks to nearby sensitive receptors were found to be less than significant.

The Master Plan would allow the development of the site with new residences and a school. This would introduce new sensitive receptors to the area that would be exposed to air pollutant emissions from highway traffic, local traffic and railroad traffic. The SJVAPCD health risk thresholds were used to judge the exposure of new sensitive receptors to air pollutants across the site. A substantial portion of the site would be exposed to significant cancer risk (i.e., cancer risk that exceeds 20 chances per million). Figure 5 shows the Project site with Cancer Risk Contours for uncontrolled conditions. Increased cancer risk is mostly caused by freeway traffic and, to a lesser extent, train traffic. This impact can be mitigated by a combination of site design and incorporation of enhanced air filtration used in building ventilation systems. Site design should be utilized to avoid placing any sensitive receptors near the freeway and railroad. Ventilation systems in new homes should include enhanced filtration rated at either MERV13 or MERV16, depending on proximity of the residences to the freeway and railroad. Figures 6 and 7 show the effectiveness of the various filtration on cancer risk levels. Only those residences that have risk above 20 chances per million depicted in Figure 5 would require mitigation. Much of those affected residences could be mitigated using ventilation systems with MERV13 filtration (see Figure 6), while those closest to the highway and railroad may require MERV16 filtration (see Figure 7).

Introduction

This report assesses the air quality health risks associated with the Bradbury Ranch Master Plan that would be built out within the broader Delhi Community Plan that is located in northern Merced County, California. The master plan would allow for the construction of a mixed use community that includes residences, neighborhood commercial uses, elementary and middle schools, parks and a fire station on about 273 acres. The Project is located just east of State Highway 99 between Shanks Road and Bradbury Road in Delhi, Merced County, CA. There are some single-family residences near the project site. The project location and phasing plan is shown in Figure 1.

Figure 1. Bradbury Ranch



Phase	Acreage (Gross)	Low Density Residential Acerage	Medium Density Residential Acerage	Parks, Basin, & Bike Path/ Paseo Acerage	Commercial Acerage	Commercial Building Square Foot	# of Units
Phase 1	21.0	19.0	-	2.0	-	-	100
Phase 2	26.0	21.0	-	5.0	-	-	100
Phase 3	19.0	19.0	-	-	-	-	100
Phase 4	24.0	21.0	-	3.0	-	-	100
Phase 5	21.0	21.0	-	-	-	-	100
Phase 6	20.0	20.0	-	-	-	-	100
Phase 7	20.0	18.0	-	2.0	-	-	100
Phase 8	20.0	17.0	-	3.0	-	-	100
Phase 9	17.2	17.2	-	-	-	-	100
Phase 10	35.0	-	14.0	21.0	-	-	100
Phase 11	20.5	-	9.0	1.4	10.1	136,680	69
PROJECT TOTAL	243.7	173.2	23.0	37.4	10.1	136,680	1069

Project Description

The Project is requesting approval of a General Plan amendment to modify the land use designations in the Delhi Community plan that apply to the Bradbury Master Plan ("Bradbury master plan") area as illustrated in the community phasing plan shown in Figure 1. The primary proposed changes are to eliminate the Business Park use, reduce the size of the area designated Medium Density Residential, and increase the size of the area designated Low Density Residential. Table 1, Community Plan/Master Plan Development Capacity Comparison, summarizes how the proposed land use changes would affect projected development capacity.

Table 1 Community Plan/Proposed Master Plan Development Capacity Comparison

Land Use	Community Plan Development Capacity[1]	Proposed Development Capacity[2]	Proposed Change
Residential			
Low Density Residential[3]			
Acres[4]	105	173.2	+68.2 Acres
Dwelling Units	590	883	+293 Dwelling Units
Medium Density Residential[5]			
Acres	41	23	-18 Acres
Dwelling Units	279	186	- 93 Dwelling Units
Non-Residential			
Neighborhood Commercial			
Acres	10	10.1	+ 0.1 Acres
Building Square Feet	136,680	136,680	No Change
Business Park			
Acres	50	0	- 50 Acres
Building Square Feet	457,380	0	- 457,380 Square Feet
Public Facilities			
Schools			
Acres	30	23.8	- 6.2 Acres
School Types	Elementary School Middle School	Elementary School Middle School	
Parks/Detention/Paths			
Acres	25	37.4	+ 12.4 Acres
Park Types	Two Neighborhood Parks One Community Park Class I Bike Path	Two Neighborhood Parks One Community Park Class I Bike Path	
Fire Station			
Acres	None	2.8	+2.8 Acres
Totals			
Acres	261	273.1	+ 12.1 Acres[6]
Dwelling Units	869	1,069	+ 200 Dwelling Units
Building Square Feet	594,060	136,680	- 457,380 Square Feet

1. Community Plan development capacity numbers for Bradbury Ranch are from Table 3.2, Master and Special Plan Areas Land Use Summary
2. Proposed Bradbury Ranch Master Plan development capacity numbers are from Table 4-X in this SEIR
3. The Low Density Residential designation allows for densities from 3.5 to 8.0 units/acre. Low Density Residential density is assumed at 4.5 dwelling units/ acre in the community plan, and 5.1 dwelling units/ acre in the proposed master plan
4. All acreages represent gross acreage and exclude Highway 99, Union Pacific Railroad, arterials, major and minor collectors and canals
5. Medium Density Residential density assumed at 9.0 dwelling units/acre in the community plan, 8.1 dwelling units per acre in the proposed master plan
6. Community plan acreages are not as precise as identified for the proposed master plan. Acreage discrepancy does not affect the analysis in the SEIR

The Project is not proposing amendments to community plan policies, guidelines, or development standards. Future individual projects proposed within the master plan boundary would, therefore, be developed consistent with existing community plan guidance. A zoning amendment is required to establish a planned development district for the site. A master plan approval is also required to implement the planned development zoning as codified in Chapter 18.20.020, Planned Development Zone Approval Process, of the Merced County Zoning Code.

After County approval of the requested entitlements, applications for future individual developments within the master plan boundary would be submitted and processed. No such applications have yet been submitted and there is no known timeframe for when such submittals might occur. Future individual projects would be subject to CEQA review, with that review potentially tiering from the Delhi Community Plan Environmental Impact Report ("community plan EIR") and the supplemental EIR to be prepared for the proposed project as described below.

This health risk assessment examines the impacts from operation of the Master Plan at full build out. There would be health risks associated with construction activity; however, the schedule and construction intensity and construction techniques are unknown at this time. Therefore, health risks from construction activities cannot be reasonably predicted at this time.

The Master Plan would develop residences and a school that would place sensitive receptors relatively close to sources of air pollutants and contaminants that may expose people to substantial pollution. To address this issue, an analysis of the impacts from nearby source4s of pollutant/contaminants was conducted. Sources identified include traffic on State Highway 99 and local surrounding roadways and diesel-powered locomotives using the Union Pacific Railroad (UPRR).

Toxic Air Contaminants

Besides the "criteria" air pollutants, there is another group of substances found in ambient air referred to as Hazardous Air Pollutants (HAPs) under the CAA and Toxic Air Contaminants (TACs) under the CCAA. These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects if exposure to low concentrations occurs for long periods. They are regulated at the local, state, and federal level.

HAPs are the air contaminants identified by U.S. EPA as known or suspected to cause cancer, serious illness, birth defects, or death. Many of these contaminants originate from human activities, such as fuel combustion and solvent use. Mobile source air toxics (MSATs) are a subset of the 188 HAPS. Of the 21 HAPs identified by U.S. EPA as MSATs, a priority list of six priority HAPs were identified that include: diesel exhaust, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. The Federal Highway Administration[1] reports that while vehicle miles traveled (VMT) in the United States is expected to increase by 64 percent over the period 2000 to 2020, emissions of MSATs are anticipated to decrease substantially as a result of efforts to control mobile source emissions (by 57 percent to 67 percent depending on the contaminant).

---

[1] Federal Highway Administration, 2016. Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. https://www.fhwa.dot.gov/environMent/air_quality/air_toxics/policy_and_guidance/msat/

California developed a program under the Toxic Air Contaminant Identification and Control Act (Assembly Bill [AB] 1807, Tanner 1983), also known as the Tanner Toxics Act, to identify, characterize and control TACs. Subsequently, AB 2728 (Tanner, 1992) incorporated all 188 HAPs into the AB 1807 process. TACs include all HAPs plus other containments identified by CARB. These are a broad class of compounds known to cause morbidity or mortality (cancer risk). TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter (DPM) near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level.

The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly), described by CARB[2], was enacted in 1987, and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

Particulate Matter

Particulate matter from diesel exhaust is the predominant TAC in urban air and is estimated to represent about 70 percent of the cancer risk from TACs, based on the statewide average reported by CARB[3]. According to CARB, diesel exhaust is a complex mixture of gases, vapors and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by CARB, and are listed as carcinogens either under State Proposition 65 or under the Federal Hazardous Air Pollutants programs.

CARB reports that recent air pollution studies have shown an association that diesel exhaust and other cancer-causing TACs emitted from vehicles are responsible for much of the overall cancer risk from TACs in California. Particulate matter emitted from diesel-fueled engines (DPM) was found to comprise much of that risk. In 1998, CARB formally identified DPM as a TAC. DPM is of particular concern since it can be distributed over large regions, thus leading to widespread public exposure. The particles emitted by diesel engines are coated with chemicals, many of which have been identified by U.S. EPA as HAPs, and by CARB as TACs. The vast majority of diesel exhaust particles (over 90 percent) consist of $PM_{2.5}$, which are the particles that can be inhaled deep into the lung. Like other particles of this size, a portion will eventually become trapped within the lung possibly leading to adverse health effects. While the gaseous portion of diesel exhaust also contains TACs, CARB's 1998 action was specific to DPM, which accounts for much of the cancer-causing potential from diesel exhaust. California has adopted a comprehensive diesel risk reduction program to reduce DPM emissions 85 percent by 2020[4]. The EPA and CARB adopted

---

[2] California Air Resources Board (CARB). 2016. AB 2588 Air Toxics "Hot Spots" Program. https://www.arb.ca.gov/ab2588/ab2588.htm

[3] California Air Resources Board (CARB) 2012. Overview: Diesel Exhaust and Health. https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health Accessed May 20, 2018.

[4] California Air Resources Board (CARB). 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. October. https://www.arb.ca.gov/diesel/documents/rrpFinal.pdf

low sulfur diesel fuel standards in 2006 that reduce DPM substantially.

Non-Diesel Total Organic Gases

Gasoline-powered vehicles, particularly light-duty autos and trucks, emit TACs mostly in the form of total organic gases (TOG). TOG emissions associated with these types of vehicles occur primarily in two forms: running exhaust and evaporative running losses. Additional TOG emissions occur when starting a vehicle, especially cold vehicles. Mobile source TOG includes TACs such as benzene, 1,3-Butadiene, and formaldehyde. Emissions of these TACs are controlled through requirements of motor vehicle exhaust systems and the formulation of gasoline by the U.S. EPA and CARB

Benzene

Benzene is a fundamental component of gasoline and diesel fuel as well as vehicle exhaust. Benzene is emitted through the evaporation of gasoline vapors. Since it is known to cause cancer in humans, benzene was classified as a TAC in 1984 by CARB. Benzene emissions from fuel use are regulated in numerous ways that include standards for the formulation of gasoline, vehicle emission standards, and vapor control systems for storage, fuel dispensing facilities and vehicle on-board fuel systems.

SJVAPCD Rules and Regulations

The SJVAPCD has adopted rules and regulations that apply to land use projects, such as the proposed project. These are described below.

SJVAPCD Indirect Source Review Rule

In 2005, the SJVAPCD adopted Rule 9510 Indirect Source Review (ISR or Rule 9510) to reduce NO_x and PM_{10} emissions from new land use development projects. The rule, which became effective March 1, 2006, is the result of state requirements outlined in the region's portion of the State Implementation Plan (SIP). Rule 9510 was amended in December 2017 (and became effective March 21, 2018) to ensure that all large development projects are subject to the rule. The SJVAPCD's SIP commitments are contained in the 2004 Extreme Ozone Attainment Demonstration Plan and the 2003 PM_{10} Plan. These plans identified the need to reduce PM_{10} and NO_x substantially in order to attain and maintain the ambient air-pollution standards on schedule.

New projects that would generate substantial air pollutant emissions are subject to this rule. The rule requires projects to mitigate both construction and operational period emissions by applying the SJVAPCD-approved mitigation measures and paying fees to support programs that reduce emissions. The rule requires mitigated exhaust emissions during construction based on the following levels:

- 20 percent reduction from unmitigated baseline in total NO_x exhaust emissions
- 45 percent reduction from unmitigated baseline in total PM_{10} exhaust emissions

For operational emissions, Rule 9510 requires the following reductions:

- 33.3 percent of the total operational NO_x emissions from unmitigated baseline
- 50 percent of the total operational PM_{10} exhaust emissions from unmitigated baseline

Fees apply to the unmitigated portion of the emissions and are based on estimated costs to reduce the emissions from other sources plus estimated costs to cover administration of the program. In accordance with ISR, the project applicant will submit an application for approval of an Air Impact Assessment (AIA) to the SJVAPCD.

Regulation VIII – Fugitive PM_{10}

SJVAPCD controls fugitive PM_{10} through Regulation VIII (Fugitive PM_{10} Prohibitions). The purpose of this regulation is to reduce ambient concentrations of PM_{10} by requiring actions to prevent, reduce or mitigate anthropogenic (human caused) fugitive dust emissions. This applies to activities such as construction, bulk materials, open areas, paved and unpaved roads, material transport, and agricultural areas. Sources regulated are required to provide dust control plans that meet the regulation requirements. Fees are collected by SJVAPCD to cover costs for reviewing plans and conducting field inspections.

Other SJVAPCD Rules

Other SJVAPCD Rules and Regulations that may be applicable to the project include, but are not limited to:

- Rule 4101 (Visible Emissions): The purpose of this rule is to prohibit the emissions of visible air contaminants to the atmosphere. The provisions of this rule apply to any source operation which emits or may emit air contaminants.
- Rule 4102 (Nuisance): The purpose of this rule is to protect the health and safety of the public, and applies to any source operation that emits or may emit air contaminants or other materials.
- Rule 4601 (Architectural Coatings): The purpose of this rule is to limit Volatile Organic Compounds (VOC) emissions from architectural coatings. Emissions are reduced by limits on VOC content and providing requirements on coatings storage, cleanup, and labeling.
- Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations): The purpose of this rule is to limit VOC emissions from asphalt paving and maintenance operations. Paving operations will be subject to Rule 4641.
- Rule 4692 (Commercial Charbroiling): This rule limits VOC and PM10 emissions from commercial charbroiling at restaurants. Chain-driven charbroilers that cook 400 pounds or more of meat in any calendar week or 10,800 pounds in any calendar year must be equipped with a catalytic oxidizer that has a control efficiency of at least 83% for PM10 emissions and a control efficiency of at least 86% for VOC emissions. Annual or one-time reports are required for all other charbroiling operations. Underfired charbroilers subject to the rule must register each piece of equipment and maintain weekly records.

The Air District is anticipated to provide a determination of applicable rules/regulations to the project when specific building, grading, etc. plans are provided to the Air District prior to initiation of construction- and operation-related activities that fall within the purview of the Air District's regulatory authority.

Sensitive Receptors

"Sensitive receptors" are defined as facilities where sensitive population groups, such as children, the elderly, the acutely ill, and the chronically ill, are likely to be located. Land uses that include sensitive receptors are residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics. The nearest residences consist of single-family residences located along Bradbury Road near the northern project site boundary. Additional residences are located at farther distances from the project site along Bradbury Road, Vincent Road, North Avenue and south of State Highway 99. The Shattuck Park Head Start preschool and daycare is located south of the project site on Vincent Road. The Head Start program accepts infants and children from 0 to 5 years of age.

Health Risk Assessment

Emissions of toxic pollutants potentially associated with the Project are estimated using various emissions models or computation techniques. Concentrations of these pollutants in the ambient air are estimated using the U.S. EPA AERMOD dispersion model. The AERMOD dispersion model is a SJVUAPCD-recommended model for use in modeling analysis of these types of emission sources and activities for CEQA projects.[5] Modeling allows the estimation of both short-term and long-term average concentrations in air for use in a health risk assessment, accounting for site-specific meteorological conditions. Health risks potentially associated with the estimated concentrations of pollutants in the air are characterized in terms of excess lifetime cancer risks (for carcinogenic substances), or comparison with reference exposure levels (RELs) for non-cancer health effects (for non-carcinogenic substances).

Health risks were evaluated for a hypothetical maximum exposed individual (MEI) located at the maximum impact sensitive receptor (sensitive receptors are described above). The hypothetical MEI is an individual assumed to be located where the highest concentrations of air pollutants associated with Project emissions are predicted to occur, based on the air dispersion modeling. Health risks were evaluated at existing locations of nearby sensitive receptors (residences, schools, daycare, etc.). Health risks potentially associated with concentrations of carcinogenic air pollutants were calculated as estimated excess lifetime excess cancer risks. The excess lifetime cancer risk for a pollutant is estimated as the product of a 70-year exposure dose over a lifetime and a cancer potency factor; in other words, it represents the increased cancer risk associated with continuous exposure to concentration of toxic air contaminants in the air over a 70-year period. SJVAPCD-recommended exposure parameters were used for the cancer risk and non-cancer health effects calculations, as described in *Attachment 1*.

---

[5] San Joaquin Valley Air Pollution Control District, Guidance for Air Dispersion Modeling, Draft 01/07 Rev 2.0

Standards of Significance

Appendix G, of the California Environmental Quality Act (CEQA) Guidelines (Environmental Checklist) contains a list of project effects that may be considered significant. The project would result in a significant impact if it would:

- Expose sensitive receptors to substantial pollutant concentrations.

The SJVAPCD has developed the Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015), also known as the GAMAQI[6]. The following threshold of significance, obtained from the SJVAPCD's GAMAQI, is used to determine whether a proposed project would result in a significant air quality impact:

1) Toxic Air Contaminants or Hazardous Air Pollutants. Exposure to HAPs or TACs would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual would exceed 20 in 1 million or would result in a Hazard Index greater than 1 for non-cancer health effects.

Project Analysis

Impact: Exposure of Sensitive Receptors to Toxic Air Contaminants. Construction activity and operational traffic would expose nearby receptors to toxic air contaminants. This is a potentially significant impact.

To evaluate the exposure of sensitive receptors to emissions of Toxic Air Contaminants (TACs) from the project, a health risk assessment of both project emissions from project operation was conducted. The health risk assessment predicts lifetime cancer risk and non-cancer risks. The health risk assessment involves prediction of emissions from the various sources of TACs, dispersion modeling using historical meteorological data and calculation of health risks using SJVAPCD recommended risk assessment methods for infant, child, and adult exposures for residential receptors, daycare infants and children, and for off-site worker exposure. Modeled receptors are shown in Figure 2. The methods used to predict health risk impacts are described in *Attachment 1*.

Construction Health Risk Impacts

Construction activity is anticipated to include some demolition, site preparation and grading, building construction, paving and some application of architectural coatings. Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a TAC.

There are no specific construction plans at this time as portions of the project would likely be constructed over a 10- to 20-year period that would be dependent on market conditions that drive the demand for housing and other aspects of the Master Plan. For example, residential projects

---

[6] Source: San Joaquin Valley Air Pollution Control District, GAMAQI, See website at http://www.valleyair.org/transportation/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf

could be constructed in about 10 phases with some phases constructed simultaneously or at different times. Construction emissions can be predicted for individual projects when the amount of construction and the schedule are known. For this Master Plan, any prediction of construction emissions and associated health risks would be speculative, given that schedule and construction intensity are not known. In addition, construction of the projects that are part of the Master Plan would introduce new sensitive receptors to the area that could be affected by emission from subsequent construction phases.

Mitigation Measure AQ-1: Include Measures in Projects to Reduce Construction Exhaust Emissions

Require project-level analysis of health risk impacts to nearby sensitive receptors to identify the appropriate measures to reduce construction exhaust emissions. During any construction period ground disturbance, the applicant shall ensure that the project contractor implement measures to control dust and exhaust. Implementation of the measures recommended by SJVAPCD and that comply with Regulation VIII must be included.

Projects with significant exhaust-related emissions would implement one or more of the following measures to reduce emissions below the thresholds:

1. Based on project specific construction assessments, a plan shall be developed that demonstrates off-road equipment (more than 25 horsepower) and on on-road haul trucks to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve appropriate project wide fleet-average NOx and $PM_{10}/PM_{2.5}$ reductions, such that emissions do not exceed SJVAPCD significance thresholds. Acceptable options for reducing emissions include the use of late model engines (e.g., engines meeting U.S. EPA Tier 4 standards), low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.

2. Provide line power to the site during the early phases of construction to minimize the use of diesel-powered stationary equipment, such as generators.

3. All on-road heavy-duty trucks with a gross vehicle weight rating of 33,000 pounds or greater (EMFAC2007 Category HDDT) used at the project site (such as haul trucks, water trucks, dump trucks concrete trucks) shall be model year 2010 or newer.

4. Phasing of construction activities to reduce daily emissions.

Operation Health Risk Impacts

The project includes sources not subject to SJVUAPCD permitting. Permitted sources, such as gasoline dispensing facilities (GDF) or diesel generators used for standby emergency power have not been proposed. Unpermitted sources include land use emissions from traffic and building operation including restaurant operation.

Project Traffic-Related Emissions

Local traffic generated by the project leads to operational health risk impacts. Specific sources of emissions include residential, retail customer, and school traffic traveling to and from the project site along with traffic activity on the site. Impacts from these sources are addressed. These sources are assumed to be operational well into the future (i.e., 70 years). The year 2045 was assumed to be the build-out year of full operation and was used as the year of analysis for generating emission rates.

Daily traffic generation was calculated as 25,394 total trips per day based on the Project's traffic analysis. This includes internal and external trips. For health risk modeling purposes, on-site traffic includes all Project traffic, while off-site traffic only included the new primary trips. The distribution of vehicle trips was included in the modeling for the adjacent local roads (Bradbury, Vincent and Shanks roads), as well as State Highway 99. Traffic distribution and speed is shown in Table 2.

Vehicles were assumed to travel at a speed of 25 mph along adjacent off-site local roadways, 20 mph onsite, and 65 mph on State Highway 99. The Project traffic mix was based on the "District Accepted Fleet Mix for Residential Project" obtained from the SJVAPCD website.

The primary TACs of concern from project vehicles are MSATs, as previously described. DPM and MSAT emissions for customer vehicles were calculated using emission factors from the Caltrans version of the EMFAC2017 emissions model, known as CT-EMFAC2017[7], and the increased local project-related traffic described above. Vehicle emission processes modeled include running/idle exhaust, running evaporative losses for organic MSATs, tire and brake wear, and fugitive road dust. Vehicle emissions are projected to decrease in the future and are reflected in the CT-EMFAC2017 emissions estimates. Inputs to the model include region (i.e., Merced County), type of road (for road dust calculation purposes), traffic mix, year of analysis (i.e., 2045), and season (Annual).

Emission factors from the CT-EMFAC2017 model for travel speeds of 25 and 65 mph were used in calculating project vehicle emissions while traveling off-site. Emission factors for a travel speed of 20 mph were used in calculating project vehicle emissions while traveling on-site. Emissions were assumed to occur 24-hours per day, 365 days per year. MSAT emission rates used in the analysis are provided in *Attachment 2*.

---

[7] California Department of Transportation. 2019. CT-EMFAC2017 User Guide. January.

Figure 2. Project Site and Sensitive Receptor Locations

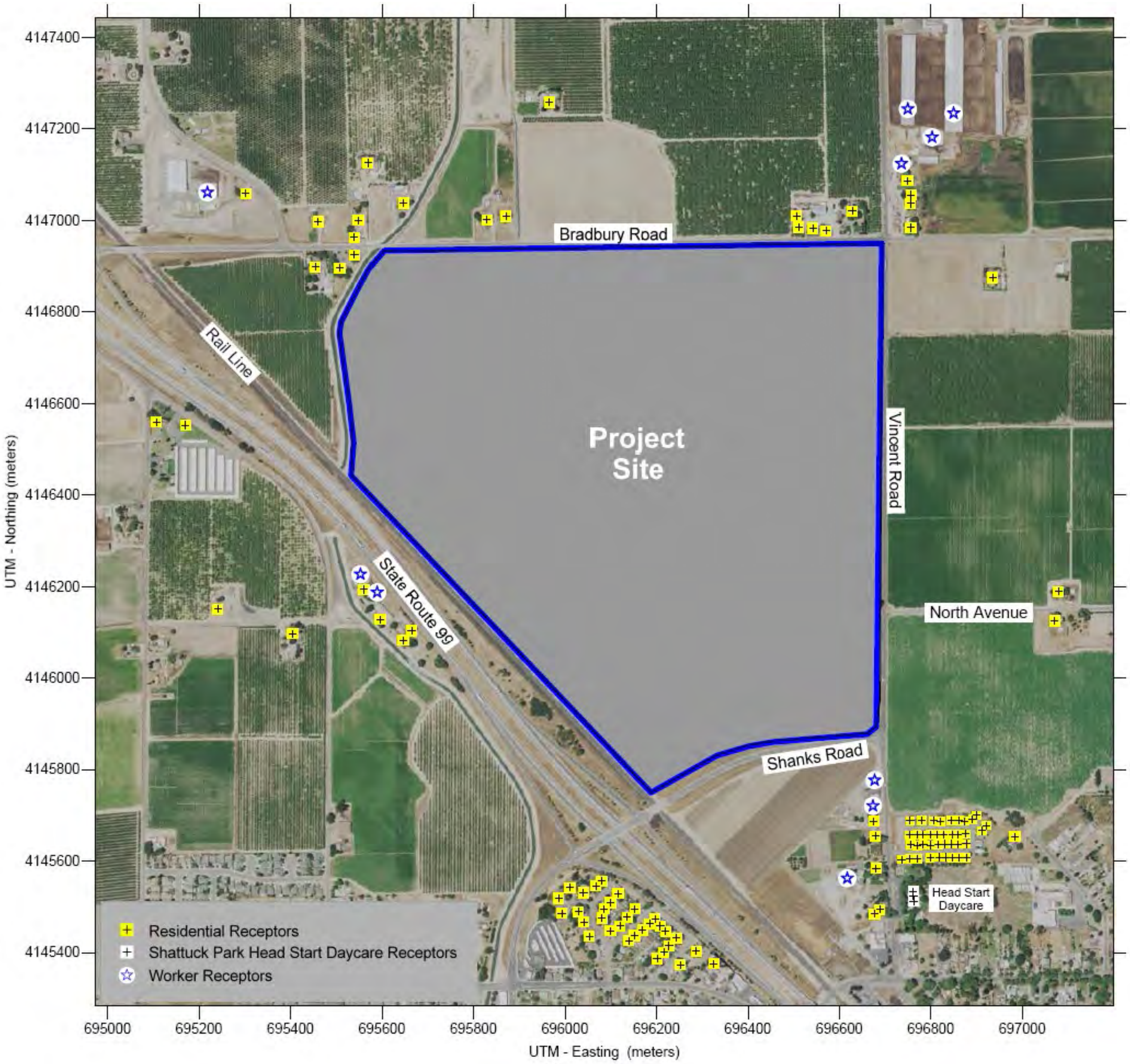


Table 2. Modeled Traffic Volumes

Roadway Segment	Project Trips	Cumulative + Project
On-Site Traffic	25,394	25,394
Bradbury Rd.	4,170	8,693
Vincent Rd. (north)	2,850	7,188
Vincent Rd. (south)	7,400	11,788
Shanks Rd.	6,120	12,212
Highway 99 (north)	5,190	109,128
Highway 99 (adjacent)	1,150	109,128

Dispersion Modeling

The US EPA AERMOD dispersion model was used to calculate project-related operational DPM and other TAC concentrations at existing sensitive receptors (residences and workers) in the vicinity of the project site. The AERMOD dispersion model is a SJVAPCD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[8] The modeling used a 5-year data set (2013-2017) of hourly meteorological data from the Merced Airport prepared for use with the AERMOD model by the SJVAPCD. TAC concentrations from on-site and off-site project roadway traffic were calculated at nearby residences, the Head Start preschool and child care center, and worker locations using a receptor height of 1.5 meters (4.9 feet). Terrain elevations based on 10 meter resolution National Elevation Dataset (NED) were used with the modeling.

On-site vehicular emissions were modeled as an area source, since the exact path of travel would be highly randomized. To represent the traffic exhaust emissions, an area source emission release height of 4.3 feet (1.3 meters) was used for the area sources. Off-site emission sources include project vehicle travel routes. These vehicle emissions were modeled as line-volume sources (a series of volume sources along a line) representing off-site routes depicted in Figure 3. Vehicle volume source modeling parameters were based on EPA and SJVAPCD recommended source parameters.[9] The modeled emission sources and receptors where TAC concentrations were calculated are shown in Figure 3. Additional information on the emissions and modeling for project sources is included in *Attachment 1.*

Project Cancer Risk and Hazards

Computed health risk impacts are shown in Table 3. These risks are for a 70-year exposure to Project operational emissions. Cancer risk and hazards were predicted at the receptor's representative of maximum exposures for residences, workers, and daycare children.

Using the maximum modeled TAC concentrations, total increased cancer risks from project operations were computed using the most recent methods recommended by SJVAPCD and OEHHA that include nearly continuous exposures with adjustments for infants and children. Based on modeled TAC concentrations, maximum operational cancer risks were calculated as 1.9 in one million for a 70-year residential exposure while the maximum increased worker increased cancer risk would be 0.1 in one million for a 40-year exposure period. The maximum increased cancer risk at the Head Start daycare would be 0.3 in one million. The acute and chronic HIs from DPM and MSATs would be less than 0.1 at all receptor locations Details on the emission calculations and dispersion modeling information for these sources are provided in *Attachment 2.*

---

[8] San Joaquin Valley Air Pollution Control District, Guidance for Air Dispersion Modeling, Draft 01/07 Rev 2.0

[9] US EPA. 2015. Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas. November 2015.

Figure 3. Sensitive Receptor Locations and Modeled Project Emission Sources

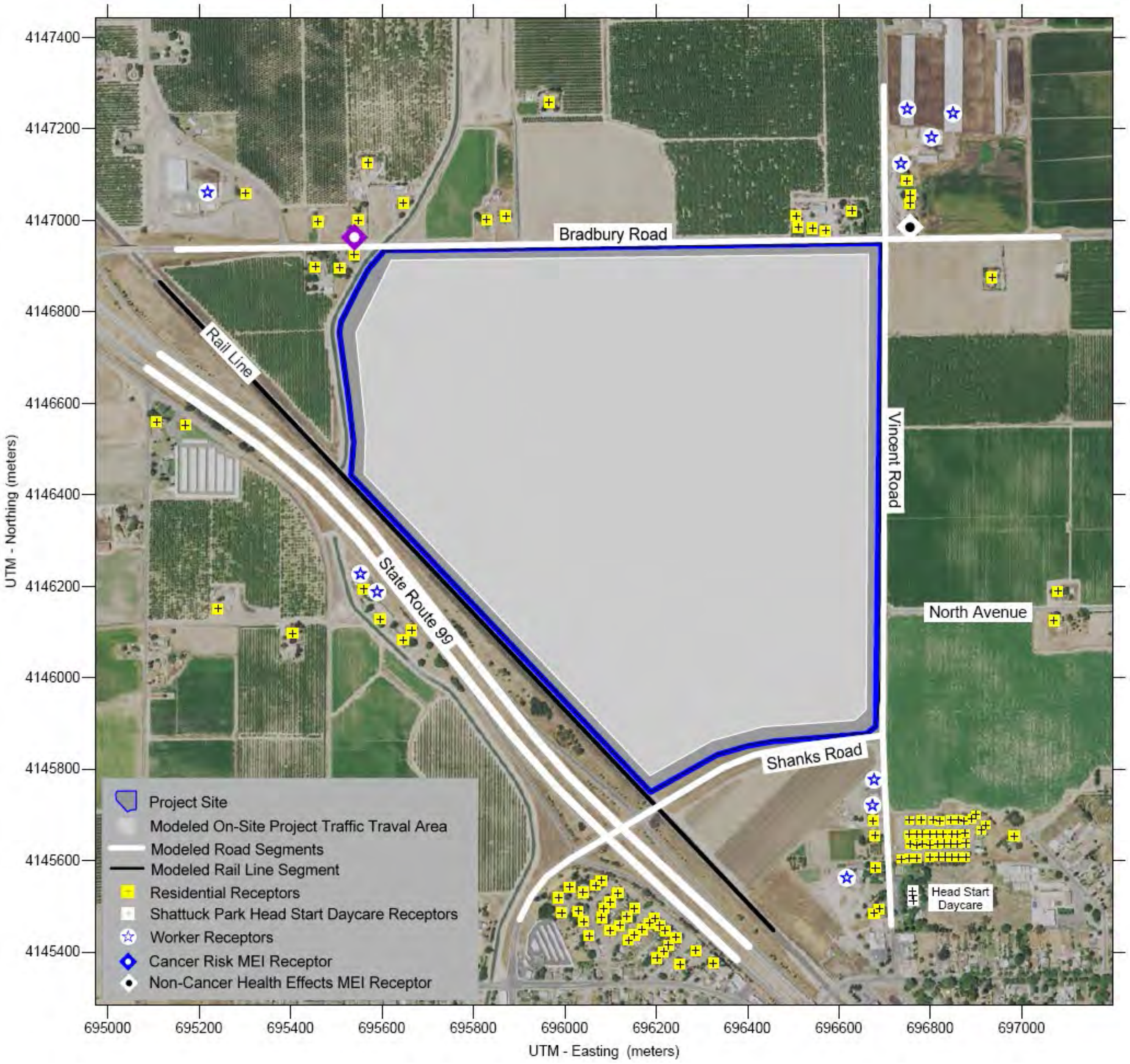


Table 3. Operational Period Health Risk Impacts

Activity	Maximum Residential Cancer Risk (per million)	Maximum Worker Cancer Risk (per million)
	Unmitigated	Unmitigated
Operational Traffic	1.9 infant/child/adult	0.1 adult

Project Exposure Analysis

Impact: (Non-CEQA) Exposure of New Project Residents to TACs. New residents to the project site would be exposed to existing sources of TACs, including railroad activity and nearby roadways. A cancer and health risk assessment was conducted and recommendations to reduce exposures are provided.

This health risk assessment was completed to estimate the impact existing and future TAC sources would have on the new proposed sensitive receptors (residents) that that project would introduce. The existing TAC sources in the project area include roadways (i.e., traffic) and the Union Pacific Railroad (UPRR). These sources were identified and included in this health risk assessment for new project residents.[10] Figure 4 shows the location of the modeled project receptors and nearby TAC sources affecting the new sensitive receptors. Details of the modeling and risk calculations are included in *Attachment 1.*

Traffic-Related Sources

Emissions and dispersion modeling of local traffic was conducted in the same manner as described previously for impacts to off-site receptors. Traffic in this case was based on the Cumulative + Project trips shown in Table 2 and using the county-wide vehicle fleet mix information from the CT-EMFAC2017 model for the cumulative traffic.

UPRR Activity

DPM emissions from freight trains on the UPRR were calculated using EPA emission factors for locomotives[11] and CARB adjustment factors to account for fuels used in California[12]. Based on the Acoustical Analysis for the Project there are about 14 train movements per day along the UPRR line, adjacent to the site. In estimating diesel locomotive emissions, it was assumed that each train would use two 2,300 horsepower diesel locomotives. Emissions from these locomotives were calculated based on average EPA PM_{10} exhaust (assumed to be DPM) emission factors for large line-haul locomotives in 2045.. Freight trains were assumed to be traveling at an average speed of 50 mph along this portion of the rail line.

Dispersion modeling of locomotive emissions was conducted using the EPA's AERMOD dispersion model and hourly meteorological data (described above). The rail line was modeled as extending about one-quarter mile in both directions from the project site. The rail line was modeled as a line source comprised of a series of volume sources along the line.

---

[10] We note that to the extent this analysis considers *existing* air quality issues in relation to the impact on *future residents* of the Project, it does so for informational purposes only pursuant to the judicial decisions in *CBIA v. BAAQMD* (2015) 62 Cal.4th 369, 386 and *Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th 455, 473, which confirm that the impacts of the environment on a project are excluded from CEQA unless the project itself "exacerbates" such impacts.

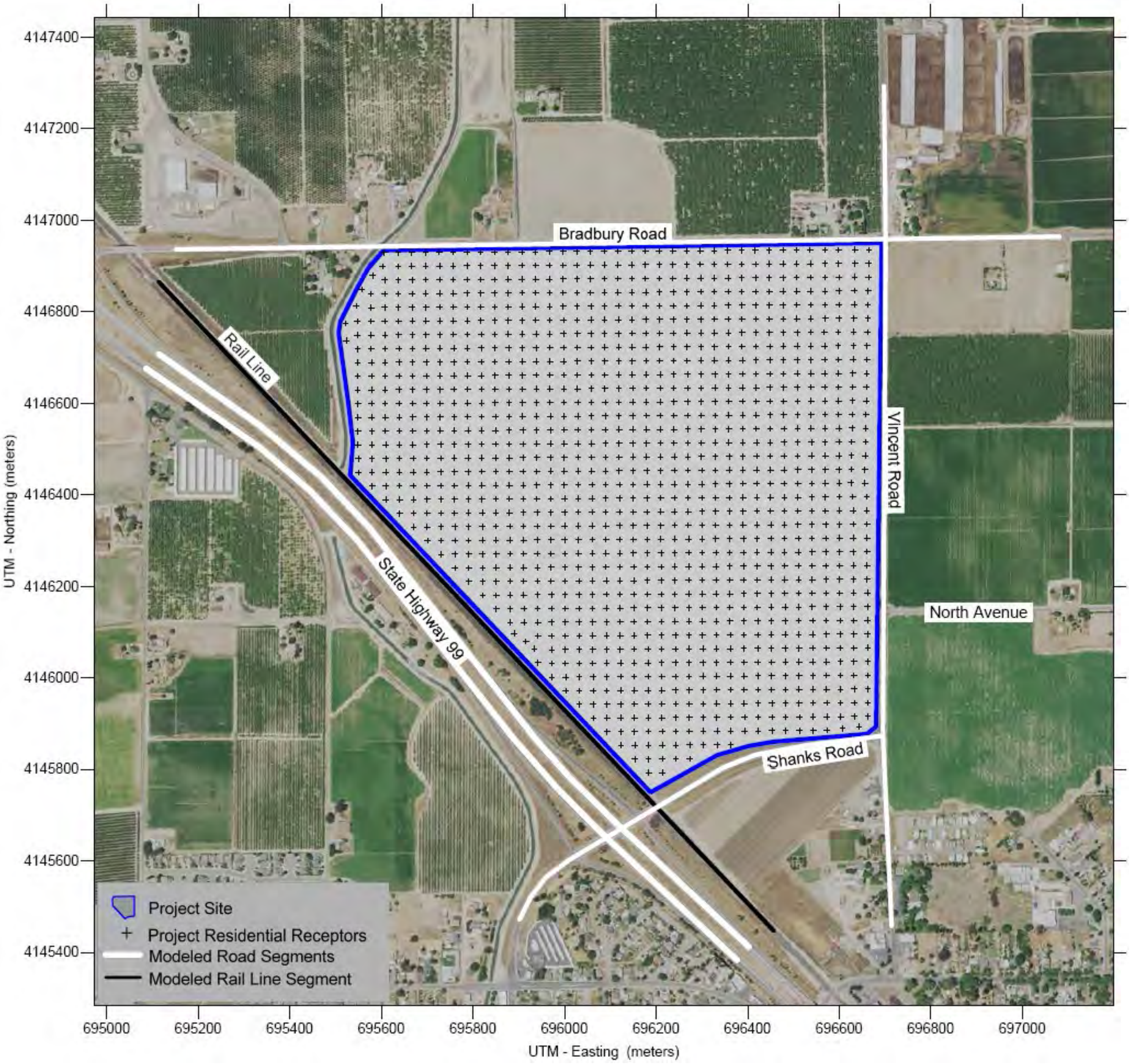
[11] *Emission Factors for Locomotives*, USEPA 2009 (EPA-420-F-09-025)

[12] *Offroad Modeling, Change Technical Memo*, Changes to the Locomotive Inventory, CARB July 2006.

Health Risk to New Residents

Existing TAC emissions sources include nearby roadways that generate TACs such as DPM and organic gases such as benzene and formaldehyde. This health risk assessment focused on modeling the impacts to new residents and school children that would occupy the site.

Figure 4. Project Site, Modeled On-Site Residential Receptor Locations, and TAC Sources Evaluated



-

Computed Cancer and Non-Cancer Health Impacts

Increased cancer risks associated with nearby roadway traffic were calculated using the modeled annual TAC concentrations and SJVAPCD recommended risk assessment methods for infant, child, and adult exposures as appropriate for residential receptors. Figure 5 depicts the increased cancer risk contours across the Master Plan area. As shown, the cancer risk from the nearby existing sources of TACs exceed the SJVAPCD threshold of 20 in one million for those new sensitive receptors located within about 800 feet to 1,240 feet of the western plan boundary. The health index that measures non-cancer air pathway health impacts (acute and chronic) would be below the SJVAPCD threshold of 1.0 for the entire site. Figures 6 and 7 show increased cancer risk contours with proper use of MERV 13 and MERV 16 filtrations systems, assuming residential receptor locations.

Figure 5. Project Site with Cancer Risk Contours – Uncontrolled

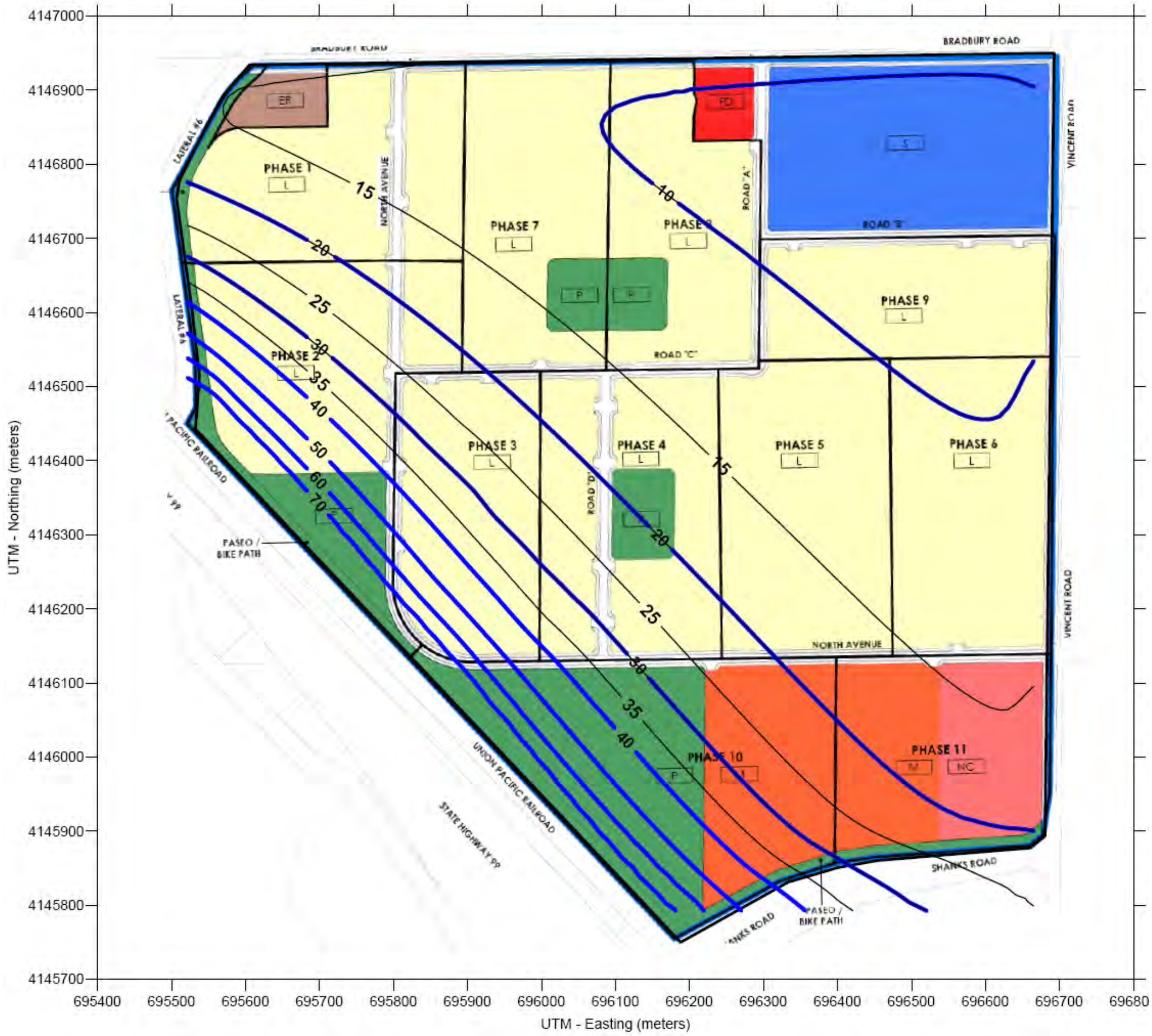


Figure 6. Project Site with Cancer Risk Contours – Use of MERV 13 Filtration

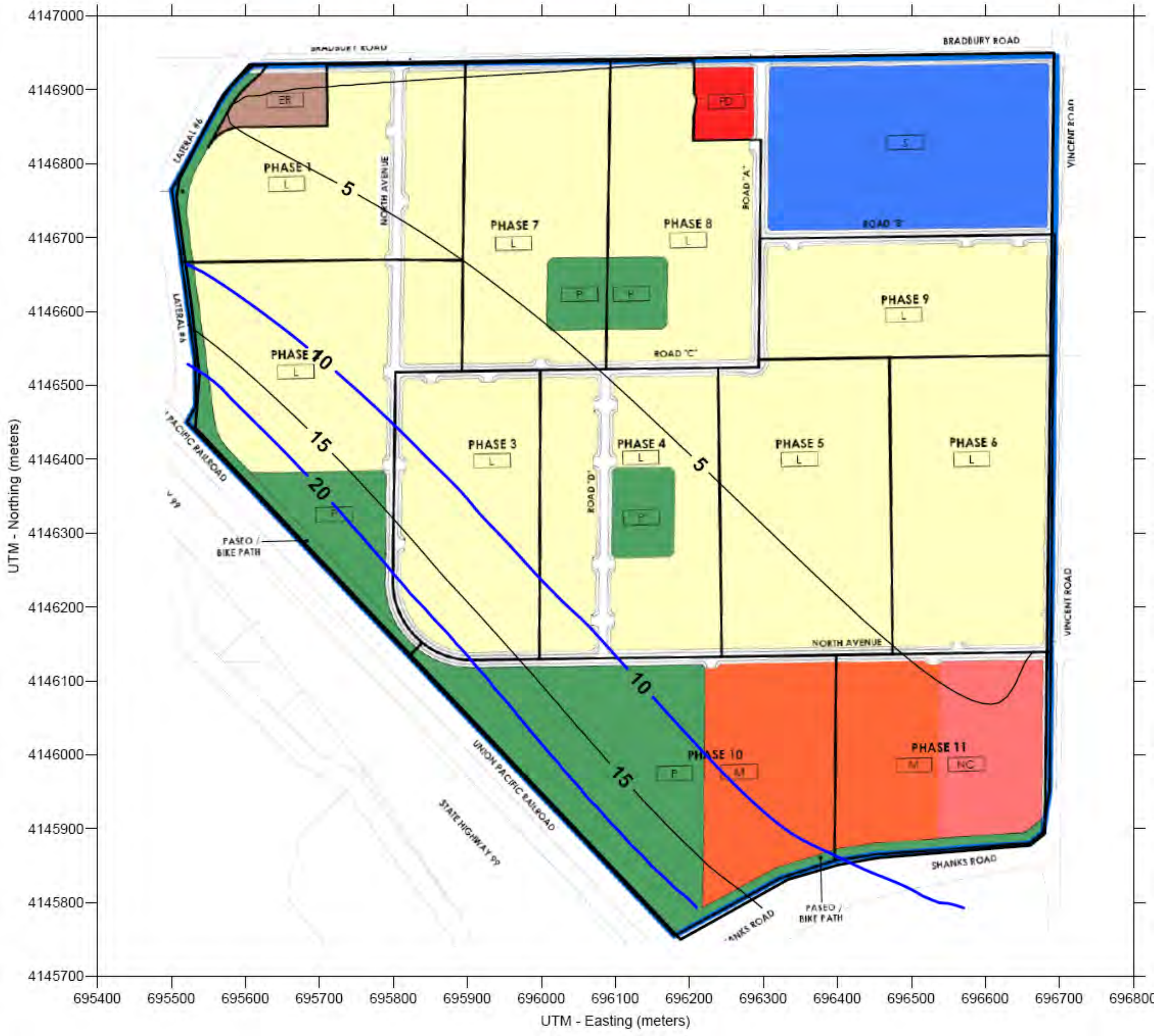
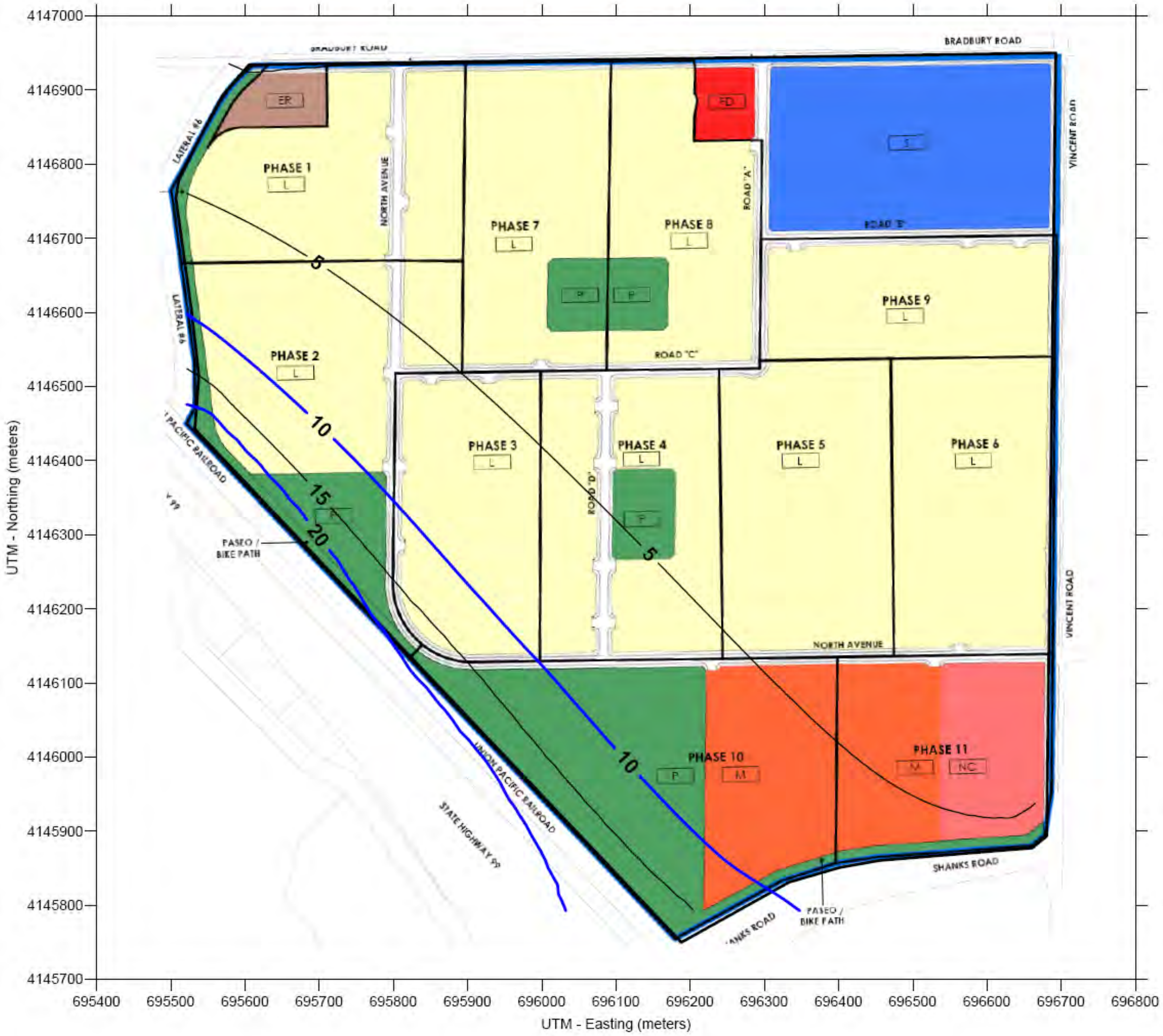


Figure 7. Project Site with Cancer Risk Contours – Use of MERV 16 Filtration



Cancer risk for use of MERV13 or MERV16 filtration was calculated assuming a combination of outdoor and indoor exposure. For use of these filtration systems, without the additional use of sealed, inoperable widows and no balconies, 3 hours of outdoor exposure to ambient TAC concentrations and 21 hours of indoor exposure to filtered air were assumed. The effective control efficiency using a MERV13 filtration system is about 70 percent and MERV16 is about 80 percent when accounting for some outdoor exposure.

Recommended Control Measures

To effectively reduce concentrations of TACs, specifically diesel particulate matter (DPM), several measures may be employed. These measures are based on recommendations provided in BAAQMD's *Air Quality CEQA Guidelines* and *Planning Healthy Places* documents. It should be noted that SJVAPCD has no permitting or other regulatory authority over mobile sources, therefore, no specific mobile source TAC risk thresholds currently exist.

Filtration.

The U.S. EPA reports particle size removal efficiency for filters rated MERV13 of 90 percent for particles in the size range of 1 to 3 µm and less than 75 percent for particles 0.3 to 1 µm (see American Society of Heating, Refrigerating and Air Conditioning Engineers).[13,14] MERV16 filters are listed to have removal efficiency for those particles (i.e., 0.3 to 3 µm) of 90 percent or greater.

Install and maintain air filtration systems of fresh air supply either on an individual unit-by-unit basis, with individual air intake and exhaust ducts ventilating each unit separately, or through a centralized building ventilation system. The ventilation system should achieve a certain effectiveness. For example, a properly installed and operated ventilation system with MERV13 filters is expected to achieve about 80-percent reduction and MERV16 filters are expected to achieve 90-percent reduction.[15] Note that as part of the 2019 California Building Code (CBC), Section 120.1(b)(1)(C): Multi-Family Residential, buildings that are 4-stories and higher are required to use MERV-13.

As part of implementing this measure, an ongoing maintenance plan for the buildings' heating, ventilation, and air conditioning (HVAC) air filtration system shall be required. Ensure that the use agreement and other property documents: (1) require cleaning, maintenance, and monitoring of the affected buildings for air flow leaks, (2) include assurance that new owners or tenants are provided information on the ventilation system, and (3) include provisions that fees associated with owning or leasing a unit(s) in the building include funds for cleaning, maintenance, monitoring, and replacements of the filters, as needed.

Design.

Site design to locate sensitive land uses along the southwestern portion of the site as far as possible from State Route 99 and the UPRR. Proper design of these neighborhoods that includes appropriate setbacks near State Route 99 and the UPRR, could avoid the use of MERV16 filtration but require MERV13 filtration. Figures 5 through 7 should be used to guide neighborhood design and application of the appropriate enhanced ventilation systems.

---

[13] American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., 20072008, *Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size*. ANSI/ASHRAE Addendum b to Standard 52.2-2007

[14] United States Environmental Protection Agency (U.S. EPA), 2009, *Residential Air Cleaners (Second Edition): A Summary of Available Information*. U.S. EPA 402-F-09-002. Revised August 2009.

[15] Bay Area Air Quality Management District (2016). Appendix B: Best Practices to Reduce Exposure to Local Air Pollution, *Planning Healthy Places A Guidebook for Addressing Local Sources of Air Pollutants in Community Planning* (p. 38). http://www.baaqmd.gov/~/media/files/planning-and-research/planning-healthy-places/php_may20_2016-pdf.pdf?la=en

BAAQMD CEQA Air Quality Guidelines[16] recommend, among other mitigation measures, that for projects that propose sensitive receptors near to sources of DPM (e.g., freeways, major roadways, rail lines, and rail yards) tiered plantings of trees such as redwood, deodar cedar, live oak, and oleander to reduce DPM exposure could be considered. This recommendation is based on a laboratory study conducted by U.C Davis[17] that measured the removal rates of fine particulate matter passing through leaves and needles of vegetation. In this study, particles were generated in a wind tunnel and a static chamber and passed through vegetative layers at low wind velocities. Redwood, deodar cedar, live oak, and oleander were tested. The results indicate that all forms of vegetation were able to remove 65–85 percent of very fine particles at wind velocities below 1.5 meters per second (approximately 3 mph) with redwood and deodar cedar being the most effective. Even greater removal rates were predicted for ultra-fine particulate matter (i.e., aerodynamic resistance diameter of 0.1 micrometer or less).

Trees and other vegetation appear to act as efficient filters of airborne particulates because of their large size, high surface to volume ratio of foliage, frequently hairy or rough leaf, and bark surfaces. Interception and retention of particles occur as winds carry them through the vegetation.[18] As with the U.C. Davis study, the USDA Forest Service reported that the filtering effects of evergreen trees are better than the deciduous trees.[19] In addition to trees, hedges can act as an effective filter mechanism for particulate matter. In a study in England,[20] it was found that a 2.2 meter tall Hawthorne hedge collected PM_{10} with an average collection efficiency of 34 percent at wind speeds of 1.8 to 4.8 meters per second.

---

[16] BAAQMD, *California Environmental Quality Act Air Quality Guidelines*, May 2011.

[17] *Removal Rates of Particulate Matter onto Vegetation as a Function of Particle Size*, Final Report to Breathe California of Sacramento-Emigrant Trails Health Effects Task Force (HETF) and Sacramento Metropolitan AQMD, Erin Fujii, Jonathan Lawton, Thomas A. Cahill, David E. Barnes, Chui Hayes (IASTE intern), Nick Spada, the DELTA Group, http://delta.ucdavis.edu, Univ. of California, Davis 95616 and Greg McPherson, the Pacific Southwest USFS Urban Forest Program, February 24, 2008.

[18] Chakre, Onkar J., *Choice of Eco-friendly Trees in Urban Environment to Mitigate Airborne Particulate Pollution*, Journal of Human Ecology, 20(2): 135-138 (2006).

[19] Dochinger, L.S., Miscellaneous Publication No. 1230, USDA Forest Service, Upper Darby, Pa., 1973.

[20] Tiwary, A., Reff, A., & Colls, J., *Collection of ambient particulate matter by porous vegetation barriers: Sampling and characterization methods*, Journal of Aerosol Science, 39 (2008) 40-47.

Attachment 1: Health Risk Assessment

Health Risk Calculation Methodology

A health risk assessment for exposure to TACs requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and CARB develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[21] These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by state law, compared to previous published risk assessment guidelines. The SJVAPCD has recently revised Risk Management Policy to incorporate OEHHA's new guidelines.[22]

This health risk assessment used the recent 2015 OEHHA risk assessment guidelines and SJVAPCD recommended procedures for applying the OEHHA guidelines.[23] Guidance based on consultations with SJVAPCD was also incorporated into the assessment[24].

Cancer Risk

Potential increased cancer risks from inhalation of TACs are calculated based on the average annual TAC concentration, inhalation dose, the TAC cancer potency factor, and an age sensitivity factor to reflect the greater sensitivity of infants and children to cancer causing TACs. The inhalation dose depends on a person's breathing rate, exposure time and frequency of exposure, and the exposure duration over a 70-year lifetime period. These parameters vary depending on the age, or age range, of the persons being exposed and whether the exposure is considered to occur at a residential location, at a workplace, or at a school.

The current OEHHA guidance used by SJVAPCD recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, for a 70-year residential exposure period they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). Age sensitivity factors (ASFs) associated with the different types of exposure are an ASF of 10 for the third trimester and infant exposures, an ASF of 3 for a child exposure, and an ASF of 1 for an adult exposure. For workers, a 40-year adult exposure period is assumed in calculating the 70-year lifetime cancer risk. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body

---

[21] OEHHA 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February 2015.

[22] San Joaquin Valley Air Pollution Control District. 2015. *APR-1906 Framework for Performing Health Risk Assessments*. June30, 2015.

[23] San Joaquin Valley Air Pollution Control District. 2015. *Final Draft Staff Report, Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document*. May 28, 2015

[24] San Joaquin Valley Air Pollution Control District. 2020. Email from Kyle Melching of the SJVAPCD and James Reyff of Illingworth & Rodkin, Inc. on February 6, 2020.

weight per day (L/kg-day) for residential exposures or L/kg per 8 hours for worker exposures. As recommended by the SJVAPCD, 95th percentile breathing rates are used for all age groups.

Functionally, cancer risk is calculated using the following parameters and formulas:
Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 10^6

Where:

CPF = Cancer potency factor (mg/kg-day)$^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where:

C_{air} = concentration in air (µg/m^3)
DBR = daily breathing rate (L/kg body weight-day) or 8-hr breathing rate for worker
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

The health risk parameters used in this evaluation are summarized in Tables 1 and 2.

TABLE 1 - Health Risk Parameters used for Cancer Risk Calculations

	Exposure Type →	**Infant**		**Child**	**Adult**	**Worker**
Parameter	***Age Range →***	**3rd Trimester**	**0<2**	**2 < 16**	**16 - 70**	**> 16**
Cancer Potency Factor (mg/kg-day)$^{-1}$ (refer to Table 2)						
Daily Breathing Rate (L/kg-day)[a]		361	1,090	745	290	230[b]
Inhalation Absorption Factor		1	1	1	1	1
Averaging Time ((years)		70	70	70	70	70
Exposure Duration (years)		0.25	2	14	54	40
Exposure Frequency (days/year)		350	350	350	350	250
Age Sensitivity Factor		10	10	3	1	1
Fraction of Time at Home		1.0	1.0	1.0	1.0	-

[a] 95th percentile breathing rates for all age groups

[b] Worker 95th percentile 8-hour breathing rate.

Table 2 - Cancer Potency Factors and Reference Exposure Levels

TAC	**Cancer Potency Factor (mg/kg-day)$^{-1}$**	**Reference Exposure Levels (µg/m^3)**	
		Acute (1-hour)	**Chronic (annual ave)**
DPM	1.10E+00	-	5
Benzene	1.00E-01	27	3
Ethylbenzene	8.70E-03	-	2,000
Formaldehyde	2.10E-02	55	9
PAH	3.90E00	-	-
Naphthalene	1.20E-01	-	9
1,3 Butadiene	6.00E-01	660	2
Acetaldehyde	1.00E-02	470	140

Non-Cancer Hazard Calculation

Potential non-cancer health hazards from TAC exposure are expressed in terms of a hazard index (HI), which is the ratio of the TAC concentration to a reference exposure level (REL). Non-cancer health effects can be acute due to short term TAC exposure (one hour) or chronic due to longer term TAC exposure (annual average). OEHHA has defined acceptable concentration levels for contaminants that pose non-cancer health hazards. TAC concentrations below the REL are not expected to cause adverse health impacts, even for sensitive individuals. The total HI is calculated as the sum of the HIs for each TAC evaluated and the total HI is compared to the SJVAPCD significance thresholds to determine whether a significant non-cancer health impact from a project would occur.

Typically, for projects involving construction or for residential projects locating near roadways with substantial TAC emissions, the primary TAC of concern with non-cancer health effects is DPM. For other emission sources, such as gasoline stations, benzene, toluene, and xylenes (organic TACs) are of concern with respect acute and chronic non-cancer health effects.

Project Emissions and Health Risk Calculations

File Name: Merced (SJV) - 2045 Project Emissions- Annual SJVAPCD Res Mix.EF
CT-EMFAC2017 Version: 1.0.2.27401
Run Date: 8/16/2022 1:35
Area: Merced (SJV)
Analysis Year: 2045
Season: Annual

==

Vehicle Category	VMT Fraction Across Category	Diesel VMT Within Cat	Gas VMT Fraction Within Category
Truck 1	0.002	0.543	0.457
Truck 2	0.026	0.981	0.011
Non-Truck	0.972	0.016	0.935

==

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 51 days N = 365 days

==

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.003458	0.002263	0.001545	0.001118	0.000866	0.000726	0.000664	0.00066	0.000703	0.000787	0.000911	0.001076	0.001285	0.001322	0.001322
PM10	0.003746	0.002448	0.00167	0.001207	0.000934	0.000781	0.000713	0.000706	0.000749	0.000837	0.000966	0.00114	0.001361	0.0014	0.0014
NOx	0.395244	0.302736	0.218424	0.176028	0.141064	0.110117	0.085495	0.067111	0.05491	0.048859	0.048945	0.055179	0.067576	0.068111	0.068111
CO	0.990467	0.847344	0.73054	0.646624	0.584906	0.534723	0.492763	0.457696	0.428767	0.405677	0.388597	0.378358	0.376631	0.38027	0.381727
HC	0.106819	0.069815	0.047739	0.034572	0.02657	0.021498	0.018244	0.016213	0.015074	0.014658	0.014915	0.015897	0.017769	0.019138	0.01925
TOG	0.116387	0.076039	0.051764	0.037342	0.028649	0.023151	0.019623	0.017424	0.016194	0.015753	0.016044	0.017127	0.019178	0.020693	0.020855
ROG	0.087535	0.056595	0.037894	0.026841	0.020246	0.016112	0.013491	0.011889	0.011032	0.010782	0.011097	0.012026	0.013708	0.014969	0.015111
1,3-Butadiene	0.000658	0.000425	0.000287	0.000205	0.000155	0.000123	0.000103	0.000091	0.000085	0.000083	0.000085	0.000092	0.000105	0.000114	0.000115
Acetaldehyde	0.001024	0.000676	0.000413	0.00027	0.000202	0.000161	0.000134	0.000117	0.000108	0.000105	0.000109	0.00012	0.000138	0.000156	0.000167
Acrolein	0.000147	0.000095	0.000064	0.000046	0.000035	0.000028	0.000023	0.00002	0.000019	0.000019	0.000019	0.000021	0.000024	0.000026	0.000026
Benzene	0.002897	0.001871	0.001259	0.000895	0.000675	0.000537	0.00045	0.000397	0.000368	0.00036	0.000371	0.000402	0.000458	0.000499	0.000502
Diesel PM	0.000345	0.000306	0.000247	0.00021	0.000196	0.000206	0.000238	0.000293	0.000371	0.00047	0.000591	0.000735	0.000901	0.000901	0.000901
Ethylbenzene	0.001242	0.000801	0.000543	0.000388	0.000293	0.000233	0.000195	0.000172	0.00016	0.000156	0.000161	0.000174	0.000198	0.000216	0.000216
Formaldehyde	0.003041	0.001993	0.00126	0.000851	0.000638	0.000508	0.000424	0.000372	0.000344	0.000336	0.000347	0.000379	0.000435	0.000484	0.000506
Naphthalene	0.00009	0.000059	0.00004	0.000029	0.000022	0.000018	0.000015	0.000014	0.000013	0.000012	0.000013	0.000013	0.000015	0.000015	0.000015
POM	0.000092	0.000059	0.000039	0.000028	0.000021	0.000017	0.000014	0.000012	0.000011	0.000011	0.000012	0.000013	0.000014	0.000016	0.000016
DEOG	0.006206	0.004218	0.00222	0.001233	0.000901	0.000718	0.000587	0.0005	0.000452	0.000441	0.000465	0.000527	0.000625	0.000751	0.0009
CO2	518.428353	422.1582	343.5905	286.6699	245.7578	217.8024	200.9709	193.1789	192.4579	197.0734	204.8476	213.7848	222.1646	224.1108	224.1108
N2O	0.017749	0.014965	0.012323	0.010741	0.009539	0.008581	0.00787	0.007375	0.007084	0.007002	0.00713	0.007457	0.007991	0.008097	0.008097
CH4	0.017554	0.012647	0.009615	0.007682	0.006408	0.005537	0.004932	0.004514	0.004235	0.004071	0.004012	0.004064	0.004245	0.004357	0.004364
BC	0.000842	0.000546	0.00037	0.000266	0.000203	0.000167	0.000148	0.000141	0.000144	0.000156	0.000175	0.000203	0.00024	0.000249	0.000249

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
Gasoline	0.053888	0.043752	0.035783	0.029774	0.025415	0.022554	0.020916	0.020257	0.020315	0.02089	0.021759	0.022655	0.023342	0.023554	0.023554
Diesel	0.007185	0.005954	0.004697	0.004005	0.003487	0.003063	0.002747	0.002526	0.002401	0.002375	0.002447	0.002613	0.002878	0.002898	0.002898

==

Fleet Average Running Loss Emission Factors (grams/veh-hour)

Pollutant Name	Emission Factor
HC	0.645661
TOG	0.690295
ROG	0.690295
1,3-Butadiene	0
Benzene	0.006903
Ethylbenzene	0.011321
Naphthalene	0.000966
CH4	0.118048
HFC	0.000464

==

Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.002168
PM10	0.008674

==

Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.016763
PM10	0.039114

==

Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.015734
PM10	0.104893

=============================END=======================================

File Name: Merced (SJV) - 2045 - Annual Existing Traffic Adjacent Roads.EF
CT-EMFAC2017 Version: 1.0.2.27401
Run Date: 8/15/2022 21:10
Area: Merced (SJV)
Analysis Year: 2045
Season: Annual

==

Vehicle Category	VMT Fraction Across Category	Diesel VMT Within Cat	Gas VMT Fraction Within Category
Truck 1	0.017	0.543	0.457
Truck 2	0.18	0.981	0.011
Non-Truck	0.803	0.016	0.935

==

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 51 days N = 365 days

==

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.004636	0.003421	0.002509	0.001966	0.001694	0.001644	0.001781	0.00209	0.002559	0.003184	0.003963	0.004898	0.005993	0.006025	0.006025
PM10	0.004957	0.003645	0.002669	0.002087	0.001795	0.001737	0.001877	0.002197	0.002687	0.00334	0.004154	0.005133	0.006279	0.006313	0.006313
NOx	2.340882	1.767062	1.241673	0.984104	0.769756	0.577872	0.42444	0.309376	0.232632	0.194182	0.194018	0.232155	0.3086	0.309092	0.309092
CO	1.16007	0.915477	0.720551	0.610147	0.540922	0.486324	0.441119	0.404087	0.374545	0.352212	0.337207	0.330267	0.332752	0.341941	0.35158
HC	0.108676	0.07123	0.046852	0.033102	0.025369	0.020487	0.017297	0.015285	0.014162	0.013785	0.014104	0.015174	0.017125	0.018783	0.019523
TOG	0.125145	0.082014	0.053216	0.037229	0.028473	0.022964	0.019349	0.017065	0.015799	0.015393	0.015794	0.017062	0.019337	0.021347	0.022414
ROG	0.097076	0.063059	0.040101	0.027503	0.020745	0.016532	0.013789	0.012083	0.011175	0.010946	0.011358	0.012457	0.014356	0.016063	0.017
1,3-Butadiene	0.000598	0.000387	0.000257	0.000182	0.000137	0.000109	0.000091	0.00008	0.000075	0.000073	0.000075	0.000082	0.000094	0.000103	0.000105
Acetaldehyde	0.002878	0.001898	0.001062	0.000658	0.000495	0.000396	0.000327	0.000282	0.000258	0.000254	0.00027	0.000306	0.000363	0.000432	0.000505
Acrolein	0.000122	0.000078	0.000053	0.000038	0.000029	0.000023	0.000019	0.000017	0.000016	0.000015	0.000016	0.000017	0.00002	0.000021	0.000021
Benzene	0.002955	0.001916	0.00124	0.00086	0.000649	0.000517	0.000432	0.000379	0.000351	0.000344	0.000356	0.000389	0.000447	0.000496	0.000516
Diesel PM	0.002065	0.00182	0.001455	0.001235	0.001163	0.001241	0.001465	0.001835	0.002348	0.003006	0.003806	0.004753	0.005841	0.005841	0.005841
Ethylbenzene	0.001116	0.000721	0.00048	0.00034	0.000257	0.000204	0.000171	0.000151	0.00014	0.000137	0.000141	0.000153	0.000175	0.000192	0.000195
Formaldehyde	0.006584	0.00433	0.002485	0.001576	0.001186	0.000948	0.000784	0.000678	0.000622	0.000612	0.000647	0.000729	0.000858	0.001007	0.001153
Naphthalene	0.0001	0.000066	0.000042	0.00003	0.000023	0.000018	0.000015	0.000014	0.000013	0.000012	0.000013	0.000014	0.000016	0.000016	0.000017
POM	0.000108	0.00007	0.000044	0.00003	0.000023	0.000018	0.000016	0.000014	0.000013	0.000013	0.000014	0.000016	0.000019	0.000021	0.000022
DEOG	0.032767	0.021701	0.011635	0.006941	0.005213	0.004178	0.003429	0.002931	0.002671	0.002637	0.002826	0.003256	0.003899	0.004744	0.005739
CO2	819.139839	671.9211	537.6674	453.3277	391.8711	346.0099	315.0304	296.7082	289.4723	292.0125	302.2334	318.3123	338.8968	340.531	340.531
N2O	0.074362	0.061768	0.048928	0.042028	0.036837	0.032557	0.02933	0.027061	0.025759	0.025458	0.026129	0.027736	0.030311	0.030399	0.030399
CH4	0.016433	0.011827	0.008784	0.006903	0.005708	0.004894	0.004325	0.003931	0.003668	0.003516	0.003463	0.003517	0.003691	0.003815	0.003859
BC	0.000991	0.000706	0.000509	0.000391	0.000328	0.000306	0.000317	0.000358	0.000426	0.000519	0.000637	0.000781	0.00095	0.000957	0.000957

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
Gasoline	0.046415	0.037685	0.030821	0.025644	0.021891	0.019427	0.018015	0.017447	0.017497	0.017994	0.018742	0.019492	0.020068	0.020243	0.020243
Diesel	0.04273	0.035364	0.027749	0.02373	0.020713	0.018211	0.016321	0.014992	0.014234	0.014071	0.014478	0.015441	0.016978	0.016995	0.016995

==

Fleet Average Running Loss Emission Factors (grams/veh-hour)

Pollutant Name	Emission Factor
HC	0.555165
TOG	0.593543
ROG	0.593543
1,3-Butadiene	0
Benzene	0.005935
Ethylbenzene	0.009734
Naphthalene	0.000831
CH4	0.101155
HFC	0.00095

==

Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.003162
PM10	0.012649

==

Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.019028
PM10	0.044399

==

Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.036562
PM10	0.243745

============================END======================================

Bradbury Ranch

Project Traffic Vehicle Emissions - DPM

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Trips per day	Speed	DPM Emissions Factors[b]				Project DPM Emissions		
														Evaporative		Exhaust	Total	Daily	Hourly	Annual
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)		(mph)	g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	(lb/year)
Off-site																				
Segment 1 - Northbound SR99 - South of Shanks Rd	SEG_P1	1245	379.5	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	1670	65	0	0	0.000901	0.000901	0.35477	4.11E-06	0.2854808
Segment 2 - Northbound SR99 - North of Shanks Rd	SEG_P2	4777	1455.9	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	575	65	0	0	0.000901	0.000901	0.46868	5.425E-06	0.3771413
Segment 3 - Southbound SR-99 - North of Shanks Rd	SEG_P3	440	134.2	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	575	65	0	0	0.000901	0.000901	0.04319	5.00E-07	0.0347559
Segment 4 - Southbound SR-99 - South of Shanks Rd	SEG_P4	505	153.9	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	1670	65	0	0	0.000901	0.000901	0.14386	1.665E-06	0.1157625
Segment 5 - Shanks Road	SEG_P5	3027	922.6	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	6120	25	0	0	0.000196	0.000196	0.68765	7.959E-06	0.5533411
Segment 6 - Vincent Road - North of North Ave	SEG_P6	3769	1148.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	2850	25	0	0	0.000196	0.000196	0.39875	4.615E-06	0.3208671
Segment 7 - Vincent Road - North Ave to Shanks Rd	SEG_P7	884	269.4	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	7400	25	0	0	0.000196	0.000196	0.24280	2.81E-06	0.1953762
Segment 8 - Vincent Rd - South of Shanks Rd	SEG_P8	1368	416.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	1280	25	0	0	0.000196	0.000196	0.06498	7.521E-07	0.0522876
Segment 9 - Bradbury Road	SEG_P9	6330	1929.2	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4170	25	0	0	0.000196	0.000196	0.97978	1.134E-05	0.7884167

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] 2045 Emissions Factors from CT_EMFAC2017

Existing Traffic Vehicle Emissions - DPM

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Trips per day	Speed	DPM Emissions Factors[b]				Existing DPM Emissions		
														Evaporative		Exhaust	Total	Daily	Hourly	Annual
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)		(mph)	g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	(lb/year)
Off-site																				
Segment 1 - Northbound SR99 - South of Shanks Rd	SEG_E1	1245	379.5	43.7	13.3	22.3	6.8	10.38	3.16	11.15	3.4	52894	65	0	0	0.005841	0.005841	72.84539	8.43E-04	58.617764
Segment 2 - Northbound SR99 - North of Shanks Rd	SEG_E2	4777	1455.9	43.7	13.3	22.3	6.8	10.38	3.16	11.15	3.4	53989	65	0	0	0.005841	0.005841	285.28358	3.30E-03	229.56409
Segment 3 - Southbound SR-99 - North of Shanks Rd	SEG_E3	440	134.2	43.7	13.3	22.3	6.8	10.38	3.16	11.15	3.4	53989	65	0	0	0.005841	0.005841	26.29061	3.04E-04	21.15572
Segment 4 - Southbound SR-99 - South of Shanks Rd	SEG_E4	505	153.9	43.7	13.3	22.3	6.8	10.38	3.16	11.15	3.4	52894	65	0	0	0.005841	0.005841	29.53880	3.42E-04	23.769503
Segment 5 - Shanks Road	SEG_E5	3027	922.6	24	7.32	22.3	6.8	10.38	3.16	11.15	3.4	6092	25	0	0	0.001163	0.001163	4.06161	4.70E-05	3.2683236
Segment 6 - Vincent Road - North of North Ave	SEG_E6	3769	1148.8	24	7.32	22.3	6.8	10.38	3.16	11.15	3.4	4338	25	0	0	0.001163	0.001163	3.60136	4.17E-05	2.8979678
Segment 7 - Vincent Road - North Ave to Shanks Rd	SEG_E7	884	269.4	24	7.32	22.3	6.8	10.38	3.16	11.15	3.4	4388	25	0	0	0.001163	0.001163	0.85429	9.89E-06	0.6874329
Segment 8 - Vincent Rd - South of Shanks Rd	SEG_E8	1368	416.8	24	7.32	22.3	6.8	10.38	3.16	11.15	3.4	50	25	0	0	0.001163	0.001163	0.01506	1.74E-07	0.0121194
Segment 9 - Bradbury Road	SEG_E9	6330	1929.2	24	7.32	22.3	6.8	10.38	3.16	11.15	3.4	4523	25	0	0	0.001163	0.001163	6.30584	7.30E-05	5.0742284

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] 2045 Emissions Factors from CT_EMFAC2017

Bradbury Ranch

Project Traffic Vehicle Emissions - Benzene

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Trips per day	Speed	Benzene Emissions Factors[b]				Project Benzene Emissions		
														Evaporative		Exhaust	Total	Daily	Hourly	Annual
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)		(mph)	g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	(lb/year)
Off-site																				
Segment 1 - Northbound SR99 - South of Shanks Rd	SEG_1	1245	379.5	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	1670	65	0.006903	0.0001062	0.000458	0.0005642	0.22216	2.57E-06	0.17877
Segment 2 - Northbound SR99 - North of Shanks Rd	SEG_2	4777	1455.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	575	65	0.006903	0.0001062	0.000458	0.0005642	0.29348	3.40E-06	0.23616
Segment 3 - Southbound SR-99 - North of Shanks Rd	SEG_3	440	134.2	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	575	65	0.006903	0.0001062	0.000458	0.0005642	0.02705	3.13E-07	0.02176
Segment 4 - Southbound SR-99 - South of Shanks Rd	SEG_4	505	153.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	1670	65	0.006903	0.0001062	0.000458	0.0005642	0.09008	1.043E-06	0.07249
Segment 5 - Shanks Road	SEG_5	3027	922.6	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	6120	25	0.006903	0.0002761	0.000675	0.0009511	3.33691	3.862E-05	2.68517
Segment 6 - Vincent Road - North of North Ave	SEG_6	3769	1148.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	2850	25	0.006903	0.0002761	0.000675	0.0009511	1.93498	2.24E-05	1.55706
Segment 7 - Vincent Road - North Ave to Shanks Rd	SEG_7	884	269.4	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	7400	25	0.006903	0.0002761	0.000675	0.0009511	1.17821	1.364E-05	0.94809
Segment 8 - Vincent Rd - South of Shanks Rd	SEG_8	1368	416.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	1280	25	0.006903	0.0002761	0.000675	0.0009511	0.31532	3.65E-06	0.25373
Segment 9 - Bradbury Road	SEG_9	6330	1929.2	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4170	25	0.006903	0.0002761	0.000675	0.0009511	4.75453	5.503E-05	3.82591

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] 2045 Emissions Factors from CT_EMFAC2017

Existing Traffic Vehicle Emissions - Benzene

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Trips per day	Speed	Benzene Emissions Factors[b]				Existing Benzene Emissions		
														Evaporative		Exhaust	Total	Daily	Hourly	Annual
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)		(mph)	g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	(lb/year)
Off-site																				
Segment 1 - Northbound SR99 - South of Shanks Rd	SEG_1	1244.92	379.5	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	52894	65	0.005935	9.131E-05	0.000447	0.0005383	6.71345	7.77E-05	5.40222
Segment 2 - Northbound SR99 - North of Shanks Rd	SEG_2	4776.59	1455.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	53989	65	0.005935	9.131E-05	0.000447	0.0005383	26.29179	3.04E-04	21.15667
Segment 3 - Southbound SR-99 - North of Shanks Rd	SEG_3	440	134.2	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	53989	65	0.005935	9.131E-05	0.000447	0.0005383	2.42295	2.804E-05	1.94972
Segment 4 - Southbound SR-99 - South of Shanks Rd	SEG_4	505	153.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	52894	65	0.005935	9.131E-05	0.000447	0.0005383	2.72230	3.151E-05	2.19060
Segment 5 - Shanks Road	SEG_5	3027	922.6	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	6092	25	0.005935	0.0002374	0.000649	0.0008864	3.09562	3.583E-05	2.49101
Segment 6 - Vincent Road - North of North Ave	SEG_6	3769	1148.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4338	25	0.005935	0.0002374	0.000649	0.0008864	2.74484	3.177E-05	2.20873
Segment 7 - Vincent Road - North Ave to Shanks Rd	SEG_7	884	269.4	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4388	25	0.005935	0.0002374	0.000649	0.0008864	0.65111	7.536E-06	0.52394
Segment 8 - Vincent Rd - South of Shanks Rd	SEG_8	1368	416.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	50	25	0.005935	0.0002374	0.000649	0.0008864	0.01148	1.329E-07	0.00924
Segment 9 - Bradbury Road	SEG_9	6330	1929.2	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4523	25	0.005935	0.0002374	0.000649	0.0008864	4.80610	5.563E-05	3.86741

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] 2045 Emissions Factors from CT_EMFAC2017

Bradbury Ranch

Project Traffic Vehicle Emissions - Ethylbenzene

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Trips per day	Speed	Ethylbenzene Emissions Factors[b]				Project Ethylbenzene Emissions		
														Evaporative		Exhaust	Total	Daily	Hourly	Annual
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)		(mph)	g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	(lb/year)
Off-site																				
Segment 1 - Northbound SR99 - South of Shanks Rd	SEG_1	1245	379.5	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	1670	65	0.01132	0.00017	0.000198	0.0003722	0.14654	1.70E-06	0.11792
Segment 2 - Northbound SR99 - North of Shanks Rd	SEG_2	4777	1455.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	575	65	0.01132	0.00017	0.000198	0.0003722	0.19359	2.241E-06	0.15578
Segment 3 - Southbound SR-99 - North of Shanks Rd	SEG_3	440	134.2	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	575	65	0.01132	0.00017	0.000198	0.0003722	0.01784	2.065E-07	0.01436
Segment 4 - Southbound SR-99 - South of Shanks Rd	SEG_4	505	153.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	1670	65	0.01132	0.00017	0.000198	0.0003722	0.05942	6.878E-07	0.04782
Segment 5 - Shanks Road	SEG_5	3027	922.6	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	6120	25	0.01132	0.00045	0.000293	0.0007458	2.61671	3.029E-05	2.10563
Segment 6 - Vincent Road - North of North Ave	SEG_6	3769	1148.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	2850	25	0.01132	0.00045	0.000293	0.0007458	1.51736	1.756E-05	1.22100
Segment 7 - Vincent Road - North Ave to Shanks Rd	SEG_7	884	269.4	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	7400	25	0.01132	0.00045	0.000293	0.0007458	0.92392	1.069E-05	0.74347
Segment 8 - Vincent Rd - South of Shanks Rd	SEG_8	1368	416.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	1280	25	0.01132	0.00045	0.000293	0.0007458	0.24726	2.862E-06	0.19897
Segment 9 - Bradbury Road	SEG_9	6330	1929.2	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4170	25	0.01132	0.00045	0.000293	0.0007458	3.72836	4.315E-05	3.00017

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] 2045 Emissions Factors from CT_EMFAC2017

Existing Traffic Vehicle Emissions - Ethylbenzene

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Trips per day	Speed	Ethylbenzene Emissions Factors[b]				Project Ethylbenzene Emissions		
														Evaporative		Exhaust	Total	Daily	Hourly	Annual
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)		(mph)	g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	(lb/year)
Off-site																				
Segment 1 - Northbound SR99 - South of Shanks Rd	SEG_1	1245	379.5	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	52894	65	0.00973	0.00015	0.000175	0.0003248	4.05013	4.69E-05	3.25909
Segment 2 - Northbound SR99 - North of Shanks Rd	SEG_2	4777	1455.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	53989	65	0.00973	0.00015	0.000175	0.0003248	15.86149	0.0001836	12.76354
Segment 3 - Southbound SR-99 - North of Shanks Rd	SEG_3	440	134.2	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	53989	65	0.00973	0.00015	0.000175	0.0003248	1.46173	1.692E-05	1.17624
Segment 4 - Southbound SR-99 - South of Shanks Rd	SEG_4	505	153.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	52894	65	0.00973	0.00015	0.000175	0.0003248	1.64233	1.901E-05	1.32156
Segment 5 - Shanks Road	SEG_5	3027	922.6	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	6092	25	0.00973	0.00039	0.000257	0.0006464	2.25732	2.613E-05	1.81643
Segment 6 - Vincent Road - North of North Ave	SEG_6	3769	1148.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4338	25	0.00973	0.00039	0.000257	0.0006464	2.00153	2.317E-05	1.61060
Segment 7 - Vincent Road - North Ave to Shanks Rd	SEG_7	884	269.4	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4388	25	0.00973	0.00039	0.000257	0.0006464	0.47479	5.495E-06	0.38205
Segment 8 - Vincent Rd - South of Shanks Rd	SEG_8	1368	416.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	50	25	0.00973	0.00039	0.000257	0.0006464	0.00837	9.688E-08	0.00674
Segment 9 - Bradbury Road	SEG_9	6330	1929.2	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4523	25	0.00973	0.00039	0.000257	0.0006464	3.50459	4.056E-05	2.82010

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] 2045 Emissions Factors from CT_EMFAC2017

Bradbury Ranch

Project Traffic Vehicle Emissions - Formaldehyde

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Trips per day	Speed	Formaldehyde Emissions Factors[b]				Project Formaldehyde Emissions		
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)		(mph)	Evaporative		Exhaust	Total	Daily	Hourly	Annual
														g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	(lb/year)
Off-site																				
Segment 1 - Northbound SR99 - South of Shanks Rd	SEG_1	1245	379.5	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	1670	65	0	0	0.000435	0.000435	0.17128	1.98E-06	0.13783
Segment 2 - Northbound SR99 - North of Shanks Rd	SEG_2	4777	1455.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	575	65	0	0	0.000435	0.000435	0.22628	2.619E-06	0.18208
Segment 3 - Southbound SR-99 - North of Shanks Rd	SEG_3	440	134.2	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	575	65	0	0	0.000435	0.000435	0.02085	2.4135E-07	0.01678
Segment 4 - Southbound SR-99 - South of Shanks Rd	SEG_4	505	153.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	1670	65	0	0	0.000435	0.000435	0.06946	8.0388E-07	0.05589
Segment 5 - Shanks Road	SEG_5	3027	922.6	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	6120	25	0	0	0.000638	0.000638	2.23836	2.5907E-05	1.80118
Segment 6 - Vincent Road - North of North Ave	SEG_6	3769	1148.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	2850	25	0	0	0.000638	0.000638	1.29796	1.50E-05	1.04446
Segment 7 - Vincent Road - North Ave to Shanks Rd	SEG_7	884	269.4	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	7400	25	0	0	0.000638	0.000638	0.79033	9.1474E-06	0.63597
Segment 8 - Vincent Rd - South of Shanks Rd	SEG_8	1368	416.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	1280	25	0	0	0.000638	0.000638	0.21151	2.4481E-06	0.17020
Segment 9 - Bradbury Road	SEG_9	6330	1929.2	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4170	25	0	0	0.000638	0.000638	3.18928	3.6913E-05	2.56638

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] 2045 Emissions Factors from CT_EMFAC2017

Existing Traffic Vehicle Emissions - Formaldehyde

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Trips per day	Speed	Formaldehyde Emissions Factors[b]				Existing Formaldehyde Emissions		
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)		(mph)	Evaporative		Exhaust	Total	Daily	Hourly	Annual
														g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	(lb/year)
Off-site																				
Segment 1 - Northbound SR99 - South of Shanks Rd	SEG_1	1245	379.5	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	52894	65	0	0	0.000858	0.000858	10.70045	1.24E-04	8.61052
Segment 2 - Northbound SR99 - North of Shanks Rd	SEG_2	4777	1455.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	53989	65	0	0	0.000858	0.000858	41.90606	0.00048502	33.72128
Segment 3 - Southbound SR-99 - North of Shanks Rd	SEG_3	440	134.2	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	53989	65	0	0	0.000858	0.000858	3.86190	4.4698E-05	3.10762
Segment 4 - Southbound SR-99 - South of Shanks Rd	SEG_4	505	153.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	52894	65	0	0	0.000858	0.000858	4.33903	5.022E-05	3.49157
Segment 5 - Shanks Road	SEG_5	3027	922.6	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	6092	25	0	0	0.001186	0.001186	4.14193	4.7939E-05	3.33296
Segment 6 - Vincent Road - North of North Ave	SEG_6	3769	1148.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4338	25	0	0	0.001186	0.001186	3.67258	4.25E-05	2.95528
Segment 7 - Vincent Road - North Ave to Shanks Rd	SEG_7	884	269.4	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4388	25	0	0	0.001186	0.001186	0.87118	1.0083E-05	0.70103
Segment 8 - Vincent Rd - South of Shanks Rd	SEG_8	1368	416.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	50	25	0	0	0.001186	0.001186	0.01536	1.7777E-07	0.01236
Segment 9 - Bradbury Road	SEG_9	6330	1929.2	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4523	25	0	0	0.001186	0.001186	6.43055	7.4428E-05	5.17458

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] 2045 Emissions Factors from CT_EMFAC2017

Bradbury Ranch

Project Traffic Vehicle Emissions - Naphthalene

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Trips per day	Speed	Naphthalene Emissions Factors[b]				Project Naphthalene Emissions		
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)		(mph)	Evaporative		Exhaust	Total	Daily	Hourly	Annual
														g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	(lb/year)
Off-site																				
Segment 1 - Northbound SR99 - South of Shanks Rd	SEG_1	1245	379.5	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	1670	65	0.00097	1.49E-05	0.000015	2.986E-05	0.01176	1.36E-07	0.00946
Segment 2 - Northbound SR99 - North of Shanks Rd	SEG_2	4777	1455.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	575	65	0.00097	1.49E-05	0.000015	2.986E-05	0.01553	1.80E-07	0.01250
Segment 3 - Southbound SR-99 - North of Shanks Rd	SEG_3	440	134.2	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	575	65	0.00097	1.49E-05	0.000015	2.986E-05	0.00143	1.66E-08	0.00115
Segment 4 - Southbound SR-99 - South of Shanks Rd	SEG_4	505	153.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	1670	65	0.00097	1.49E-05	0.000015	2.986E-05	0.00477	5.52E-08	0.00384
Segment 5 - Shanks Road	SEG_5	3027	922.6	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	6120	25	0.00097	3.86E-05	0.000022	6.064E-05	0.21275	2.46E-06	0.17120
Segment 6 - Vincent Road - North of North Ave	SEG_6	3769	1148.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	2850	25	0.00097	3.86E-05	0.000022	6.064E-05	0.12337	1.43E-06	0.09927
Segment 7 - Vincent Road - North Ave to Shanks Rd	SEG_7	884	269.4	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	7400	25	0.00097	3.86E-05	0.000022	6.064E-05	0.07512	8.69E-07	0.06045
Segment 8 - Vincent Rd - South of Shanks Rd	SEG_8	1368	416.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	1280	25	0.00097	3.86E-05	0.000022	6.064E-05	0.02010	2.33E-07	0.01618
Segment 9 - Bradbury Road	SEG_9	6330	1929.2	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4170	25	0.00097	3.86E-05	0.000022	6.064E-05	0.30313	3.51E-06	0.24393

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] 2045 Emissions Factors from CT_EMFAC2017

Existing Traffic Vehicle Emissions - Naphthalene

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Trips per day	Speed	Naphthalene Emissions Factors[b]				Existing Naphthalene Emissions		
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)		(mph)	Evaporative		Exhaust	Total	Daily	Hourly	Annual
														g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	(lb/year)
Off-site																				
Segment 1 - Northbound SR99 - South of Shanks Rd	SEG_1	1245	379.5	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	52894	65	0.00083	1.28E-05	0.000016	2.878E-05	0.35898	4.15E-06	0.28887
Segment 2 - Northbound SR99 - North of Shanks Rd	SEG_2	4777	1455.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	53989	65	0.00083	1.28E-05	0.000016	2.878E-05	1.40589	1.63E-05	1.13130
Segment 3 - Southbound SR-99 - North of Shanks Rd	SEG_3	440	134.2	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	53989	65	0.00083	1.28E-05	0.000016	2.878E-05	0.12956	1.50E-06	0.10426
Segment 4 - Southbound SR-99 - South of Shanks Rd	SEG_4	505	153.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	52894	65	0.00083	1.28E-05	0.000016	2.878E-05	0.14557	1.68E-06	0.11714
Segment 5 - Shanks Road	SEG_5	3027	922.6	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	6092	25	0.00083	3.32E-05	0.000023	5.624E-05	0.19641	2.27E-06	0.15805
Segment 6 - Vincent Road - North of North Ave	SEG_6	3769	1148.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4338	25	0.00083	3.32E-05	0.000023	5.624E-05	0.17415	2.02E-06	0.14014
Segment 7 - Vincent Road - North Ave to Shanks Rd	SEG_7	884	269.4	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4388	25	0.00083	3.32E-05	0.000023	5.624E-05	0.04131	4.78E-07	0.03324
Segment 8 - Vincent Rd - South of Shanks Rd	SEG_8	1368	416.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	50	25	0.00083	3.32E-05	0.000023	5.624E-05	0.00073	8.43E-09	0.00059
Segment 9 - Bradbury Road	SEG_9	6330	1929.2	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4523	25	0.00083	3.32E-05	0.000023	5.624E-05	0.30494	3.53E-06	0.24538

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] 2045 Emissions Factors from CT_EMFAC2017

Bradbury Ranch

Project Traffic Vehicle Emissions - 1,3 Butadiene

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Trips per day	Speed	1,3-Butadiene Emissions Factors[b]				Project 1,3 Butadiene Emissions		
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)		(mph)	Evaporative		Exhaust	Total	Daily	Hourly	Annual
														g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	(lb/year)
Off-site																				
Segment 1 - Northbound SR99 - South of Shanks Rd	SEG_1	1245	379.5	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	1670	65	0	0	0.000092	0.000092	0.03623	4.19E-07	0.02915
Segment 2 - Northbound SR99 - North of Shanks Rd	SEG_2	4777	1455.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	575	65	0	0	0.000092	0.000092	0.04786	5.54E-07	0.03851
Segment 3 - Southbound SR-99 - North of Shanks Rd	SEG_3	440	134.2	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	575	65	0	0	0.000092	0.000092	0.00441	5.10E-08	0.00355
Segment 4 - Southbound SR-99 - South of Shanks Rd	SEG_4	505	153.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	1670	65	0	0	0.000092	0.000092	0.01469	1.70E-07	0.01182
Segment 5 - Shanks Road	SEG_5	3027	922.6	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	6120	25	0	0	0.000155	0.000155	0.54380	6.29E-06	0.43759
Segment 6 - Vincent Road - North of North Ave	SEG_6	3769	1148.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	2850	25	0	0	0.000155	0.000155	0.31534	3.65E-06	0.25375
Segment 7 - Vincent Road - North Ave to Shanks Rd	SEG_7	884	269.4	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	7400	25	0	0	0.000155	0.000155	0.19201	2.22E-06	0.15451
Segment 8 - Vincent Rd - South of Shanks Rd	SEG_8	1368	416.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	1280	25	0	0	0.000155	0.000155	0.05139	5.95E-07	0.04135
Segment 9 - Bradbury Road	SEG_9	6330	1929.2	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4170	25	0	0	0.000155	0.000155	0.77483	8.97E-06	0.62349

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] 2045 Emissions Factors from CT_EMFAC2017

Existing Traffic Vehicle Emissions - 1,3 Butadiene

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Trips per day	Speed	1,3-Butadiene Emissions Factors[b]				Existing 1,3 Butadiene Emissions		
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)		(mph)	Evaporative		Exhaust	Total	Daily	Hourly	Annual
														g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	(lb/year)
Off-site																				
Segment 1 - Northbound SR99 - South of Shanks Rd	SEG_1	1245	379.5	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	52894	65	0	0	0.000094	0.000094	1.17231	1.36E-05	0.94334
Segment 2 - Northbound SR99 - North of Shanks Rd	SEG_2	4777	1455.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	53989	65	0	0	0.000094	0.000094	4.59111	5.31E-05	3.69441
Segment 3 - Southbound SR-99 - North of Shanks Rd	SEG_3	440	134.2	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	53989	65	0	0	0.000094	0.000094	0.42310	4.90E-06	0.34046
Segment 4 - Southbound SR-99 - South of Shanks Rd	SEG_4	505	153.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	52894	65	0	0	0.000094	0.000094	0.47537	5.50E-06	0.38253
Segment 5 - Shanks Road	SEG_5	3027	922.6	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	6092	25	0	0	0.000137	0.000137	0.47845	5.54E-06	0.38500
Segment 6 - Vincent Road - North of North Ave	SEG_6	3769	1148.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4338	25	0	0	0.000137	0.000137	0.42424	4.91E-06	0.34138
Segment 7 - Vincent Road - North Ave to Shanks Rd	SEG_7	884	269.4	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4388	25	0	0	0.000137	0.000137	0.10063	1.16E-06	0.08098
Segment 8 - Vincent Rd - South of Shanks Rd	SEG_8	1368	416.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	50	25	0	0	0.000137	0.000137	0.00177	2.05E-08	0.00143
Segment 9 - Bradbury Road	SEG_9	6330	1929.2	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4523	25	0	0	0.000137	0.000137	0.74282	8.60E-06	0.59774

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] 2045 Emissions Factors from CT_EMFAC2017

Bradbury Ranch

Project Traffic Vehicle Emissions - Acetaldehyde

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Trips per day	Speed	Acetaldehyde Emissions Factors[b]				Project Acetaldehyde Emissions		
														Evaporative		Exhaust	Total	Daily	Hourly	Annual
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)		(mph)	g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	(lb/year)
Off-site																				
Segment 1 - Northbound SR99 - South of Shanks Rd	SEG_1	1245	379.5	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	1670	65	0	0	0.000138	0.000138	0.05434	6.29E-07	0.04373
Segment 2 - Northbound SR99 - North of Shanks Rd	SEG_2	4777	1455.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	575	65	0	0	0.000138	0.000138	0.07178	8.3084E-07	0.05776
Segment 3 - Southbound SR-99 - North of Shanks Rd	SEG_3	440	134.2	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	575	65	0	0	0.000138	0.000138	0.00662	7.6567E-08	0.00532
Segment 4 - Southbound SR-99 - South of Shanks Rd	SEG_4	505	153.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	1670	65	0	0	0.000138	0.000138	0.02203	2.5502E-07	0.01773
Segment 5 - Shanks Road	SEG_5	3027	922.6	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	6120	25	0	0	0.000202	0.000202	0.70870	8.20E-06	0.57028
Segment 6 - Vincent Road - North of North Ave	SEG_6	3769	1148.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	2850	25	0	0	0.000202	0.000202	0.41095	4.7564E-06	0.33069
Segment 7 - Vincent Road - North Ave to Shanks Rd	SEG_7	884	269.4	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	7400	25	0	0	0.000202	0.000202	0.25023	2.90E-06	0.20136
Segment 8 - Vincent Rd - South of Shanks Rd	SEG_8	1368	416.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	1280	25	0	0	0.000202	0.000202	0.06697	7.7509E-07	0.05389
Segment 9 - Bradbury Road	SEG_9	6330	1929.2	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4170	25	0	0	0.000202	0.000202	1.00977	1.1687E-05	0.81255

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] 2045 Emissions Factors from CT_EMFAC2017

Existing Traffic Vehicle Emissions - Acetaldehyde

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Trips per day	Speed	Acetaldehyde Emissions Factors[b]				Existing Acetaldehyde Emissions		
														Evaporative		Exhaust	Total	Daily	Hourly	Annual
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)		(mph)	g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	(lb/year)
Off-site																				
Segment 1 - Northbound SR99 - South of Shanks Rd	SEG_1	1245	379.5	43.7	13.3	8.5	2.6	3.97	1.21	4.27	1.3	52894	65	0	0	0.000363	0.000363	4.52711	5.24E-05	3.64291
Segment 2 - Northbound SR99 - North of Shanks Rd	SEG_2	4777	1455.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	53989	65	0	0	0.000363	0.000363	17.72949	2.05E-04	14.26669
Segment 3 - Southbound SR-99 - North of Shanks Rd	SEG_3	440	134.2	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	53989	65	0	0	0.000363	0.000363	1.63388	1.89E-05	1.31476
Segment 4 - Southbound SR-99 - South of Shanks Rd	SEG_4	505	153.9	43.7	13.32	8.5	2.6	3.97	1.21	4.27	1.3	52894	65	0	0	0.000363	0.000363	1.83574	2.12E-05	1.47720
Segment 5 - Shanks Road	SEG_5	3027	922.6	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	6092	25	0	0	0.000495	0.000495	1.72871	2.00E-05	1.39107
Segment 6 - Vincent Road - North of North Ave	SEG_6	3769	1148.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4338	25	0	0	0.000495	0.000495	1.53282	1.77E-05	1.23344
Segment 7 - Vincent Road - North Ave to Shanks Rd	SEG_7	884	269.4	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4388	25	0	0	0.000495	0.000495	0.36360	4.21E-06	0.29259
Segment 8 - Vincent Rd - South of Shanks Rd	SEG_8	1368	416.8	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	50	25	0	0	0.000495	0.000495	0.00641	7.42E-08	0.00516
Segment 9 - Bradbury Road	SEG_9	6330	1929.2	24	7.32	8.5	2.6	3.97	1.21	4.27	1.3	4523	25	0	0	0.000495	0.000495	2.68391	3.11E-05	2.15971

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] 2045 Emissions Factors from CT_EMFAC2017

Bradbury Ranch

Project Traffic On-Site Vehicle TAC Emissions & Area Source Modeling information

TAC	Source ID	Modeled Area (m^2)	Average On-Site Travel Distance		Release Height		Trips per day	Speed	Emissions Factors[a]				Project Emissions			
									Evaporative		Exhaust	Total	Daily	Hourly	Hourly	Annual
			(ft)	(m)	(ft)	(m)		(mph)	g/veh-hr	g/veh-mi	g/veh-mi	g/veh-mi	(g/day)	(g/s)	($g/s/m^2$)	(lb/year)
On-site																
DPM	OS_DPM	997,700	3,282	1,000	4.27	1.3	25,394	20	0	0	0.00021	0.00021	3.31524	3.84E-05	3.85E-11	2.667729498
Benzene	OS_BENZ	997,700	3,282	1,000	4.27	1.3	25,394	20	0.00690	0.00035	0.000895	0.00124015	19.57805	0.0002266	2.27E-10	15.75421303
Ethyl Benzene	OS_ETHBZ	997,700	3,282	1,000	4.27	1.3	25,394	20	0.01132	0.00057	0.000388	0.00095405	15.06144	0.0001743	1.75E-10	12.11974918
Formaldehyde	OS_FORM	997,700	3,282	1,000	4.27	1.3	25,394	20	0	0	0.000851	0.000851	13.43460	0.0001555	1.56E-10	10.8106562
Napthalene	OS_NAPTH	997,700	3,282	1,000	4.27	1.3	25,394	20	0.00097	4.83E-05	0.000029	0.0000773	1.22032	1.412E-05	1.42E-11	0.981978525
1,3 Butadiene	OS_13But	997,700	3,282	1,000	4.27	1.3	25,394	20	0	0	0.000205	0.000205	3.23630	3.746E-05	3.75E-11	2.604212129
Aceltaldehyde	OS_ACET	997,700	3,282	1,000	4.27	1.3	25,394	20	0	0	0.00027	0.00027	4.26245	4.933E-05	4.94E-11	3.429937926

[a] Emissions Factors from CT_EMFAC2017

Operation Assumptions

Operation Days = 365

Operation Hours = 24

Bradbury Ranch - Delhi, CA
DPM Modeling - Rail Line Information and DPM Emission Rates
UPRR Diesel-Powered Freight Trains

Year	Description	Modeled No. Lines	Link Width (ft)	Link Width (m)	Link Length (ft)	Link Length (miles)	Link Length (m)	Release Height (m)	No. Trains per Day	Train Travel Speed (mph)	DPM Emission Rates			
											Average Daily Emission Rate (g/mi/day)	Average Daily Emission Rate (g/day)	Link Emission Rate (g/s)	Link Emission Rate (lb/hr)
	UPRR Rail Line													
2045	Freight Trains	1	15	4.6	6,410	1.21	1,954	5.0	14	50	15.6	18.9	2.19E-04	1.74E-03

Notes: Emission based on EPA Emission Factors for Locomotives, USEPA 2009 (EPA-420-F-09-025)

Average emissions calculated for 2045

Fuel correction factors from Offroad Modeling Change Technical memo, Changes to the Locomotive Inventory, CARB July 2006.

PM2.5 calculated as 92% of PM emissions (CARB CEIDERS PM2.5 fractions)

Freight trains assumed to operate fo 24 hours per day

Diesel Freight Trains	***UPRR***	
Freight trains per day =	14	(7 days/week)
Locomotive horsepower	2300	
Locomotives per train =	2	
Total horsepower =	4600	
Locomotive engine load	1	

DPM Locomotive Emission Factors (g/hp-hr)

Train Type	2045
Freight	0.014

PM2.5 to PM ratio = 1

	CARB Fuel Adj Factor	
	2010	2011+
Passenger	0.717	0.709
Freight	0.851	0.840

Bradbury Ranch, Delhi, CA. - Project Operation
AERMOD Risk Modeling Parameters, Maximum TAC Concentrations & Non-Cancer Health Effects
Off-Site Receptors

Receptor Information

Number of Receptors	110
Receptor Height =	1.5 meters
Receptor distances =	variable - at nearby residences

Meteorological Conditions

SJVAPCD Merced Met Data	2013-2017
Land Use Classification	rural
Wind speed =	variable
Wind direction =	variable

Residential MEI Concentrations

	TAC Concentration (µg/m^3)
	2045
TAC	Max Period Average
DPM	0.00090
Benzene	0.00447
Ethylbenzene	0.00349
Formaldehyde	0.00301
Naphthalene	0.00028
1,3 Butadiene	0.00073
Aceltaldehyde	0.00096

2045 - Non-Cancer Health Effects

	Maximum Concentration			
	Period Ave	Max 1-Hour	Hazard Index	
TAC	(µg/m^3)	(µg/m^3)	Chronic	Acute
DPM	0.00233	-	4.66E-04	-
Benzene	0.00579	0.05871	1.93E-03	2.17E-03
Ethylbenzene	0.00536	-	2.68E-06	-
Formaldehyde	0.00518	0.0399	5.76E-04	7.25E-04
Naphthalene	0.00044	-	4.89E-05	-
1,3 Butadiene	0.00071	0.00964	3.55E-04	1.46E-05
Aceltaldehyde	0.00204	0.01264	1.46E-05	2.69E-05
Total			**0.003**	**0.003**

* Maximum for residential receptors

Bradbury Ranch, Delhi, CA - Project Operation
Maximum Off-Site Residential Cancer Risk from Project Operation
at Residential MEI Location
70-Year Residential Exposure

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 to 2**	**2 to 16**	**17 - 70**
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	745	290
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	54
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	1.00

* 95th percentile breathing rates

Cancer Potency Factors and Reference Exposure Levels (REL)

		REL ($\mu g/m^3$)	
TAC	**CPF $(mg/kg\text{-}day)^{-1}$**	**Acute (1-hour)**	**Chronic (ann ave)**
DPM	1.10E+00	-	5
Benzene	1.00E-01	27	3
Ethylbenzene	8.70E-03	-	2,000
Formaldehyde	2.10E-02	55	9
Naphthalene	1.20E-01	-	9
1,3 Butadiene	6.00E-01	660	2
Aceltaldehyde	1.00E-02	470	140

Project Operation Cancer Risk - Maximum Impact at Residential Receptor Location

				Maximum - Exposure Information															
				Annual Conc (ug/m3)							Cancer Risk (per million)								
Exposure Year Age	**Initial Exposure Year**	**Exposure Duration (years)**	**Age Sensitivity Factor**	**DPM**	**Benzene**	**Ethyl-benzene**	**Form-aldehyde**	**Naph-thalene**	**1,3 Buta-diene**	**Acetal-dehyde**	**DPM**	**Benzene**	**Ethyl-benzene**	**Form-aldehyde**	**Naph-thalene**	**1,3 Buta-diene**	**Acetal-dehyde**	**Total**
0	2045	0.25	10	0.00090	0.00447	0.00349	0.003010	0.00028	0.000730	0.00096	0.0122	0.0055	0.0004	0.0008	0.0004	0.0054	0.0001	0.02
0 - 1	2045	1	10	0.00090	0.00447	0.00349	0.003010	0.00028	0.000730	0.00096	0.1478	0.0667	0.004534	0.0094	0.0050	0.0654	0.0014	0.30
1 < 2	2045	1	10	0.00090	0.00447	0.00349	0.003010	0.00028	0.000730	0.00096	0.1478	0.0667	0.004534	0.0094	0.0050	0.0654	0.0014	0.30
2 < 16	2045	14	3	0.00090	0.00447	0.00349	0.003010	0.00028	0.000730	0.00096	0.4243	0.1916	0.01301	0.0271	0.0144	0.1877	0.0041	0.86
16 - 70	2045	54	1	0.00090	0.00447	0.00349	0.003010	0.00028	0.000730	0.00096	0.2124	0.0959	0.00651	0.0136	0.0072	0.0940	0.0021	0.43
Total Increased Cancer Risk											**0.94**	**0.43**	**0.0290**	**0.0603**	**0.0321**	**0.4179**	**0.0092**	**1.920**

* Third trimester of pregnancy

Bradbury Ranch, Delhi, CA - Project Operation
AERMOD Risk Modeling Parameters, Maximum TAC Concentrations & Non-Cancer Health Effects
Off-Site Worker Receptors

Receptor Information

Number of Receptors	11
Receptor Height =	1.5 meters
Receptor distances =	variable - at nearby workplaces

Meteorological Conditions

SJVAPCD Merced Met Dat:	2013-2017
Land Use Classification	rural
Wind speed =	variable
Wind direction =	variable

Residential MEI Concentrations

	TAC Concentration (µg/m^3)
	2045
TAC	Max Period Average
DPM	0.00068
Benzene	0.00333
Ethylbenzene	0.00260
Formaldehyde	0.00226
Naphthalene	0.00021
1,3 Butadiene	0.00055
Aceltaldehyde	0.00072

2045 - Non-Cancer Health Effects

	Maximum Concentration		Hazard Index	
	Period Ave	1-Hour		
TAC	(µg/m^3)	(µg/m^3)	Chronic	Acute
DPM	0.00068	-	1.36E-04	-
Benzene	0.00333	0.04252	1.11E-03	1.57E-03
Ethylbenzene	0.00260	-	1.30E-06	-
Formaldehyde	0.00226	0.02894	2.51E-04	5.26E-04
Naphthalene	0.00021	-	2.33E-05	-
1,3 Butadiene	0.00055	0.00699	2.75E-04	1.06E-05
Aceltaldehyde	0.00072	0.00917	5.14E-06	1.95E-05
Total			**0.002**	**0.002**

* Maximum for worker receptors

Bradbury Ranch, Delhi, CA - Project Operation
Maximum Worker Cancer Risk from Project Operation
at Off-Site Worker MEI Location
40-Year Off-Site Worker Exposure

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x WAF x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
WAF = Worker Adjustment Factor (unitless)
= (24 hrs/24 hrs) x (7 days/7 days) = 1.0
= 1.0 for roadway modeling (continuous emisions)
DBR = daily breathing rate (L/kg body weight-day) for residential & 8-hour breathing rate for workers
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child			Adult	Worker
Age -->	**3rd Trimester**	**0 to 2**	**2 to 16**	**17 - 70**	**17 - 70**
Parameter					
ASF	10	10	3	1	1
DBR* =	361	1090	745	290	230
WAF** =	-	-	-	-	1.0
A =	1	1	1	1	1
EF =	350	350	350	350	250
ED =	0.25	2	14	54	40
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	-

* 95th percentile breathing rates, worker breathing rate is an 8-hour rate (L/kg per 8 hours)

** Worker adjustment factor only applied for worker exposures.

Cancer Potency Factors and Reference Exposure Levels (REL)

TAC	CPF $(mg/kg\text{-}day)^{-1}$	REL $(\mu g/m^3)$ Acute (1-hour)	Chronic (ann ave)
DPM	1.10E+00	-	5
Benzene	1.00E-01	27	3
Ethylbenzene	8.70E-03	-	2,000
Formaldehyde	2.10E-02	55	9
PAHs	3.90E+00	-	-
Naphthalene	1.20E-01	-	9
1,3 Butadiene	6.00E-01	660	2
Aceltaldehyde	1.00E-02	470	140

Project Operation Cancer Risk - Maximum Impact at Worker Receptor Location

				Maximum - Exposure Information Annual Conc (ug/m3)							Cancer Risk (per million)							
Exposure Year Age Range	**Initial Exposure Year**	**Exposure Duration (years)**	**Age Sensitivity Factor**	**DPM**	**Benzene**	**Ethyl-benzene**	**Form-aldehyde**	**Naph-thalene**	**1,3 Buta-diene**	**Acetal-dehyde**	**DPM**	**Benzene**	**Ethyl-benzene**	**Form-aldehyde**	**Naph-thalene**	**1,3 Buta-diene**	**Acetal-dehyde**	**Total**
17 - 70	2025	40	1	0.00068	0.00333	0.00260	0.002260	0.00021	0.000550	0.00072	0.0673	0.0300	0.00204	0.0043	0.0023	0.0297	0.0006	0.14
Total Increased Cancer Risk											**0.07**	**0.03**	**0.00**	**0.00**	**0.00**	**0.03**	**0.00**	**0.14**

Bradbury Ranch, Delhi, CA. - Project Operation
AERMOD Risk Modeling Parameters, Maximum TAC Concentrations & Non-Cancer Health Effects at Head Start Daycare Location

Receptor Information

Number of Receptors	3
Receptor Height =	1.5 meters
Receptor distances =	variable - at nearby daycare

Meteorological Conditions

SJVAPCD Merced Met Data	2013-2017
Land Use Classification	rural
Wind speed =	variable
Wind direction =	variable

Maximum Daycare Concentrations

	TAC Concentration (µg/m^3)
	2045
TAC	Max Period Average
DPM	0.00036
Benzene	0.00161
Ethylbenzene	0.00125
Formaldehyde	0.00109
Naphthalene	0.00010
1,3 Butadiene	0.00026
Aceltaldehyde	0.00035

2045 - Non-Cancer Health Effects

	Maximum Concentration		Hazard Index	
	Period Ave	Max 1-Hour		
TAC	(µg/m^3)	(µg/m^3)	Chronic	Acute
DPM	0.00036	-	7.20E-05	-
Benzene	0.00161	0.02196	5.37E-04	8.13E-04
Ethylbenzene	0.00125	-	6.25E-07	-
Formaldehyde	0.00109	0.01500	1.21E-04	2.73E-04
Naphthalene	0.00010	-	1.11E-05	-
1,3 Butadiene	0.00026	0.00361	1.30E-04	5.47E-06
Aceltaldehyde	0.00035	0.00475	2.50E-06	1.01E-05
Total			**0.001**	**0.001**

* Maximum for daycare receptors

Bradbury Ranch, Delhi, CA - Project Operation
Maximum Off-Site Daycare Cancer Risk from Project Operation
at Head Start Daycare Location
5-Year Exposure

Cancer Risk Calculation Method

Student Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x 1.0E6

Where: CPF = Cancer potency factor (mg/kg-day)$^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)

Inhalation Dose = C_{air} x SCAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air (µg/m^3)
SCAF = School/Daycare Child Adjustment Factor (unitless) for source operation and exposures different than 8 hours/day
= (24/SHR) x (7days/SDay) x (SCHR/8 hrs) = (24/24)*(7/7)*(10/8) =
SHR = Hours/day of emission source operation
SDay = Number of days per week of source operation
SCHR = School/Daycare operation hours while emission source in operation
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child		**Adult**
Age -->	**0 to 2**	**2 to 16**	**17 - 70**
Parameter			
ASF	10	3	1
8-Hr BR* =	1200	520	230
SCHR =	10	10	10
SHR =	24	24	24
SDay =	7	7	7
A =	1	1	1
EF =	250	250	250
AT =	70	70	70
SCAF =	1.25	1.25	1.25

* 95th percentile 8-hr breathing rates for moderate intensity activities

Cancer Potency Factors and Reference Exposure Levels (REL)

		REL (µg/m^3)	
TAC	**CPF (mg/kg-day)$^{-1}$**	**Acute (1-hour)**	**Chronic (ann ave)**
DPM	1.10E+00	-	5
Benzene	1.00E-01	27	3
Ethylbenzene	8.70E-03	-	2,000
Formaldehyde	2.10E-02	55	9
Naphthalene	1.20E-01	-	9
1,3 Butadiene	6.00E-01	660	2
Aceltaldehyde	1.00E-02	470	140

Project Operation Cancer Risk - Maximum Impact at Head Start Daycare Receptor Location

				Maximum - Exposure Information															
				Annual Conc (ug/m3)							**Cancer Risk (per million)**								
Exposure Year Age	**Initial Exposure Year**	**Exposure Duration (years)**	**Age Sensitivity Factor**	**DPM**	**Benzene**	**Ethyl-benzene**	**Form-aldehyde**	**Naph-thalene**	**1,3 Buta-diene**	**Acetal-dehyde**	**DPM**	**Benzene**	**Ethyl-benzene**	**Form-aldehyde**	**Naph-thalene**	**1,3 Buta-diene**	**Acetal-dehyde**	**Total**
0 - 1	2045	1	10	0.00036	0.00161	0.00125	0.001090	0.00010	0.000260	0.00035	0.0581	0.0236	0.001596	0.0034	0.0018	0.0229	0.0005	0.11
1 < 2	2045	1	10	0.00036	0.00161	0.00125	0.001090	0.00010	0.000260	0.00035	0.0581	0.0236	0.001596	0.0034	0.0018	0.0229	0.0005	0.11
2 < 16	2045	3	3	0.00036	0.00161	0.00125	0.001090	0.00010	0.000260	0.00035	0.02267	0.0092	0.00062	0.0013	0.0007	0.0089	0.0002	0.04
16 - 70	2045	0	1	0.00036	0.00161	0.00125	0.001090	0.00010	0.000260	0.00035	0.0000	0.0000	0.00000	0.0000	0.0000	0.0000	0.0000	0.00
Total Increased Cancer Risk											**0.1389**	**0.06**	**0.0038**	**0.0080**	**0.0042**	**0.0547**	**0.0012**	**0.27**

Bradbury Ranch, Delhi, CA. - Project Operation
AERMOD Risk Modeling Parameters, Maximum TAC Concentrations & Non-Cancer Health Effects
On-Site Residential Receptors - 1.5 meter Receptor Heights

Receptor Information

Number of Receptors	1197
Receptor Height =	1.5 meters
Receptor distances =	30 m grid spacing within project area

Meteorological Conditions

SJVAPCD Merced Met Data	2013-2017
Land Use Classification	rural
Wind speed =	variable
Wind direction =	variable

Residential MEI Concentrations

Total TAC	TAC Concentration (μg/m^3) 2045 Max Period Average	Road TAC	TAC Concentration (μg/m^3) 2045 Max Period Average	Rail TAC	TAC Concentration (μg/m^3) 2045 Max Period Average
DPM	0.09324	DPM	0.08713	DPM	0.00611
Benzene	0.00944	Benzene	0.00944	Benzene	0.00000
Ethylbenzene	0.00576	Ethylbenzene	0.00576	Ethylbenzene	0.00000
Formaldehyde	0.01469	Formaldehyde	0.01469	Formaldehyde	0.00000
Naphthalene	0.00051	Naphthalene	0.00051	Naphthalene	0.00000
1,3 Butadiene	0.00164	1,3 Butadiene	0.00164	1,3 Butadiene	0.00000
Aceltaldehyde	0.00618	Aceltaldehyde	0.00618	Aceltaldehyde	0.00000

2045 - Non-Cancer Health Effects

	Total Max Concentration		Maximum Total Hazard Index	
TAC	Period Ave (μg/m^3)	Max 1-Hour (μg/m^3)	Chronic	Acute
DPM	0.09324	-	1.86E-02	-
Benzene	0.00944	0.10871	3.15E-03	4.03E-03
Ethylbenzene	0.00576	-	2.88E-06	-
Formaldehyde	0.01469	0.16988	1.63E-03	3.09E-03
Naphthalene	0.00051	-	5.67E-05	-
1,3 Butadiene	0.00164	0.01889	8.20E-04	2.86E-05
Aceltaldehyde	0.00618	0.07157	4.41E-05	1.52E-04
Total			**0.024**	**0.007**

* Maximum for residential receptors

Bradbury Ranch, Delhi, CA - Project Operation
Maximum On-Site Residential Cancer Risk from Project Operation at On-Site Residential MEI Location
70-Year Residential Exposure

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 to 2**	**2 to 16**	**17 - 70**
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	745	290
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	54
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	1.00

* 95th percentile breathing rates

Cancer Potency Factors and Reference Exposure Levels (REL)

		REL ($\mu g/m^3$)	
TAC	**CPF $(mg/kg\text{-}day)^{-1}$**	**Acute (1-hour)**	**Chronic (ann ave)**
DPM	1.10E+00	-	5
Benzene	1.00E-01	27	3
Ethylbenzene	8.70E-03	-	2,000
Formaldehyde	2.10E-02	55	9
Naphthalene	1.20E-01	-	9
1,3 Butadiene	6.00E-01	660	2
Aceltaldehyde	1.00E-02	470	140

Project Operation Cancer Risk - Maximum Impact at On-Site Residential Receptor Location

				Maximum - Exposure Information														
				Annual Conc (ug/m3)							Cancer Risk (per million)							
Exposure Year Age	**Initial Exposure Year**	**Exposure Duration (years)**	**Age Sensitivity Factor**	**DPM**	**Benzene**	**Ethyl-benzene**	**Form-aldehyde**	**Naph-thalene**	**1,3 Buta-diene**	**Acetal-dehyde**	**DPM**	**Benzene**	**Ethyl-benzene**	**Form-aldehyde**	**Naph-thalene**	**1,3 Buta-diene**	**Acetal-dehyde**	**Total**
0	2045	0.25	10	0.09324	0.00944	0.00576	0.014690	0.00051	0.001640	0.00618	1.2680	0.0117	0.0006	0.0038	0.0008	0.0122	0.0008	1.30
0 - 1	2045	1	10	0.09324	0.00944	0.00576	0.014690	0.00051	0.001640	0.00618	15.3144	0.1410	0.007482	0.0461	0.0091	0.1469	0.0092	15.67
1 < 2	2045	1	10	0.09324	0.00944	0.00576	0.014690	0.00051	0.001640	0.00618	15.3144	0.1410	0.007482	0.0461	0.0091	0.1469	0.0092	15.67
2 < 16	2045	14	3	0.09324	0.00944	0.00576	0.014690	0.00051	0.001640	0.00618	43.9620	0.4046	0.02148	0.1322	0.0262	0.4218	0.0265	44.99
16 - 70	2045	54	1	0.09324	0.00944	0.00576	0.014690	0.00051	0.001640	0.00618	22.0021	0.2025	0.01075	0.0662	0.0131	0.2111	0.0133	22.52
Total Increased Cancer Risk											**97.86**	**0.90**	**0.0478**	**0.2943**	**0.0584**	**0.9389**	**0.0590**	**100.160**

* Third trimester of pregnancy

Cumulative + Project Operation
Cancer Risks by Receptor

	2045 Operation - Total Roads								2045 Operation - Rail Line							
	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045
	DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde
3rd Trimester (10)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Infant (10)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Child (3)	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Adult (1)	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25	70.25

Receptor No. (m)	UTM-X (m)	UTM-Y (m)	2045 Operation - Total Roads Period Average Concentration								2045 Operation - Rail Line Period Average Concentration								2045 - Total Roads Cancer Risks							2045 Roads Cancer Risks	2045 - Rail Line Cancer Risks							2045 Rail Cancer Risks	Total Cancer
			DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde	Total	DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde	Total	Risk
1	696183.8	4145792.5	0.05952	0.00797	0.00517	0.01122	0.00000	0.00045	0.00135	0.00464	0.00545	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	62.470	0.76045	0.042916	0.224815	0.051524	0.7729	0.0443	64.3665	5.720	0.00000	0.000000	0.000000	0.000000	0.0000	0.0000	5.7201	70.09
2	696213.8	4145792.7	0.05265	0.00773	0.00510	0.01054	0.00000	0.00044	0.00130	0.00434	0.00416	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	55.259	0.73755	0.04234	0.211190	0.050379	0.7442	0.0414	57.0863	4.366	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.3662	61.45
3	696153.6	4145822.3	0.05920	0.00728	0.00465	0.01054	0.00000	0.00041	0.00124	0.00438	0.00558	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	62.134	0.69462	0.03860	0.211190	0.046944	0.7099	0.0418	63.8769	5.857	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	5.8565	69.73
4	696183.6	4145822.5	0.05217	0.00677	0.00437	0.00959	0.00000	0.00038	0.00115	0.00397	0.00424	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	54.755	0.64596	0.03628	0.192155	0.043509	0.6584	0.0379	56.3696	4.450	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.4501	60.82
5	696213.6	4145822.7	0.04662	0.00647	0.00424	0.00896	0.00000	0.00037	0.00109	0.00369	0.00342	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	48.930	0.61733	0.03520	0.179532	0.042364	0.6240	0.0352	50.4640	3.589	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.5895	54.05
6	696243.6	4145822.9	0.04216	0.00639	0.00425	0.00860	0.00000	0.00037	0.00107	0.00353	0.00286	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	44.249	0.60970	0.03528	0.172318	0.042364	0.6126	0.0337	45.7553	3.002	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.0017	48.76
7	696273.6	4145823.1	0.03858	0.00658	0.00445	0.00855	0.00000	0.00038	0.00110	0.00349	0.00245	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	40.492	0.62783	0.03694	0.171317	0.043509	0.6297	0.0333	42.0346	2.571	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.5714	44.61
8	696123.4	4145852.2	0.05939	0.00697	0.00440	0.01025	0.00000	0.00039	0.00119	0.00428	0.00571	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	62.333	0.66504	0.03652	0.205379	0.044654	0.6813	0.0408	64.0070	5.993	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	5.9930	70.00
9	696153.4	4145852.3	0.05218	0.00635	0.00405	0.00919	0.00000	0.00035	0.00108	0.00382	0.00432	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	54.766	0.60588	0.03362	0.184140	0.040074	0.6183	0.0364	56.2844	4.534	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.5341	60.82
10	696183.4	4145852.5	0.04651	0.00591	0.00381	0.00842	0.00000	0.00033	0.00101	0.00349	0.00348	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	48.815	0.56390	0.03163	0.168712	0.037784	0.5782	0.0333	50.2285	3.652	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.6525	53.88
11	696213.4	4145852.7	0.04191	0.00563	0.00367	0.00786	0.00000	0.00032	0.00095	0.00325	0.00291	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	43.987	0.53718	0.03046	0.157491	0.036639	0.5439	0.0310	45.3236	3.054	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.0542	48.38
12	696243.4	4145852.9	0.03814	0.00548	0.00361	0.00748	0.00000	0.00031	0.00092	0.00308	0.00249	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	40.030	0.52287	0.02997	0.149877	0.035494	0.5267	0.0294	41.3244	2.613	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.6134	43.94
13	696273.4	4145853.1	0.03501	0.00546	0.00365	0.00727	0.00000	0.00032	0.00092	0.00298	0.00217	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	36.745	0.52096	0.03030	0.145669	0.036639	0.5267	0.0284	38.0337	2.278	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2775	40.31
14	696303.4	4145853.3	0.03243	0.00559	0.00379	0.00724	0.00000	0.00033	0.00093	0.00295	0.00192	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	34.037	0.53337	0.03146	0.145068	0.037784	0.5324	0.0281	35.3454	2.015	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0152	37.36
15	696333.4	4145853.4	0.03032	0.00591	0.00407	0.00741	0.00000	0.00035	0.00098	0.00300	0.00171	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	31.823	0.56390	0.03379	0.148474	0.040074	0.5610	0.0286	33.1985	1.795	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7947	34.99
16	696363.4	4145853.6	0.02861	0.00647	0.00452	0.00784	0.00000	0.00039	0.00106	0.00315	0.00154	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	30.028	0.61733	0.03752	0.157090	0.044654	0.6068	0.0301	31.5213	1.616	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6163	33.14
17	696093.2	4145882.0	0.05999	0.00682	0.00428	0.01015	0.00000	0.00038	0.00117	0.00424	0.00584	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	62.963	0.65073	0.03553	0.203376	0.043509	0.6698	0.0405	64.6064	6.129	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	6.1294	70.74
18	696123.2	4145882.2	0.05253	0.00613	0.00388	0.00901	0.00000	0.00034	0.00105	0.00376	0.00440	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	55.133	0.58489	0.03221	0.180534	0.038929	0.6011	0.0359	56.6068	4.618	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.6181	61.22
19	696153.2	4145882.3	0.04670	0.00563	0.00359	0.00817	0.00000	0.00031	0.00096	0.00340	0.00354	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	49.014	0.53718	0.02980	0.163702	0.035494	0.5496	0.0324	50.3626	3.715	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.7154	54.08
20	696183.2	4145882.5	0.04199	0.00527	0.00339	0.00752	0.00000	0.00030	0.00090	0.00312	0.00295	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	44.071	0.50283	0.02814	0.150678	0.034349	0.5152	0.0298	45.3320	3.096	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.0962	48.43
21	696213.2	4145882.7	0.03810	0.00500	0.00325	0.00703	0.00000	0.00028	0.00085	0.00291	0.00253	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	39.988	0.47707	0.02698	0.140860	0.032059	0.4866	0.0278	41.1795	2.655	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.6554	43.83
22	696243.2	4145882.9	0.03486	0.00483	0.00317	0.00666	0.00000	0.00028	0.00082	0.00274	0.00220	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	36.588	0.46085	0.02631	0.133447	0.032059	0.4694	0.0261	37.7359	2.309	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.3090	40.04
23	696273.2	4145883.1	0.03212	0.00474	0.00314	0.00640	0.00000	0.00027	0.00080	0.00263	0.00195	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	33.712	0.45226	0.02607	0.128237	0.030914	0.4580	0.0251	34.8324	2.047	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0466	36.88
24	696303.2	4145883.3	0.02981	0.00472	0.00317	0.00625	0.00000	0.00027	0.00079	0.00255	0.00174	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	31.287	0.45036	0.02631	0.125231	0.030914	0.4523	0.0243	32.3967	1.826	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.8262	34.22
25	696333.2	4145883.4	0.02785	0.00478	0.00324	0.00618	0.00000	0.00028	0.00080	0.00252	0.00157	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.230	0.45608	0.02690	0.123829	0.032059	0.4580	0.0240	30.3511	1.648	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6478	32.00
26	696363.2	4145883.6	0.02617	0.00492	0.00337	0.00621	0.00000	0.00029	0.00082	0.00251	0.00142	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.467	0.46944	0.02797	0.124430	0.033204	0.4694	0.0239	28.6154	1.490	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4904	30.11
27	696393.2	4145883.8	0.02472	0.00512	0.00355	0.00631	0.00000	0.00030	0.00084	0.00254	0.00130	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.945	0.48852	0.02947	0.126434	0.034349	0.4809	0.0242	27.1290	1.364	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3644	28.49
28	696423.2	4145884.0	0.02347	0.00536	0.00376	0.00647	0.00000	0.00032	0.00088	0.00260	0.00119	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	24.633	0.51142	0.03121	0.129640	0.036639	0.5038	0.0248	25.8706	1.249	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2490	27.12
29	696453.2	4145884.2	0.02237	0.00565	0.00399	0.00668	0.00000	0.00034	0.00093	0.00267	0.00110	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.479	0.53909	0.03312	0.133847	0.038929	0.5324	0.0255	24.7815	1.155	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1545	25.94
30	696483.2	4145884.4	0.02143	0.00600	0.00428	0.00695	0.00000	0.00036	0.00098	0.00276	0.00102	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.492	0.57249	0.03553	0.139257	0.041219	0.5610	0.0263	23.8679	1.071	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0705	24.94
31	696513.2	4145884.5	0.02062	0.00642	0.00461	0.00730	0.00000	0.00039	0.00104	0.00289	0.00095	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.642	0.61256	0.03827	0.146270	0.044654	0.5954	0.0276	23.1066	0.997	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9971	24.10
32	696543.2	4145884.7	0.01991	0.00690	0.00499	0.00771	0.00000	0.00042	0.00112	0.00304	0.00089	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.897	0.65836	0.04142	0.154485	0.048089	0.6412	0.0290	22.4693	0.934	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9341	23.40
33	696573.2	4145884.9	0.01931	0.00744	0.00541	0.00819	0.00000	0.00046	0.00120	0.00321	0.00083	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.267	0.70988	0.04491	0.164103	0.052669	0.6870	0.0306	21.9561	0.871	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8711	22.83
34	696607.2	4145889.1	0.01834	0.00748	0.00546	0.00814	0.00000	0.00046	0.00121	0.00319	0.00077	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.249	0.71370	0.04532	0.163101	0.052669	0.6927	0.0304	20.9468	0.808	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8082	21.75
35	696643.1	4145893.2	0.01748	0.00773	0.00566	0.00826	0.00000	0.00048	0.00125	0.00322	0.00071	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.346	0.73755	0.04698	0.165506	0.054959	0.7156	0.0307	20.0976	0.745	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7452	20.84
36	696063.0	4145911.8	0.06094	0.00677	0.00423	0.01017	0.00000	0.00037	0.00117	0.00426	0.00597	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	63.960	0.64596	0.03511	0.203776	0.042364	0.6698	0.0406	65.5977	6.266	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	6.2659	71.86
37	696093.0	4145912.0	0.05315	0.00603	0.00379	0.00895	0.00000	0.00033	0.00104	0.00374	0.00448	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	55.784	0.57535	0.03146	0.179331	0.037784	0.5954	0.0357	57.2390	4.702	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.7020	61.94
38	696123.0	4145912.2	0.04711	0.00548	0.00347	0.00805	0.00000	0.00030	0.00094	0.00335	0.00359	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	49.445	0.52287	0.02880	0.161298	0.034349	0.5381	0.0320	50.7621	3.768	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.7679	54.53
39	696153.0	4145912.3	0.04226	0.00506	0.00323	0.00735	0.00000	0.00028	0.00087	0.00306	0.00299	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	44.354	0.48280	0.02681	0.147272	0.032059	0.4981	0.0292	45.5705	3.138	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.1382	48.71
40	696183.0	4145912.5	0.03828	0.00475	0.00305	0.00679	0.00000	0.00027	0.00081	0.00282	0.00256	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	40.177	0.45322	0.02532	0.136051	0.030914	0.4637	0.0269	41.3132	2.687	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.6869	44.00
41	696213.0	4145912.7	0.03494	0.00451	0.00292	0.00636	0.00000	0.00025	0.00077	0.00263	0.00223	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	36.672	0.43032	0.02424	0.127435	0.028624	0.4408	0.0251	37.7481	2.341	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.3405	40.09
42	696243.0	4145912.9	0.03212	0.00433	0.00283	0.00602	0.00000	0.00025	0.00073	0.00248	0.00197	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	33.712	0.41314	0.02349	0.120623	0.028624	0.4179	0.0237	34.7393	2.068	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0676	36.81
43	696273.0	4145913.1	0.02971	0.00421	0.00278	0.00576	0.00000	0.00024	0.00071	0.00237	0.00176	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	31.182	0.40169	0.02308	0.115413	0.027479	0.4065	0.0226	32.1791	1.847	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.8472	34.03
44	696303.0	4145913.3	0.02764	0.00414	0.00275	0.00556	0.00000	0.00024	0.00070	0.00228	0.00159	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.010	0.39502	0.02283	0.111406	0.027479	0.4007	0.0218	29.9890	1.669	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6688	31.66
45	696333.0	4145913.4	0.02586	0.00411	0.00276	0.00543	0.00000	0.00024	0.00069	0.00222	0.00144	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.142	0.39215	0.02291	0.108801	0.027479	0.3950	0.0212	28.1091	1.511	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5114	29.62
46	696363.0	4145913.6	0.02430	0.00412	0.00279	0.00534	0.00000	0.00024	0.00069	0.00217	0.00132	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.504	0.39311	0.02316	0.106998	0.027479	0.3950	0.0207	26.4707	1.385	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3854	27.86
47	696393.0	4145913.8	0.02292	0.00416	0.00284	0.00529	0.00000	0.00024	0.00069	0.00215	0.00121	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	24.056	0.39692	0.02357	0.105996	0.027479	0.3950	0.0205	25.0254	1.270	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2700	26.30
48	696423.0	4145914.0	0.02170	0.00422	0.00290	0.00527	0.00000	0.00025	0.00070	0.00213	0.00112	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.775	0.40265	0.02407	0.105595	0.028624	0.4007	0.0203	23.7574	1.176	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1755	24.93
49	696453.0	4145914.2	0.02062	0.00429	0.00298	0.00528	0.00000	0.00026	0.00071	0.00212	0.00104	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.642	0.40933	0.02474	0.105795	0.029769	0.4065	0.0202	22.6382	1.092	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0915	23.73
50	696483.0	4145914.4	0.01964	0.00439	0.00307	0.00530	0.00000	0.00026	0.00072	0.00213	0.00097	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.613	0.41887	0.02548	0.106196	0.029769	0.4122	0.0203	21.6262	1.018	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0181	22.64
51	696513.0	4145914.5	0.01877	0.00450	0.00317	0.00535	0.00000	0.00027	0.00074	0.00214	0.00090	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.700	0.42936	0.02631	0.107198	0.030914	0.4236	0.0204	20.7381	0.945	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9446	21.68
52	696543.0	4145914.7	0.01798	0.00463	0.00328	0.00542	0.00000	0.00028	0.00076	0.00216	0.00084	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.871	0.44177	0.02723	0.108601	0.032059	0.4351	0.0206	19.9364	0.882	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8816	20.82
53	696573.0	4145914.9	0.01728	0.00480	0.00342	0.00553	0.00000	0.00029	0.00078	0.00219	0.00079	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.136	0.45799	0.02839	0.110805	0.033204	0.4465	0.0209	19.2342	0.829	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8292	20.06
54	696603.0	4145915.1	0.01667	0.00505	0.00362	0.00570	0.00000	0.00031	0.00082	0.00225	0.00075	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.496	0.48184	0.03005	0.114211	0.035494	0.4694	0.0215	18.6486	0.787	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7872	19.44
55	696633.0	4145915.3	0.01620	0.00550	0.00398	0.00607	0.00000	0.00034	0.00089	0.00238	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.003	0.52478	0.03304	0.121625	0.038929	0.5095	0.0227	18.2534	0.735	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7347	18.99
56	696663.0	4145915.5	0.01611	0.00682	0.00500	0.00720	0.00000	0.00042	0.00110	0.00279	0.00066	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.908	0.65073	0.04151	0.144267	0.048089	0.6297	0.0266	18.4493	0.693	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6927	19.14
57	696032.8	4145941.6	0.06226	0.00681	0.00423	0.01030	0.00000	0.00037	0.00117	0.00431	0.00611	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	65.345	0.64977	0.03511	0.206381	0.042364	0.6698	0.0411	66.9901	6.413	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	6.4128	73.40
58	696062.8	4145941.8	0.05404	0.00600	0.00375	0.00899	0.00000	0.00033	0.00103	0.00376	0.00456	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	56.718	0.57249	0.03113	0.180133	0.037784	0.5897	0.0359	58.1652	4.786	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.7860	62.95
59	696092.8	4145942.0	0.04773	0.00540	0.00340	0.00802	0.00000	0.00030	0.00093	0.00335	0.00364	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	50.095	0.51524	0.02822	0.160697	0.034349	0.5324	0.0320	51.3983	3.820	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.8204	55.22
60	696122.8	4145942.2	0.04270	0.00495	0.00314	0.00727	0.00000	0.00027	0.00085	0.00303	0.00303	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	44.816	0.47230	0.02607	0.145669	0.030914	0.4866	0.0289	46.0066	3.180	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.1802	49.19
61	696152.8	4145942.3	0.03859	0.00460	0.00293	0.00668	0.00000	0.00026	0.00079	0.00278	0.00259	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	40.502	0.43891	0.02432	0.133847	0.029769	0.4523	0.0265	41.6081	2.718	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.7184	44.33
62	696182.8	4145942.5	0.03517	0.00432	0.00278	0.00620	0.00000	0.00024	0.00074	0.00257	0.00226	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	36.913	0.41219	0.02308	0.124230	0.027479	0.4236	0.0245	37.9481	2.372	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.3720	40.32
63	696212.8	4145942.7	0.03227	0.00411	0.00266	0.00582	0.00000	0.00023	0.00070	0.00241	0.00200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	33.869	0.39215	0.02208	0.116615	0.026334	0.4007	0.0230	34.8502	2.099	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0991	36.95
64	696242.8	4145942.9	0.02979	0.00394	0.00257	0.00550	0.00000	0.00022	0.00067	0.00227	0.00179	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	31.266	0.37593	0.02133	0.110204	0.025189	0.3836	0.0217	32.2042	1.879	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.8787	34.08
65	696272.8	4145943.1	0.02766	0.00381	0.00250	0.00525	0.00000	0.00022	0.00064	0.00216	0.00161	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.031	0.36353	0.02075	0.105194	0.025189	0.3664	0.0206	29.9324	1.690	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6898	31.62
66	696302.8	4145943.3	0.02580	0.00372	0.00246	0.00505	0.00000	0.00021	0.00063	0.00208	0.00146	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.079	0.35494	0.02042	0.101187	0.024044	0.3607	0.0198	27.9597	1.532	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5324	29.49
67	696332.8	4145943.4	0.02418	0.00366	0.00244	0.00489	0.00000	0.00021	0.00061	0.00201	0.00134	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.378	0.34922	0.02025	0.097981	0.024044	0.3492	0.0192	26.2382	1.406	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4064	27.64
68	696362.8	4145943.6	0.02275	0.00362	0.00243	0.00477	0.00000	0.00021	0.00061	0.00195	0.00123	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.877	0.34540	0.02017	0.095577	0.024044	0.3492	0.0186	24.7305	1.291	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2910	26.02
69	696392.8	4145943.8	0.02148	0.00360	0.00244	0.00468	0.00000	0.00021	0.00060	0.00190	0.00113	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.545	0.34349	0.02025	0.093773	0.024044	0.3435	0.0181	23.3877	1.186	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1860	24.57
70	696422.8	4145944.0	0.02034	0.00360	0.00246	0.00460	0.00000	0.00021	0.00060	0.00187	0.00105	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.348	0.34349	0.02042	0.092170	0.024044	0.3435	0.0178	22.1895	1.102	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1020	23.29
71	696452.8	4145944.2	0.01931	0.00362	0.00248	0.00455	0.00000	0.00021	0.00060	0.00184	0.00098	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.267	0.34540	0.02059	0.091168	0.024044	0.3435	0.0176	21.1092	1.029	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0286	22.14
72	696482.8	4145944.4	0.01839	0.00365	0.00252	0.00452	0.00000	0.00022	0.00060	0.00182	0.00092	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.301	0.34826	0.02092	0.090567	0.025189	0.3435	0.0174	20.1472	0.966	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9656	21.11
73	696512.8	4145944.5	0.01755	0.00370	0.00257	0.00451	0.00000	0.00022	0.00061	0.00181	0.00086	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.420	0.35303	0.02133	0.090367	0.025189	0.3492	0.0173	19.2762	0.903	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9026	20.18
74	696542.8	4145944.7	0.01680	0.00377	0.00264	0.00452	0.00000	0.00023	0.00062	0.00181	0.00081	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.633	0.35971	0.02191	0.090567	0.026334	0.3549	0.0173	18.5033	0.850	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8501	19.35
75	696572.8	4145944.9	0.01613	0.00388	0.00274	0.00458	0.00000	0.00023	0.00064	0.00183	0.00076	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.929	0.37021	0.02274	0.091770	0.026334	0.3664	0.0175	17.8243	0.798	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7977	18.62
76	696602.8	4145945.1	0.01556	0.00411	0.00292	0.00474	0.00000	0.00025	0.00067	0.00188	0.00072	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.331	0.39215	0.02424	0.094975	0.028624	0.3836	0.0179	17.2726	0.756	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7557	18.03
77	696632.8	4145945.3	0.01517	0.00460	0.00331	0.00514	0.00000	0.00028	0.00075	0.00202	0.00068	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.922	0.43891	0.02748	0.102990	0.032059	0.4294	0.0193	16.9719	0.714	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7137	17.69
78	696662.8	4145945.5	0.01522	0.00606	0.00443	0.00641	0.00000	0.00037	0.00098	0.00249	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.974	0.57821	0.03677	0.128437	0.042364	0.5610	0.0238	17.3449	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	18.02
79	696002.7	4145971.4	0.06392	0.00691	0.00428	0.01050	0.00000	0.00038	0.00119	0.00441	0.00626	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	67.088	0.65931	0.03553	0.210389	0.043509	0.6813	0.0421	68.7598	6.570	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	6.5702	75.33
80	696032.7	4145971.6	0.05517	0.00603	0.00375	0.00909	0.00000	0.00033	0.00104	0.00381	0.00464	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	57.904	0.57535	0.03113	0.182137	0.037784	0.5954	0.0364	59.3623	4.870	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.8700	64.23
81	696062.7	4145971.8	0.04853	0.00539	0.00337	0.00805	0.00000	0.00030	0.00093	0.00337	0.00370	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	50.935	0.51428	0.02797	0.161298	0.034349	0.5324	0.0322	52.2375	3.883	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.8834	56.12
82	696092.7	4145972.0	0.04329	0.00490	0.00309	0.00726	0.00000	0.00027	0.00084	0.00303	0.00307	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	45.435	0.46753	0.02565	0.145469	0.030914	0.4809	0.0289	46.6147	3.222	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.2221	49.84
83	696122.7	4145972.2	0.03903	0.00452	0.00286	0.00663	0.00000	0.00025	0.00077	0.00276	0.00262	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	40.964	0.43127	0.02374	0.132845	0.028624	0.4408	0.0263	42.0479	2.750	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.7498	44.80
84	696152.7	4145972.3	0.03550	0.00422	0.00269	0.00612	0.00000	0.00024	0.00072	0.00255	0.00229	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	37.259	0.40265	0.02233	0.122627	0.027479	0.4122	0.0243	38.2709	2.403	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.4035	40.67
85	696182.7	4145972.5	0.03252	0.00398	0.00255	0.00571	0.00000	0.00022	0.00068	0.00237	0.00202	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	34.132	0.37975	0.02117	0.114411	0.025189	0.3893	0.0226	35.0841	2.120	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.1201	37.20
86	696212.7	4145972.7	0.02998	0.00378	0.00244	0.00536	0.00000	0.00021	0.00064	0.00222	0.00181	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	31.466	0.36067	0.02025	0.107398	0.024044	0.3664	0.0212	32.3657	1.900	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.8997	34.27
87	696242.7	4145972.9	0.02778	0.00362	0.00236	0.00508	0.00000	0.00020	0.00061	0.00210	0.00163	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.157	0.34540	0.01959	0.101788	0.022899	0.3492	0.0200	30.0157	1.711	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7108	31.73
88	696272.7	4145973.1	0.02587	0.00350	0.00229	0.00485	0.00000	0.00020	0.00059	0.00200	0.00148	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.152	0.33395	0.01901	0.097180	0.022899	0.3378	0.0191	27.9820	1.553	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5533	29.54
89	696302.7	4145973.3	0.02420	0.00340	0.00224	0.00465	0.00000	0.00019	0.00057	0.00192	0.00135	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.399	0.32441	0.01859	0.093172	0.021754	0.3263	0.0183	26.2019	1.417	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4169	27.62
90	696332.7	4145973.4	0.02273	0.00333	0.00221	0.00449	0.00000	0.00019	0.00056	0.00184	0.00124	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.856	0.31773	0.01835	0.089966	0.021754	0.3206	0.0176	24.6424	1.301	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3015	25.94
91	696362.7	4145973.6	0.02142	0.00328	0.00219	0.00436	0.00000	0.00019	0.00055	0.00179	0.00115	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.482	0.31296	0.01818	0.087361	0.021754	0.3149	0.0171	23.2537	1.207	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2070	24.46
92	696392.7	4145973.8	0.02025	0.00324	0.00218	0.00425	0.00000	0.00019	0.00054	0.00174	0.00107	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.254	0.30914	0.01810	0.085157	0.021754	0.3091	0.0166	22.0134	1.123	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1230	23.14
93	696422.7	4145974.0	0.01919	0.00322	0.00218	0.00417	0.00000	0.00019	0.00054	0.00170	0.00099	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.141	0.30723	0.01810	0.083554	0.021754	0.3091	0.0162	20.8970	1.039	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0391	21.94
94	696452.7	4145974.2	0.01824	0.00321	0.00219	0.00410	0.00000	0.00019	0.00053	0.00166	0.00093	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.144	0.30628	0.01818	0.082152	0.021754	0.3034	0.0158	19.8916	0.976	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9761	20.87
95	696482.7	4145974.4	0.01738	0.00322	0.00221	0.00406	0.00000	0.00019	0.00053	0.00164	0.00087	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.241	0.30723	0.01835	0.081350	0.021754	0.3034	0.0156	18.9891	0.913	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9131	19.90
96	696512.7	4145974.5	0.01660	0.00325	0.00225	0.00403	0.00000	0.00019	0.00054	0.00163	0.00082	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.423	0.31010	0.01868	0.080749	0.021754	0.3091	0.0156	18.1786	0.861	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8606	19.04
97	696542.7	4145974.7	0.01590	0.00332	0.00231	0.00405	0.00000	0.00020	0.00055	0.00163	0.00077	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.688	0.31678	0.01918	0.081150	0.022899	0.3149	0.0156	17.4584	0.808	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8082	18.27
98	696572.6	4145974.9	0.01529	0.00344	0.00241	0.00411	0.00000	0.00021	0.00057	0.00164	0.00073	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.048	0.32823	0.02001	0.082352	0.024044	0.3263	0.0156	16.8443	0.766	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7662	17.61
99	696602.6	4145975.1	0.01478	0.00368	0.00260	0.00428	0.00000	0.00022	0.00060	0.00170	0.00069	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.512	0.35112	0.02158	0.085758	0.025189	0.3435	0.0162	16.3558	0.724	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7242	17.08
100	696632.6	4145975.3	0.01446	0.00421	0.00302	0.00472	0.00000	0.00026	0.00069	0.00186	0.00065	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.177	0.40169	0.02507	0.094575	0.029769	0.3950	0.0177	16.1405	0.682	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6822	16.82
101	696662.6	4145975.5	0.01458	0.00570	0.00417	0.00603	0.00000	0.00035	0.00093	0.00234	0.00062	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.303	0.54386	0.03462	0.120823	0.040074	0.5324	0.0223	16.5967	0.651	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6507	17.25
102	695972.5	4146001.2	0.06586	0.00705	0.00436	0.01078	0.00000	0.00038	0.00122	0.00452	0.00640	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	69.124	0.67267	0.03619	0.215999	0.043509	0.6984	0.0431	70.8338	6.717	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	6.7172	77.55
103	696002.5	4146001.4	0.05650	0.00610	0.00379	0.00925	0.00000	0.00033	0.00105	0.00388	0.00472	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	59.300	0.58203	0.03146	0.185342	0.037784	0.6011	0.0370	60.7748	4.954	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.9539	65.73
104	696032.5	4146001.6	0.04948	0.00541	0.00337	0.00814	0.00000	0.00030	0.00093	0.00341	0.00375	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	51.932	0.51619	0.02797	0.163101	0.034349	0.5324	0.0325	53.2387	3.936	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.9358	57.17
105	696062.5	4146001.8	0.04399	0.00489	0.00307	0.00729	0.00000	0.00027	0.00084	0.00305	0.00311	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	46.170	0.46658	0.02548	0.146070	0.030914	0.4809	0.0291	47.3491	3.264	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.2641	50.61
106	696092.5	4146002.0	0.03956	0.00448	0.00283	0.00663	0.00000	0.00025	0.00077	0.00277	0.00265	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	41.521	0.42746	0.02349	0.132845	0.028624	0.4408	0.0264	42.6002	2.781	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.7813	45.38
107	696122.5	4146002.2	0.03591	0.00416	0.00264	0.00609	0.00000	0.00023	0.00071	0.00254	0.00231	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	37.690	0.39692	0.02191	0.122025	0.026334	0.4065	0.0242	38.6875	2.424	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.4245	41.11
108	696152.5	4146002.3	0.03285	0.00390	0.00248	0.00565	0.00000	0.00022	0.00067	0.00235	0.00204	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	34.478	0.37212	0.02059	0.113209	0.025189	0.3836	0.0224	35.4151	2.141	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.1411	37.56
109	696182.5	4146002.5	0.03023	0.00368	0.00236	0.00529	0.00000	0.00021	0.00063	0.00220	0.00183	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	31.728	0.35112	0.01959	0.105996	0.024044	0.3607	0.0210	32.6106	1.921	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.9207	34.53
110	696212.5	4146002.7	0.02798	0.00351	0.00226	0.00498	0.00000	0.00020	0.00060	0.00207	0.00165	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.367	0.33490	0.01876	0.099784	0.022899	0.3435	0.0198	30.2062	1.732	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7318	31.94
111	696242.5	4146002.9	0.02602	0.00336	0.00218	0.00473	0.00000	0.00019	0.00057	0.00196	0.00150	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.310	0.32059	0.01810	0.094775	0.021754	0.3263	0.0187	28.1097	1.574	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5743	29.68
112	696272.5	4146003.1	0.02431	0.00325	0.00212	0.00451	0.00000	0.00018	0.00055	0.00186	0.00137	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.515	0.31010	0.01760	0.090367	0.020610	0.3149	0.0177	26.2860	1.438	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4379	27.72
113	696302.5	4146003.3	0.02279	0.00315	0.00207	0.00433	0.00000	0.00018	0.00053	0.00178	0.00126	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.919	0.30056	0.01718	0.086760	0.020610	0.3034	0.0170	24.6649	1.322	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3224	25.99
114	696332.5	4146003.4	0.02145	0.00308	0.00203	0.00418	0.00000	0.00018	0.00052	0.00172	0.00116	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.513	0.29388	0.01685	0.083755	0.020610	0.2977	0.0164	23.2422	1.217	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2175	24.46
115	696362.5	4146003.6	0.02025	0.00302	0.00201	0.00405	0.00000	0.00017	0.00051	0.00166	0.00108	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.254	0.28815	0.01669	0.081150	0.019465	0.2920	0.0158	21.9668	1.134	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1335	23.10
116	696392.5	4146003.8	0.01917	0.00297	0.00199	0.00394	0.00000	0.00017	0.00050	0.00161	0.00101	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.120	0.28338	0.01652	0.078946	0.019465	0.2862	0.0154	20.8199	1.060	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0601	21.88
117	696422.5	4146004.0	0.01820	0.00294	0.00198	0.00385	0.00000	0.00017	0.00049	0.00157	0.00094	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.102	0.28052	0.01644	0.077143	0.019465	0.2805	0.0150	19.7910	0.987	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9866	20.78

Receptor No. (m)	UTM-X (m)	UTM-Y (m)	2045 Operation - Total Roads Period Average Concentration								2045 Operation - Rail Line Period Average Concentration								2045 - Total Roads Cancer Risks							2045 Roads Cancer Risks Total	2045 - Rail Line Cancer Risks							2045 Rail Cancer Risks Total	Total Cancer Risk
			DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde		DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde		
118	696452.5	4146004.2	0.01731	0.00293	0.00199	0.00378	0.00000	0.00017	0.00049	0.00154	0.00088	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.168	0.27956	0.01652	0.075740	0.019465	0.2805	0.0147	18.8544	0.924	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9236	19.78
119	696482.5	4146004.4	0.01652	0.00294	0.00201	0.00374	0.00000	0.00017	0.00049	0.00152	0.00083	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.339	0.28052	0.01669	0.074938	0.019465	0.2805	0.0145	18.0253	0.871	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8711	18.90
120	696512.5	4146004.5	0.01580	0.00297	0.00204	0.00372	0.00000	0.00018	0.00049	0.00150	0.00078	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.583	0.28338	0.01693	0.074538	0.020610	0.2805	0.0143	17.2733	0.819	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8187	18.09
121	696542.5	4146004.7	0.01515	0.00304	0.00211	0.00374	0.00000	0.00018	0.00050	0.00150	0.00074	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.901	0.29006	0.01752	0.074938	0.020610	0.2862	0.0143	16.6045	0.777	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7767	17.38
122	696572.5	4146004.9	0.01459	0.00318	0.00222	0.00382	0.00000	0.00019	0.00052	0.00153	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.313	0.30342	0.01843	0.076541	0.021754	0.2977	0.0146	16.0455	0.735	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7347	16.78
123	696602.5	4146005.1	0.01414	0.00343	0.00242	0.00401	0.00000	0.00021	0.00056	0.00160	0.00066	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.841	0.32727	0.02009	0.080348	0.024044	0.3206	0.0153	15.6284	0.693	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6927	16.32
124	696632.5	4146005.3	0.01387	0.00398	0.00285	0.00447	0.00000	0.00024	0.00065	0.00176	0.00063	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.557	0.37975	0.02366	0.089565	0.027479	0.3721	0.0168	15.4667	0.661	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6612	16.13
125	696662.5	4146005.5	0.01404	0.00547	0.00400	0.00579	0.00000	0.00034	0.00089	0.00225	0.00059	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.736	0.52192	0.03320	0.116014	0.038929	0.5095	0.0215	15.9768	0.619	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6192	16.60
126	695942.3	4146033.0	0.06746	0.00718	0.00442	0.01101	0.00000	0.00039	0.00124	0.00462	0.00641	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	70.803	0.68508	0.03669	0.220608	0.044654	0.7099	0.0441	72.5442	6.728	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	6.7277	79.27
127	695972.3	4146031.2	0.05801	0.00621	0.00384	0.00945	0.00000	0.00034	0.00107	0.00396	0.00480	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	60.885	0.59252	0.03188	0.189350	0.038929	0.6126	0.0378	62.3879	5.038	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	5.0379	67.43
128	696002.3	4146031.4	0.05055	0.00546	0.00340	0.00826	0.00000	0.00030	0.00094	0.00346	0.00380	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	53.055	0.52096	0.02822	0.165506	0.034349	0.5381	0.0330	54.3754	3.988	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.9883	58.36
129	696032.3	4146031.6	0.04478	0.00491	0.00307	0.00736	0.00000	0.00027	0.00084	0.00308	0.00315	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	46.999	0.46848	0.02548	0.147472	0.030914	0.4809	0.0294	48.1818	3.306	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.3061	51.49
130	696062.3	4146031.8	0.04017	0.00448	0.00281	0.00666	0.00000	0.00025	0.00077	0.00278	0.00268	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	42.161	0.42746	0.02333	0.133447	0.028624	0.4408	0.0265	43.2409	2.813	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.8128	46.05
131	696092.3	4146032.0	0.03638	0.00413	0.00261	0.00610	0.00000	0.00023	0.00071	0.00254	0.00233	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	38.183	0.39406	0.02167	0.122226	0.026334	0.4065	0.0242	39.1779	2.445	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.4455	41.62
132	696122.3	4146032.2	0.03322	0.00385	0.00244	0.00564	0.00000	0.00021	0.00066	0.00235	0.00206	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	34.866	0.36735	0.02025	0.113009	0.024044	0.3778	0.0224	35.7912	2.162	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.1621	37.95
133	696152.3	4146032.3	0.03054	0.00362	0.00231	0.00525	0.00000	0.00020	0.00062	0.00219	0.00184	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	32.054	0.34540	0.01918	0.105194	0.022899	0.3549	0.0209	32.9220	1.931	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.9312	34.85
134	696182.3	4146032.5	0.02823	0.00343	0.00220	0.00493	0.00000	0.00019	0.00059	0.00205	0.00166	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.629	0.32727	0.01826	0.098783	0.021754	0.3378	0.0196	30.4524	1.742	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7423	32.19
135	696212.3	4146032.7	0.02622	0.00328	0.00211	0.00466	0.00000	0.00018	0.00056	0.00193	0.00151	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.519	0.31296	0.01752	0.093373	0.020610	0.3206	0.0184	28.3029	1.585	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5848	29.89
136	696242.3	4146032.9	0.02446	0.00315	0.00204	0.00443	0.00000	0.00018	0.00053	0.00183	0.00138	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.672	0.30056	0.01693	0.088764	0.020610	0.3034	0.0175	26.4199	1.448	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4484	27.87
137	696272.3	4146033.1	0.02291	0.00304	0.00198	0.00423	0.00000	0.00017	0.00051	0.00175	0.00127	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	24.045	0.29006	0.01644	0.084757	0.019465	0.2920	0.0167	24.7648	1.333	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3329	26.10
138	696302.3	4146033.3	0.02153	0.00295	0.00193	0.00406	0.00000	0.00017	0.00050	0.00167	0.00118	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.597	0.28147	0.01602	0.081350	0.019465	0.2862	0.0159	23.2975	1.238	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2385	24.54
139	696332.3	4146033.4	0.02031	0.00287	0.00190	0.00392	0.00000	0.00016	0.00048	0.00161	0.00109	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.317	0.27384	0.01577	0.078545	0.018320	0.2748	0.0154	21.9932	1.144	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1440	23.14
140	696362.3	4146033.6	0.01920	0.00282	0.00187	0.00379	0.00000	0.00016	0.00047	0.00156	0.00102	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.152	0.26907	0.01552	0.075940	0.018320	0.2691	0.0149	20.8143	1.071	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0705	21.88
141	696392.3	4146033.8	0.01821	0.00277	0.00185	0.00369	0.00000	0.00016	0.00047	0.00151	0.00095	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.112	0.26430	0.01536	0.073937	0.018320	0.2691	0.0144	19.7678	0.997	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9971	20.76
142	696422.3	4146034.0	0.01730	0.00274	0.00184	0.00361	0.00000	0.00016	0.00046	0.00147	0.00089	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.157	0.26144	0.01527	0.072334	0.018320	0.2633	0.0140	18.8021	0.934	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9341	19.74
143	696452.3	4146034.2	0.01649	0.00273	0.00185	0.00354	0.00000	0.00016	0.00046	0.00144	0.00084	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.307	0.26048	0.01536	0.070931	0.018320	0.2633	0.0137	17.9494	0.882	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8816	18.83
144	696482.3	4146034.4	0.01575	0.00274	0.00186	0.00350	0.00000	0.00016	0.00046	0.00142	0.00079	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.531	0.26144	0.01544	0.070130	0.018320	0.2633	0.0135	17.1728	0.829	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8292	18.00
145	696512.3	4146034.5	0.01508	0.00277	0.00190	0.00349	0.00000	0.00016	0.00046	0.00141	0.00074	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.827	0.26430	0.01577	0.069929	0.018320	0.2633	0.0135	16.4725	0.777	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7767	17.25
146	696542.3	4146034.7	0.01449	0.00285	0.00197	0.00352	0.00000	0.00017	0.00047	0.00142	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.208	0.27193	0.01635	0.070530	0.019465	0.2691	0.0135	15.8690	0.735	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7347	16.60
147	696572.3	4146034.9	0.01398	0.00299	0.00209	0.00361	0.00000	0.00018	0.00049	0.00145	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.673	0.28529	0.01735	0.072334	0.020610	0.2805	0.0138	15.3628	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	16.07
148	696602.3	4146035.1	0.01358	0.00326	0.00230	0.00381	0.00000	0.00020	0.00054	0.00152	0.00063	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.253	0.31105	0.01909	0.076341	0.022899	0.3091	0.0145	15.0060	0.661	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6612	15.67
149	696632.3	4146035.3	0.01335	0.00381	0.00273	0.00428	0.00000	0.00023	0.00062	0.00169	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.012	0.36353	0.02266	0.085758	0.026334	0.3549	0.0161	14.8810	0.630	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6297	15.51
150	696662.3	4146035.5	0.01356	0.00529	0.00387	0.00560	0.00000	0.00033	0.00086	0.00217	0.00057	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.232	0.50474	0.03213	0.112207	0.037784	0.4923	0.0207	15.4319	0.598	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5982	16.03
151	695890.3	4146096.6	0.06773	0.00715	0.00439	0.01100	0.00000	0.00039	0.00124	0.00462	0.00584	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	71.087	0.68221	0.03644	0.220407	0.044654	0.7099	0.0441	72.8243	6.129	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	6.1294	78.95
152	695934.2	4146063.0	0.06170	0.00655	0.00404	0.01002	0.00000	0.00036	0.00113	0.00421	0.00517	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	64.758	0.62496	0.03354	0.200771	0.041219	0.6469	0.0402	66.3453	5.426	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	5.4262	71.77
153	695972.1	4146061.2	0.05175	0.00554	0.00344	0.00841	0.00000	0.00030	0.00096	0.00353	0.00385	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	54.315	0.52860	0.02856	0.168511	0.034349	0.5496	0.0337	55.6579	4.041	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.0408	59.70
154	696002.1	4146061.4	0.04566	0.00495	0.00308	0.00746	0.00000	0.00027	0.00085	0.00312	0.00318	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	47.923	0.47230	0.02557	0.149476	0.030914	0.4866	0.0298	49.1175	3.338	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.3376	52.46
155	696032.1	4146061.6	0.04083	0.00449	0.00281	0.00672	0.00000	0.00025	0.00077	0.00281	0.00271	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	42.853	0.42841	0.02333	0.134649	0.028624	0.4408	0.0268	43.9361	2.844	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.8443	46.78
156	696062.1	4146061.8	0.03690	0.00413	0.00260	0.00613	0.00000	0.00023	0.00071	0.00256	0.00235	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	38.729	0.39406	0.02158	0.122827	0.026334	0.4065	0.0244	39.7244	2.466	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.4665	42.19
157	696092.1	4146062.0	0.03364	0.00383	0.00242	0.00565	0.00000	0.00021	0.00066	0.00236	0.00208	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	35.307	0.36544	0.02009	0.113209	0.024044	0.3778	0.0225	36.2303	2.183	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.1831	38.41
158	696122.1	4146062.2	0.03088	0.00359	0.00228	0.00525	0.00000	0.00020	0.00061	0.00219	0.00186	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	32.410	0.34254	0.01893	0.105194	0.022899	0.3492	0.0209	33.2700	1.952	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.9522	35.22
159	696152.1	4146062.3	0.02851	0.00339	0.00216	0.00491	0.00000	0.00019	0.00058	0.00204	0.00168	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.923	0.32345	0.01793	0.098382	0.021754	0.3320	0.0195	30.7359	1.763	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7633	32.50
160	696182.1	4146062.5	0.02645	0.00322	0.00207	0.00462	0.00000	0.00018	0.00055	0.00192	0.00153	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.761	0.30723	0.01718	0.092571	0.020610	0.3149	0.0183	28.5316	1.606	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6058	30.14
161	696212.1	4146062.7	0.02465	0.00308	0.00198	0.00438	0.00000	0.00017	0.00052	0.00181	0.00140	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.872	0.29388	0.01644	0.087762	0.019465	0.2977	0.0173	26.6041	1.469	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4694	28.07
162	696242.1	4146062.9	0.02305	0.00296	0.00192	0.00417	0.00000	0.00017	0.00050	0.00172	0.00128	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	24.192	0.28243	0.01594	0.083554	0.019465	0.2862	0.0164	24.8964	1.343	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3434	26.24
163	696272.1	4146063.1	0.02164	0.00286	0.00186	0.00398	0.00000	0.00016	0.00048	0.00165	0.00119	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.712	0.27289	0.01544	0.079747	0.018320	0.2748	0.0157	23.3894	1.249	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2490	24.64
164	696302.1	4146063.3	0.02039	0.00277	0.00182	0.00383	0.00000	0.00016	0.00047	0.00158	0.00110	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.400	0.26430	0.01511	0.076742	0.018320	0.2691	0.0151	22.0591	1.155	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1545	23.21
165	696332.1	4146063.4	0.01926	0.00271	0.00178	0.00370	0.00000	0.00015	0.00046	0.00152	0.00103	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.214	0.25857	0.01478	0.074137	0.017175	0.2633	0.0145	20.8570	1.081	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0810	21.94
166	696362.1	4146063.6	0.01825	0.00265	0.00176	0.00358	0.00000	0.00015	0.00045	0.00147	0.00096	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.154	0.25285	0.01461	0.071733	0.017175	0.2576	0.0140	19.7824	1.008	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0076	20.79
167	696392.1	4146063.8	0.01733	0.00261	0.00174	0.00348	0.00000	0.00015	0.00044	0.00143	0.00090	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.189	0.24903	0.01444	0.069729	0.017175	0.2519	0.0136	18.8048	0.945	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9446	19.75
168	696422.1	4146064.0	0.01649	0.00258	0.00173	0.00341	0.00000	0.00015	0.00043	0.00139	0.00085	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.307	0.24617	0.01436	0.068326	0.017175	0.2462	0.0133	17.9127	0.892	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8921	18.80
169	696452.1	4146064.2	0.01574	0.00257	0.00174	0.00335	0.00000	0.00015	0.00043	0.00136	0.00080	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.520	0.24521	0.01444	0.067124	0.017175	0.2462	0.0130	17.1231	0.840	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8396	17.96
170	696482.1	4146064.4	0.01505	0.00258	0.00176	0.00331	0.00000	0.00015	0.00043	0.00135	0.00075	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.796	0.24617	0.01461	0.066323	0.017175	0.2462	0.0129	16.3992	0.787	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7872	17.19
171	696512.1	4146064.5	0.01444	0.00262	0.00180	0.00331	0.00000	0.00015	0.00044	0.00134	0.00071	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.156	0.24999	0.01494	0.066323	0.017175	0.2519	0.0128	15.7687	0.745	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7452	16.51
172	696542.1	4146064.7	0.01389	0.00270	0.00187	0.00334	0.00000	0.00016	0.00045	0.00135	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.578	0.25762	0.01552	0.066924	0.018320	0.2576	0.0129	15.2072	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	15.91
173	696572.1	4146064.9	0.01343	0.00285	0.00199	0.00344	0.00000	0.00017	0.00047	0.00138	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.096	0.27193	0.01652	0.068927	0.019465	0.2691	0.0132	14.7546	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	15.43
174	696602.1	4146065.1	0.01306	0.00312	0.00220	0.00366	0.00000	0.00019	0.00051	0.00146	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.707	0.29769	0.01826	0.073335	0.021754	0.2920	0.0139	14.4242	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	15.06
175	696632.1	4146065.3	0.01288	0.00368	0.00263	0.00413	0.00000	0.00022	0.00060	0.00163	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.518	0.35112	0.02183	0.082753	0.025189	0.3435	0.0156	14.3583	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	14.97
176	696662.1	4146065.5	0.01310	0.00512	0.00374	0.00542	0.00000	0.00032	0.00083	0.00210	0.00055	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.749	0.48852	0.03105	0.108601	0.036639	0.4752	0.0200	14.9092	0.577	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5773	15.49
177	695915.9	4146079.0	0.06349	0.00672	0.00414	0.01030	0.00000	0.00037	0.00116	0.00433	0.00533	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	66.636	0.64118	0.03437	0.206381	0.042364	0.6641	0.0413	68.2661	5.594	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	5.5941	73.86
178	695941.9	4146091.1	0.05306	0.00564	0.00349	0.00859	0.00000	0.00031	0.00097	0.00361	0.00391	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	55.690	0.53814	0.02897	0.172118	0.035494	0.5553	0.0344	57.0540	4.104	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.1038	61.16
179	695971.9	4146091.2	0.04661	0.00501	0.00311	0.00758	0.00000	0.00027	0.00086	0.00318	0.00322	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	48.920	0.47803	0.02582	0.151881	0.030914	0.4923	0.0303	50.1292	3.380	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.3796	53.51
180	696001.9	4146091.4	0.04155	0.00452	0.00282	0.00680	0.00000	0.00025	0.00078	0.00284	0.00273	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	43.609	0.43127	0.02341	0.136252	0.028624	0.4465	0.0271	44.7023	2.865	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.8653	47.57
181	696031.9	4146091.6	0.03746	0.00414	0.00260	0.00618	0.00000	0.00023	0.00071	0.00258	0.00237	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	39.316	0.39502	0.02158	0.123829	0.026334	0.4065	0.0246	40.3143	2.487	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.4875	42.80
182	696061.9	4146091.8	0.03407	0.00383	0.00241	0.00567	0.00000	0.00021	0.00066	0.00237	0.00209	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	35.758	0.36544	0.02001	0.113610	0.024044	0.3778	0.0226	36.6820	2.194	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.1936	38.88
183	696091.9	4146092.0	0.03123	0.00358	0.00226	0.00526	0.00000	0.00020	0.00061	0.00219	0.00187	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	32.778	0.34158	0.01876	0.105395	0.022899	0.3492	0.0209	33.6365	1.963	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.9627	35.60
184	696121.9	4146092.2	0.02880	0.00337	0.00214	0.00491	0.00000	0.00019	0.00058	0.00204	0.00169	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	30.227	0.32155	0.01776	0.098382	0.021754	0.3320	0.0195	31.0382	1.774	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7738	32.81
185	696151.9	4146092.3	0.02670	0.00319	0.00204	0.00461	0.00000	0.00018	0.00054	0.00192	0.00154	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	28.023	0.30437	0.01693	0.092371	0.020610	0.3091	0.0183	28.7850	1.616	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6163	30.40
186	696181.9	4146092.5	0.02485	0.00303	0.00195	0.00435	0.00000	0.00017	0.00052	0.00180	0.00141	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	26.082	0.28911	0.01619	0.087161	0.019465	0.2977	0.0172	26.8083	1.480	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4799	28.29
187	696211.9	4146092.7	0.02321	0.00290	0.00187	0.00413	0.00000	0.00016	0.00049	0.00171	0.00129	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	24.360	0.27670	0.01552	0.082753	0.018320	0.2805	0.0163	25.0504	1.354	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3539	26.40
188	696241.9	4146092.9	0.02177	0.00280	0.00181	0.00393	0.00000	0.00016	0.00047	0.00163	0.00120	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.849	0.26716	0.01502	0.078745	0.018320	0.2691	0.0156	23.5128	1.259	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2595	24.77
189	696271.9	4146093.1	0.02049	0.00270	0.00176	0.00377	0.00000	0.00015	0.00046	0.00156	0.00111	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.505	0.25762	0.01461	0.075540	0.017175	0.2633	0.0149	22.1486	1.165	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1650	23.31
190	696301.9	4146093.3	0.01934	0.00263	0.00172	0.00363	0.00000	0.00015	0.00044	0.00150	0.00103	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.298	0.25094	0.01428	0.072734	0.017175	0.2519	0.0143	20.9198	1.081	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0810	22.00
191	696331.9	4146093.4	0.01830	0.00256	0.00169	0.00350	0.00000	0.00015	0.00043	0.00144	0.00097	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.207	0.24426	0.01403	0.070130	0.017175	0.2462	0.0137	19.8124	1.018	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0181	20.83
192	696361.9	4146093.6	0.01737	0.00251	0.00166	0.00340	0.00000	0.00014	0.00042	0.00140	0.00091	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.231	0.23949	0.01378	0.068126	0.016030	0.2404	0.0134	18.8221	0.955	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9551	19.78
193	696391.9	4146093.8	0.01652	0.00248	0.00165	0.00331	0.00000	0.00014	0.00042	0.00136	0.00085	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.339	0.23663	0.01370	0.066323	0.016030	0.2404	0.0130	17.9248	0.892	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8921	18.82
194	696421.9	4146094.0	0.01575	0.00245	0.00164	0.00324	0.00000	0.00014	0.00041	0.00132	0.00080	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.531	0.23377	0.01361	0.064920	0.016030	0.2347	0.0126	17.1062	0.840	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8396	17.95
195	696451.9	4146094.2	0.01505	0.00245	0.00165	0.00319	0.00000	0.00014	0.00041	0.00130	0.00076	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.796	0.23377	0.01370	0.063918	0.016030	0.2347	0.0124	16.3704	0.798	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7977	17.17
196	696481.9	4146094.4	0.01441	0.00246	0.00167	0.00316	0.00000	0.00014	0.00041	0.00128	0.00072	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.124	0.23472	0.01386	0.063317	0.016030	0.2347	0.0122	15.6990	0.756	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7557	16.45
197	696511.9	4146094.5	0.01384	0.00250	0.00171	0.00316	0.00000	0.00015	0.00042	0.00128	0.00068	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.526	0.23854	0.01419	0.063317	0.017175	0.2404	0.0122	15.1118	0.714	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7137	15.83
198	696541.9	4146094.7	0.01334	0.00258	0.00178	0.00320	0.00000	0.00015	0.00043	0.00129	0.00065	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.001	0.24617	0.01478	0.064118	0.017175	0.2462	0.0123	14.6018	0.682	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6822	15.28
199	696571.9	4146094.9	0.01291	0.00273	0.00190	0.00330	0.00000	0.00016	0.00045	0.00133	0.00062	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.550	0.26048	0.01577	0.066122	0.018320	0.2576	0.0127	14.1808	0.651	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6507	14.83
200	696601.9	4146095.1	0.01259	0.00300	0.00212	0.00352	0.00000	0.00018	0.00049	0.00140	0.00059	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.214	0.28624	0.01760	0.070530	0.020610	0.2805	0.0134	13.9028	0.619	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6192	14.52
201	696631.9	4146095.3	0.01243	0.00355	0.00254	0.00400	0.00000	0.00022	0.00058	0.00158	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.046	0.33872	0.02108	0.080148	0.025189	0.3320	0.0151	13.8583	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	14.45
202	696661.9	4146095.5	0.01267	0.00495	0.00362	0.00526	0.00000	0.00031	0.00080	0.00204	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.298	0.47230	0.03005	0.105395	0.035494	0.4580	0.0195	14.4186	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	14.97
203	695881.7	4146120.7	0.06361	0.00670	0.00412	0.01030	0.00000	0.00036	0.00116	0.00433	0.00507	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	66.762	0.63928	0.03420	0.206381	0.041219	0.6641	0.0413	68.3889	5.321	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	5.3213	73.71
204	695911.7	4146120.9	0.05444	0.00576	0.00356	0.00880	0.00000	0.00031	0.00100	0.00369	0.00396	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	57.138	0.54959	0.02955	0.176326	0.035494	0.5725	0.0352	58.5366	4.156	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.1563	62.69
205	695941.7	4146121.1	0.04759	0.00508	0.00315	0.00771	0.00000	0.00028	0.00088	0.00323	0.00325	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	49.948	0.48471	0.02615	0.154485	0.032059	0.5038	0.0308	51.1805	3.411	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.4111	54.59
206	695971.7	4146121.2	0.04226	0.00457	0.00285	0.00689	0.00000	0.00025	0.00079	0.00288	0.00275	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	44.354	0.43604	0.02366	0.138055	0.028624	0.4523	0.0275	45.4605	2.886	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.8863	48.35
207	696001.7	4146121.4	0.03802	0.00417	0.00261	0.00624	0.00000	0.00023	0.00072	0.00261	0.00239	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	39.904	0.39788	0.02167	0.125031	0.026334	0.4122	0.0249	40.9122	2.508	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.5084	43.42
208	696031.7	4146121.6	0.03453	0.00384	0.00241	0.00571	0.00000	0.00021	0.00066	0.00239	0.00211	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	36.241	0.36639	0.02001	0.114411	0.024044	0.3778	0.0228	37.1667	2.215	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2146	39.38
209	696061.7	4146121.8	0.03159	0.00358	0.00226	0.00528	0.00000	0.00020	0.00061	0.00220	0.00188	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	33.156	0.34158	0.01876	0.105795	0.022899	0.3492	0.0210	34.0148	1.973	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.9732	35.99
210	696091.7	4146122.0	0.02910	0.00335	0.00213	0.00491	0.00000	0.00019	0.00057	0.00205	0.00170	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	30.542	0.31964	0.01768	0.098382	0.021754	0.3263	0.0196	31.3455	1.784	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7842	33.13
211	696121.7	4146122.2	0.02695	0.00317	0.00202	0.00461	0.00000	0.00018	0.00054	0.00192	0.00155	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	28.286	0.30246	0.01677	0.092371	0.020610	0.3091	0.0183	29.0453	1.627	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6268	30.67
212	696151.7	4146122.3	0.02507	0.00301	0.00192	0.00434	0.00000	0.00017	0.00051	0.00180	0.00142	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	26.312	0.28720	0.01594	0.086961	0.019465	0.2920	0.0172	27.0311	1.490	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4904	28.52
213	696181.7	4146122.5	0.02339	0.00287	0.00184	0.00410	0.00000	0.00016	0.00049	0.00170	0.00130	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	24.549	0.27384	0.01527	0.082152	0.018320	0.2805	0.0162	25.2355	1.364	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3644	26.60
214	696211.7	4146122.7	0.02191	0.00275	0.00178	0.00390	0.00000	0.00015	0.00047	0.00162	0.00121	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.996	0.26239	0.01478	0.078144	0.017175	0.2691	0.0155	23.6528	1.270	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2700	24.92
215	696241.7	4146122.9	0.02060	0.00265	0.00172	0.00373	0.00000	0.00015	0.00045	0.00154	0.00112	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.621	0.25285	0.01428	0.074738	0.017175	0.2576	0.0147	22.2523	1.176	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1755	23.43
216	696271.7	4146123.1	0.01943	0.00257	0.00168	0.00358	0.00000	0.00015	0.00044	0.00148	0.00104	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.393	0.24521	0.01395	0.071733	0.017175	0.2519	0.0141	21.0070	1.092	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0915	22.10
217	696301.7	4146123.3	0.01837	0.00250	0.00164	0.00345	0.00000	0.00014	0.00042	0.00142	0.00097	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.280	0.23854	0.01361	0.069128	0.016030	0.2404	0.0135	19.8717	1.018	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0181	20.89
218	696331.7	4146123.4	0.01742	0.00244	0.00161	0.00333	0.00000	0.00014	0.00041	0.00137	0.00091	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.283	0.23281	0.01336	0.066723	0.016030	0.2347	0.0131	18.8600	0.955	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9551	19.82
219	696361.7	4146123.6	0.01656	0.00240	0.00159	0.00324	0.00000	0.00014	0.00040	0.00133	0.00086	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.381	0.22899	0.01320	0.064920	0.016030	0.2290	0.0127	17.9455	0.903	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9026	18.85
220	696391.7	4146123.8	0.01577	0.00236	0.00157	0.00316	0.00000	0.00014	0.00040	0.00129	0.00081	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.552	0.22518	0.01303	0.063317	0.016030	0.2290	0.0123	17.1104	0.850	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8501	17.96
221	696421.7	4146124.0	0.01506	0.00234	0.00157	0.00309	0.00000	0.00014	0.00039	0.00127	0.00077	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.806	0.22327	0.01303	0.061914	0.016030	0.2233	0.0121	16.3560	0.808	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8082	17.16
222	696451.7	4146124.2	0.01441	0.00234	0.00158	0.00305	0.00000	0.00014	0.00039	0.00124	0.00072	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.124	0.22327	0.01312	0.061113	0.016030	0.2233	0.0118	15.6728	0.756	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7557	16.43
223	696481.7	4146124.4	0.01382	0.00236	0.00160	0.00303	0.00000	0.00014	0.00039	0.00123	0.00069	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.505	0.22518	0.01328	0.060712	0.016030	0.2233	0.0117	15.0551	0.724	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7242	15.78
224	696511.7	4146124.5	0.01329	0.00240	0.00164	0.00303	0.00000	0.00014	0.00040	0.00123	0.00065	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.949	0.22899	0.01361	0.060712	0.016030	0.2290	0.0117	14.5087	0.682	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6822	15.19
225	696541.7	4146124.7	0.01283	0.00248	0.00171	0.00308	0.00000	0.00015	0.00041	0.00124	0.00062	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.466	0.23663	0.01419	0.061714	0.017175	0.2347	0.0118	14.0421	0.651	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6507	14.69
226	696571.7	4146124.9	0.01244	0.00263	0.00183	0.00318	0.00000	0.00016	0.00043	0.00128	0.00059	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.057	0.25094	0.01519	0.063718	0.018320	0.2462	0.0122	13.6631	0.619	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6192	14.28
227	696601.7	4146125.1	0.01214	0.00289	0.00204	0.00340	0.00000	0.00017	0.00047	0.00136	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.742	0.27575	0.01693	0.068126	0.019465	0.2691	0.0130	13.4040	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	13.99
228	696631.7	4146125.3	0.01201	0.00341	0.00244	0.00386	0.00000	0.00021	0.00056	0.00153	0.00054	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.605	0.32536	0.02025	0.077343	0.024044	0.3206	0.0146	13.3874	0.567	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5668	13.95
229	696661.7	4146125.5	0.01227	0.00474	0.00346	0.00508	0.00000	0.00029	0.00077	0.00198	0.00052	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.878	0.45226	0.02872	0.101788	0.033204	0.4408	0.0189	13.9538	0.546	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5458	14.50
230	695851.6	4146150.5	0.06494	0.00688	0.00423	0.01060	0.00000	0.00037	0.00119	0.00446	0.00505	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	68.158	0.65645	0.03511	0.212392	0.042364	0.6813	0.0426	69.8284	5.300	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	5.3003	75.13
231	695881.6	4146150.7	0.05573	0.00589	0.00363	0.00902	0.00000	0.00032	0.00102	0.00379	0.00400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	58.492	0.56199	0.03013	0.180734	0.036639	0.5839	0.0362	59.9215	4.198	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.1982	64.12
232	695911.6	4146150.9	0.04858	0.00517	0.00320	0.00786	0.00000	0.00028	0.00089	0.00330	0.00328	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	50.988	0.49329	0.02656	0.157491	0.032059	0.5095	0.0315	52.2379	3.443	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.4426	55.68
233	695941.6	4146151.1	0.04295	0.00462	0.00287	0.00699	0.00000	0.00025	0.00080	0.00293	0.00276	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	45.079	0.44081	0.02382	0.140059	0.028624	0.4580	0.0280	46.1978	2.897	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.8968	49.09
234	695971.6	4146151.2	0.03834	0.00419	0.00261	0.00629	0.00000	0.00023	0.00072	0.00263	0.00237	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	40.240	0.39979	0.02167	0.126033	0.026334	0.4122	0.0251	41.2512	2.487	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.4875	43.74
235	696001.6	4146151.4	0.03471	0.00385	0.00241	0.00574	0.00000	0.00021	0.00066	0.00240	0.00209	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	36.430	0.36735	0.02001	0.115012	0.024044	0.3778	0.0229	37.3573	2.194	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.1936	39.55
236	696031.6	4146151.6	0.03182	0.00357	0.00225	0.00530	0.00000	0.00020	0.00061	0.00221	0.00188	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	33.397	0.34063	0.01868	0.106196	0.022899	0.3492	0.0211	34.2556	1.973	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.9732	36.23
237	696061.6	4146151.8	0.02939	0.00335	0.00212	0.00493	0.00000	0.00019	0.00057	0.00206	0.00171	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	30.847	0.31964	0.01760	0.098783	0.021754	0.3263	0.0197	31.6503	1.795	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7947	33.45
238	696091.6	4146152.0	0.02720	0.00316	0.00200	0.00461	0.00000	0.00018	0.00054	0.00192	0.00156	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	28.548	0.30151	0.01660	0.092371	0.020610	0.3091	0.0183	29.3065	1.637	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6373	30.94
239	696121.6	4146152.2	0.02529	0.00299	0.00191	0.00434	0.00000	0.00017	0.00051	0.00180	0.00143	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	26.543	0.28529	0.01586	0.086961	0.019465	0.2920	0.0172	27.2600	1.501	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5009	28.76
240	696151.6	4146152.3	0.02358	0.00285	0.00182	0.00410	0.00000	0.00016	0.00049	0.00170	0.00131	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	24.749	0.27193	0.01511	0.082152	0.018320	0.2805	0.0162	25.4328	1.375	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3749	26.81
241	696181.6	4146152.5	0.02207	0.00272	0.00175	0.00389	0.00000	0.00015	0.00046	0.00161	0.00121	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.164	0.25953	0.01453	0.077944	0.017175	0.2633	0.0154	23.8116	1.270	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2700	25.08
242	696211.6	4146152.7	0.02073	0.00262	0.00169	0.00370	0.00000	0.00015	0.00044	0.00153	0.00113	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.757	0.24999	0.01403	0.074137	0.017175	0.2519	0.0146	22.3792	1.186	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1860	23.57
243	696241.6	4146152.9	0.01952	0.00253	0.00164	0.00354	0.00000	0.00014	0.00043	0.00147	0.00105	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.487	0.24140	0.01361	0.070931	0.016030	0.2462	0.0140	21.0895	1.102	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1020	22.19
244	696271.6	4146153.1	0.01845	0.00245	0.00160	0.00341	0.00000	0.00014	0.00041	0.00141	0.00098	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.364	0.23377	0.01328	0.068326	0.016030	0.2347	0.0135	19.9439	1.029	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0286	20.97
245	696301.6	4146153.3	0.01748	0.00239	0.00156	0.00329	0.00000	0.00014	0.00040	0.00135	0.00092	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.346	0.22804	0.01295	0.065922	0.016030	0.2290	0.0129	18.9111	0.966	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9656	19.88

Receptor No. (m)	UTM-X (m)	UTM-Y (m)	2045 Operation - Total Roads Period Average Concentration								2045 Operation - Rail Line Period Average Concentration								2045 - Total Roads Cancer Risks							2045 Roads Cancer Risks	2045 - Rail Line Cancer Risks							2045 Rail Cancer Risks	Total Cancer
			DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde	Total	DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde	Total	Risk
246	696331.6	4146153.4	0.01660	0.00233	0.00154	0.00318	0.00000	0.00013	0.00039	0.00131	0.00087	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.423	0.22232	0.01278	0.063718	0.014885	0.2233	0.0125	17.9721	0.913	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9131	18.89
247	696361.6	4146153.6	0.01580	0.00229	0.00152	0.00310	0.00000	0.00013	0.00039	0.00127	0.00082	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.583	0.21850	0.01262	0.062115	0.014885	0.2233	0.0121	17.1265	0.861	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8606	17.99
248	696391.6	4146153.8	0.01507	0.00226	0.00151	0.00302	0.00000	0.00013	0.00038	0.00124	0.00077	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.817	0.21564	0.01253	0.060512	0.014885	0.2175	0.0118	16.3498	0.808	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8082	17.16
249	696421.6	4146154.0	0.01441	0.00225	0.00151	0.00297	0.00000	0.00013	0.00038	0.00121	0.00073	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.124	0.21468	0.01253	0.059510	0.014885	0.2175	0.0115	15.6548	0.766	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7662	16.42
250	696451.6	4146154.2	0.01381	0.00225	0.00151	0.00293	0.00000	0.00013	0.00038	0.00119	0.00069	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.494	0.21468	0.01253	0.058708	0.014885	0.2175	0.0114	15.0241	0.724	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7242	15.75
251	696481.6	4146154.4	0.01327	0.00226	0.00154	0.00291	0.00000	0.00013	0.00038	0.00118	0.00066	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.928	0.21564	0.01278	0.058308	0.014885	0.2175	0.0113	14.4581	0.693	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6927	15.15
252	696511.6	4146154.5	0.01278	0.00231	0.00158	0.00292	0.00000	0.00014	0.00038	0.00118	0.00063	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.413	0.22041	0.01312	0.058508	0.016030	0.2175	0.0113	13.9502	0.661	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6612	14.61
253	696541.6	4146154.7	0.01235	0.00239	0.00164	0.00297	0.00000	0.00014	0.00040	0.00120	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.962	0.22804	0.01361	0.059510	0.016030	0.2290	0.0114	13.5197	0.630	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6297	14.15
254	696571.6	4146154.9	0.01199	0.00252	0.00176	0.00307	0.00000	0.00015	0.00042	0.00123	0.00057	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.584	0.24044	0.01461	0.061514	0.017175	0.2404	0.0117	13.1701	0.598	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5982	13.77
255	696601.5	4146155.1	0.01172	0.00277	0.00195	0.00328	0.00000	0.00017	0.00045	0.00131	0.00054	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.301	0.26430	0.01619	0.065721	0.019465	0.2576	0.0125	12.9366	0.567	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5668	13.50
256	696631.5	4146155.3	0.01161	0.00323	0.00231	0.00371	0.00000	0.00020	0.00053	0.00147	0.00052	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.185	0.30819	0.01918	0.074337	0.022899	0.3034	0.0140	12.9274	0.546	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5458	13.47
257	696661.5	4146155.5	0.01184	0.00435	0.00316	0.00478	0.00000	0.00027	0.00071	0.00188	0.00050	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.427	0.41505	0.02623	0.095777	0.030914	0.4065	0.0179	13.4191	0.525	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5248	13.94
258	695821.4	4146180.3	0.06688	0.00710	0.00436	0.01095	0.00000	0.00038	0.00123	0.00461	0.00510	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	70.194	0.67744	0.03619	0.219405	0.043509	0.7042	0.0440	71.9191	5.353	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	5.3527	77.27
259	695851.4	4146180.5	0.05659	0.00600	0.00370	0.00921	0.00000	0.00033	0.00104	0.00387	0.00396	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	59.394	0.57249	0.03071	0.184541	0.037784	0.5954	0.0369	60.8523	4.156	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.1563	65.01
260	695881.4	4146180.7	0.04938	0.00525	0.00325	0.00801	0.00000	0.00029	0.00091	0.00336	0.00327	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	51.827	0.50093	0.02698	0.160497	0.033204	0.5210	0.0321	53.1018	3.432	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.4321	56.53
261	695911.4	4146180.9	0.04358	0.00467	0.00290	0.00709	0.00000	0.00026	0.00081	0.00297	0.00277	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	45.740	0.44559	0.02407	0.142062	0.029769	0.4637	0.0283	46.8733	2.907	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.9073	49.78
262	695941.4	4146181.1	0.03878	0.00422	0.00263	0.00635	0.00000	0.00023	0.00073	0.00266	0.00237	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	40.702	0.40265	0.02183	0.127235	0.026334	0.4179	0.0254	41.7232	2.487	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.4875	44.21
263	695971.4	4146181.2	0.03489	0.00385	0.00241	0.00576	0.00000	0.00021	0.00066	0.00241	0.00208	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	36.619	0.36735	0.02001	0.115413	0.024044	0.3778	0.0230	37.5467	2.183	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.1831	39.73
264	696001.4	4146181.4	0.03178	0.00356	0.00224	0.00529	0.00000	0.00020	0.00061	0.00221	0.00185	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	33.355	0.33968	0.01859	0.105996	0.022899	0.3492	0.0211	34.2124	1.942	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.9417	36.15
265	696031.4	4146181.6	0.02934	0.00333	0.00210	0.00492	0.00000	0.00018	0.00057	0.00205	0.00168	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	30.794	0.31773	0.01743	0.098582	0.020610	0.3263	0.0196	31.5943	1.763	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7633	33.36
266	696061.4	4146181.8	0.02744	0.00315	0.00200	0.00463	0.00000	0.00017	0.00054	0.00193	0.00156	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	28.800	0.30056	0.01660	0.092771	0.019465	0.3091	0.0184	29.5568	1.637	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6373	31.19
267	696091.4	4146182.0	0.02548	0.00298	0.00190	0.00434	0.00000	0.00017	0.00051	0.00181	0.00143	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	26.743	0.28433	0.01577	0.086961	0.019465	0.2920	0.0173	27.4585	1.501	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5009	28.96
268	696121.4	4146182.2	0.02376	0.00283	0.00181	0.00409	0.00000	0.00016	0.00048	0.00170	0.00132	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	24.938	0.27002	0.01502	0.081951	0.018320	0.2748	0.0162	25.6138	1.385	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3854	27.00
269	696151.4	4146182.3	0.02222	0.00270	0.00173	0.00388	0.00000	0.00015	0.00046	0.00161	0.00122	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.321	0.25762	0.01436	0.077744	0.017175	0.2633	0.0154	23.9668	1.280	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2805	25.25
270	696181.4	4146182.5	0.02085	0.00259	0.00167	0.00369	0.00000	0.00015	0.00044	0.00153	0.00113	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.883	0.24712	0.01386	0.073937	0.017175	0.2519	0.0146	22.5019	1.186	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1860	23.69
271	696211.4	4146182.7	0.01962	0.00249	0.00161	0.00352	0.00000	0.00014	0.00042	0.00146	0.00106	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.592	0.23758	0.01336	0.070530	0.016030	0.2404	0.0139	21.1842	1.113	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1125	22.30
272	696241.4	4146182.9	0.01852	0.00241	0.00157	0.00338	0.00000	0.00014	0.00041	0.00140	0.00099	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.438	0.22995	0.01303	0.067725	0.016030	0.2347	0.0134	20.0126	1.039	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0391	21.05
273	696271.4	4146183.1	0.01753	0.00234	0.00153	0.00325	0.00000	0.00013	0.00040	0.00134	0.00093	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.399	0.22327	0.01270	0.065120	0.014885	0.2290	0.0128	18.9565	0.976	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9761	19.93
274	696301.4	4146183.3	0.01664	0.00228	0.00150	0.00314	0.00000	0.00013	0.00039	0.00129	0.00087	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.465	0.21754	0.01245	0.062916	0.014885	0.2233	0.0123	18.0080	0.913	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9131	18.92
275	696331.4	4146183.4	0.01583	0.00224	0.00148	0.00305	0.00000	0.00013	0.00038	0.00125	0.00082	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.615	0.21373	0.01229	0.061113	0.014885	0.2175	0.0119	17.1460	0.861	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8606	18.01
276	696361.4	4146183.6	0.01510	0.00220	0.00146	0.00297	0.00000	0.00013	0.00037	0.00122	0.00078	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.848	0.20991	0.01212	0.059510	0.014885	0.2118	0.0116	16.3682	0.819	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8187	17.19
277	696391.4	4146183.8	0.01443	0.00217	0.00145	0.00290	0.00000	0.00013	0.00037	0.00119	0.00073	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.145	0.20705	0.01204	0.058107	0.014885	0.2118	0.0114	15.6604	0.766	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7662	16.43
278	696421.4	4146184.0	0.01381	0.00216	0.00145	0.00285	0.00000	0.00013	0.00036	0.00117	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.494	0.20610	0.01204	0.057106	0.014885	0.2061	0.0112	15.0018	0.735	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7347	15.74
279	696451.4	4146184.2	0.01325	0.00216	0.00146	0.00282	0.00000	0.00013	0.00036	0.00115	0.00066	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.907	0.20610	0.01212	0.056504	0.014885	0.2061	0.0110	14.4133	0.693	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6927	15.11
280	696481.4	4146184.4	0.01275	0.00218	0.00148	0.00280	0.00000	0.00013	0.00036	0.00114	0.00063	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.382	0.20800	0.01229	0.056104	0.014885	0.2061	0.0109	13.8901	0.661	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6612	14.55
281	696511.4	4146184.5	0.01230	0.00222	0.00152	0.00282	0.00000	0.00013	0.00037	0.00114	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.910	0.21182	0.01262	0.056504	0.014885	0.2118	0.0109	13.4281	0.630	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6297	14.06
282	696541.4	4146184.7	0.01190	0.00229	0.00158	0.00286	0.00000	0.00014	0.00038	0.00116	0.00057	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.490	0.21850	0.01312	0.057306	0.016030	0.2175	0.0111	13.0233	0.598	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5982	13.62
283	696571.4	4146184.9	0.01157	0.00242	0.00168	0.00296	0.00000	0.00014	0.00040	0.00119	0.00055	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.143	0.23090	0.01395	0.059310	0.016030	0.2290	0.0114	12.7039	0.577	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5773	13.28
284	696601.4	4146185.1	0.01132	0.00263	0.00185	0.00315	0.00000	0.00016	0.00043	0.00126	0.00052	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.881	0.25094	0.01536	0.063117	0.018320	0.2462	0.0120	12.4869	0.546	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5458	13.03
285	696631.4	4146185.3	0.01122	0.00303	0.00216	0.00353	0.00000	0.00018	0.00050	0.00141	0.00050	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.776	0.28911	0.01793	0.070731	0.020610	0.2862	0.0135	12.4741	0.525	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5248	13.00
286	696661.4	4146185.5	0.01142	0.00395	0.00285	0.00447	0.00000	0.00024	0.00064	0.00177	0.00048	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.986	0.37689	0.02366	0.089565	0.027479	0.3664	0.0169	12.8868	0.504	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5038	13.39
287	695791.2	4146210.1	0.06793	0.00725	0.00445	0.01120	0.00000	0.00039	0.00126	0.00471	0.00501	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	71.296	0.69175	0.03694	0.224415	0.044654	0.7213	0.0449	73.0605	5.258	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	5.2583	78.32
288	695821.2	4146210.3	0.05736	0.00610	0.00376	0.00937	0.00000	0.00033	0.00106	0.00394	0.00391	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	60.203	0.58203	0.03121	0.187747	0.037784	0.6068	0.0376	61.6859	4.104	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.1038	65.79
289	695851.2	4146210.5	0.04984	0.00531	0.00328	0.00812	0.00000	0.00029	0.00092	0.00341	0.00323	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	52.310	0.50665	0.02723	0.162701	0.033204	0.5267	0.0325	53.5990	3.390	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.3901	56.99
290	695881.2	4146210.7	0.04405	0.00472	0.00293	0.00717	0.00000	0.00026	0.00082	0.00301	0.00275	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	46.233	0.45036	0.02432	0.143665	0.029769	0.4694	0.0287	47.3793	2.886	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.8863	50.27
291	695911.2	4146210.9	0.03933	0.00426	0.00265	0.00643	0.00000	0.00023	0.00073	0.00270	0.00238	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	41.279	0.40647	0.02200	0.128838	0.026334	0.4179	0.0258	42.3064	2.498	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.4979	44.80
292	695941.2	4146211.1	0.03540	0.00388	0.00243	0.00583	0.00000	0.00021	0.00067	0.00244	0.00209	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	37.154	0.37021	0.02017	0.116816	0.024044	0.3836	0.0233	38.0924	2.194	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.1936	40.29
293	695971.2	4146211.2	0.03212	0.00358	0.00224	0.00533	0.00000	0.00020	0.00061	0.00223	0.00186	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	33.712	0.34158	0.01859	0.106797	0.022899	0.3492	0.0213	34.5722	1.952	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.9522	36.52
294	696001.2	4146211.4	0.02939	0.00332	0.00209	0.00492	0.00000	0.00018	0.00057	0.00206	0.00167	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	30.847	0.31678	0.01735	0.098582	0.020610	0.3263	0.0197	31.6458	1.753	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7528	33.40
295	696031.2	4146211.6	0.02731	0.00313	0.00198	0.00461	0.00000	0.00017	0.00054	0.00192	0.00154	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	28.663	0.29865	0.01644	0.092371	0.019465	0.3091	0.0183	29.4178	1.616	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6163	31.03
296	696061.2	4146211.8	0.02567	0.00297	0.00189	0.00435	0.00000	0.00017	0.00051	0.00181	0.00144	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	26.942	0.28338	0.01569	0.087161	0.019465	0.2920	0.0173	27.6571	1.511	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5114	29.17
297	696091.2	4146212.0	0.02390	0.00282	0.00180	0.00409	0.00000	0.00016	0.00048	0.00170	0.00133	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.084	0.26907	0.01494	0.081951	0.018320	0.2748	0.0162	25.7597	1.396	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3959	27.16
298	696121.2	4146212.2	0.02235	0.00269	0.00172	0.00387	0.00000	0.00015	0.00046	0.00161	0.00123	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.458	0.25666	0.01428	0.077543	0.017175	0.2633	0.0154	24.1020	1.291	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2910	25.39
299	696151.2	4146212.3	0.02096	0.00257	0.00165	0.00368	0.00000	0.00014	0.00044	0.00153	0.00114	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.999	0.24521	0.01370	0.073736	0.016030	0.2519	0.0146	22.6139	1.196	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1965	23.81
300	696181.2	4146212.5	0.01972	0.00247	0.00159	0.00350	0.00000	0.00014	0.00042	0.00145	0.00106	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.697	0.23567	0.01320	0.070130	0.016030	0.2404	0.0138	21.2866	1.113	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1125	22.40
301	696211.2	4146212.7	0.01860	0.00238	0.00154	0.00335	0.00000	0.00013	0.00040	0.00139	0.00099	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.522	0.22709	0.01278	0.067124	0.014885	0.2290	0.0133	20.0859	1.039	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0391	21.12
302	696241.2	4146212.9	0.01759	0.00231	0.00150	0.00322	0.00000	0.00013	0.00039	0.00133	0.00093	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.462	0.22041	0.01245	0.064519	0.014885	0.2233	0.0127	19.0100	0.976	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9761	19.99
303	696271.2	4146213.1	0.01669	0.00224	0.00147	0.00311	0.00000	0.00013	0.00038	0.00128	0.00088	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.517	0.21373	0.01220	0.062315	0.014885	0.2175	0.0122	18.0500	0.924	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9236	18.97
304	696301.2	4146213.3	0.01587	0.00219	0.00144	0.00301	0.00000	0.00013	0.00037	0.00124	0.00083	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.656	0.20896	0.01195	0.060311	0.014885	0.2118	0.0118	17.1762	0.871	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8711	18.05
305	696331.2	4146213.4	0.01512	0.00215	0.00142	0.00293	0.00000	0.00012	0.00036	0.00120	0.00078	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.869	0.20514	0.01179	0.058708	0.013740	0.2061	0.0114	16.3762	0.819	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8187	17.19
306	696361.2	4146213.6	0.01444	0.00212	0.00141	0.00285	0.00000	0.00012	0.00036	0.00117	0.00074	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.156	0.20228	0.01170	0.057106	0.013740	0.2061	0.0112	15.6577	0.777	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7767	16.43
307	696391.2	4146213.8	0.01382	0.00210	0.00140	0.00279	0.00000	0.00012	0.00035	0.00115	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.505	0.20037	0.01162	0.055903	0.013740	0.2004	0.0110	14.9979	0.735	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7347	15.73
308	696421.2	4146214.0	0.01325	0.00208	0.00140	0.00275	0.00000	0.00012	0.00035	0.00112	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.907	0.19846	0.01162	0.055102	0.013740	0.2004	0.0107	14.3966	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	15.10
309	696451.2	4146214.2	0.01273	0.00209	0.00141	0.00272	0.00000	0.00012	0.00035	0.00111	0.00063	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.361	0.19942	0.01170	0.054501	0.013740	0.2004	0.0106	13.8512	0.661	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6612	14.51
310	696481.2	4146214.4	0.01226	0.00210	0.00143	0.00271	0.00000	0.00012	0.00035	0.00110	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.868	0.20037	0.01187	0.054300	0.013740	0.2004	0.0105	13.3587	0.630	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6297	13.99
311	696511.2	4146214.5	0.01185	0.00214	0.00146	0.00272	0.00000	0.00013	0.00036	0.00110	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.437	0.20419	0.01212	0.054501	0.014885	0.2061	0.0105	12.9395	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.55
312	696541.2	4146214.7	0.01148	0.00221	0.00152	0.00277	0.00000	0.00013	0.00037	0.00112	0.00055	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.049	0.21087	0.01262	0.055503	0.014885	0.2118	0.0107	12.5653	0.577	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5773	13.14
313	696571.2	4146214.9	0.01117	0.00233	0.00162	0.00286	0.00000	0.00014	0.00038	0.00115	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.724	0.22232	0.01345	0.057306	0.016030	0.2175	0.0110	12.2612	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	12.82
314	696601.2	4146215.1	0.01095	0.00252	0.00177	0.00305	0.00000	0.00015	0.00041	0.00122	0.00050	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.493	0.24044	0.01469	0.061113	0.017175	0.2347	0.0116	12.0724	0.525	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5248	12.60
315	696631.2	4146215.3	0.01086	0.00289	0.00205	0.00341	0.00000	0.00017	0.00047	0.00136	0.00048	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.398	0.27575	0.01702	0.068326	0.019465	0.2691	0.0130	12.0608	0.504	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5038	12.56
316	696661.2	4146215.5	0.01107	0.00376	0.00271	0.00431	0.00000	0.00023	0.00061	0.00171	0.00046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.619	0.35876	0.02250	0.086360	0.026334	0.3492	0.0163	12.4781	0.483	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4828	12.96
317	695761.0	4146240.0	0.07046	0.00753	0.00461	0.01165	0.00000	0.00041	0.00131	0.00490	0.00511	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	73.952	0.71847	0.03827	0.233431	0.046944	0.7500	0.0468	75.7857	5.363	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	5.3632	81.15
318	695791.0	4146240.1	0.05887	0.00626	0.00385	0.00964	0.00000	0.00034	0.00108	0.00405	0.00395	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	61.787	0.59729	0.03196	0.193157	0.038929	0.6183	0.0386	63.3058	4.146	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.1458	67.45
319	695821.0	4146240.3	0.05076	0.00541	0.00334	0.00827	0.00000	0.00029	0.00093	0.00347	0.00324	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	53.276	0.51619	0.02773	0.165706	0.033204	0.5324	0.0331	54.5839	3.401	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.4006	57.98
320	695851.0	4146240.5	0.04460	0.00478	0.00296	0.00727	0.00000	0.00026	0.00083	0.00305	0.00275	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	46.810	0.45608	0.02457	0.145669	0.029769	0.4752	0.0291	47.9707	2.886	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.8863	50.86
321	695881.0	4146240.7	0.03975	0.00430	0.00267	0.00650	0.00000	0.00024	0.00074	0.00273	0.00238	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	41.720	0.41028	0.02216	0.130241	0.027479	0.4236	0.0260	42.7598	2.498	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.4979	45.26
322	695911.0	4146240.9	0.03583	0.00392	0.00244	0.00589	0.00000	0.00022	0.00067	0.00247	0.00210	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	37.606	0.37402	0.02025	0.118018	0.025189	0.3836	0.0236	38.5503	2.204	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2041	40.75
323	695941.0	4146241.1	0.03253	0.00360	0.00226	0.00539	0.00000	0.00020	0.00062	0.00225	0.00187	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	34.142	0.34349	0.01876	0.108000	0.022899	0.3549	0.0215	35.0117	1.963	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.9627	36.97
324	695971.0	4146241.2	0.02972	0.00334	0.00210	0.00496	0.00000	0.00018	0.00057	0.00207	0.00168	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	31.193	0.31868	0.01743	0.099384	0.020610	0.3263	0.0198	31.9950	1.763	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7633	33.76
325	696001.0	4146241.4	0.02734	0.00312	0.00197	0.00460	0.00000	0.00017	0.00054	0.00192	0.00153	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	28.695	0.29769	0.01635	0.092170	0.019465	0.3091	0.0183	29.4481	1.606	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6058	31.05
326	696031.0	4146241.6	0.02574	0.00297	0.00188	0.00435	0.00000	0.00016	0.00051	0.00181	0.00143	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.016	0.28338	0.01561	0.087161	0.018320	0.2920	0.0173	27.7293	1.501	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5009	29.23
327	696061.0	4146241.8	0.02405	0.00281	0.00179	0.00410	0.00000	0.00016	0.00048	0.00171	0.00133	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.242	0.26811	0.01486	0.082152	0.018320	0.2748	0.0163	25.9164	1.396	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3959	27.31
328	696091.0	4146242.0	0.02246	0.00268	0.00171	0.00387	0.00000	0.00015	0.00046	0.00161	0.00123	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.573	0.25571	0.01419	0.077543	0.017175	0.2633	0.0154	24.2164	1.291	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2910	25.51
329	696121.0	4146242.2	0.02105	0.00256	0.00164	0.00367	0.00000	0.00014	0.00044	0.00152	0.00114	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.093	0.24426	0.01361	0.073536	0.016030	0.2519	0.0145	22.7070	1.196	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1965	23.90
330	696151.0	4146242.3	0.01980	0.00245	0.00158	0.00349	0.00000	0.00014	0.00042	0.00145	0.00107	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.781	0.23377	0.01312	0.069929	0.016030	0.2404	0.0138	21.3684	1.123	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1230	22.49
331	696181.0	4146242.5	0.01867	0.00236	0.00153	0.00334	0.00000	0.00013	0.00040	0.00138	0.00100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.595	0.22518	0.01270	0.066924	0.014885	0.2290	0.0132	20.1571	1.050	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0496	21.21
332	696211.0	4146242.7	0.01765	0.00228	0.00148	0.00320	0.00000	0.00013	0.00039	0.00133	0.00094	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.525	0.21754	0.01229	0.064118	0.014885	0.2233	0.0127	19.0695	0.987	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9866	20.06
333	696241.0	4146242.9	0.01673	0.00222	0.00145	0.00308	0.00000	0.00013	0.00038	0.00127	0.00088	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.559	0.21182	0.01204	0.061714	0.014885	0.2175	0.0121	18.0892	0.924	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9236	19.01
334	696271.0	4146243.1	0.01590	0.00216	0.00142	0.00298	0.00000	0.00012	0.00036	0.00123	0.00083	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.688	0.20610	0.01179	0.059710	0.013740	0.2061	0.0117	17.1971	0.871	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8711	18.07
335	696301.0	4146243.3	0.01514	0.00211	0.00139	0.00289	0.00000	0.00012	0.00036	0.00119	0.00078	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.890	0.20132	0.01154	0.057907	0.013740	0.2061	0.0114	16.3923	0.819	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8187	17.21
336	696331.0	4146243.4	0.01446	0.00207	0.00137	0.00282	0.00000	0.00012	0.00035	0.00116	0.00074	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.177	0.19751	0.01137	0.056504	0.013740	0.2004	0.0111	15.6672	0.777	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7767	16.44
337	696361.0	4146243.6	0.01383	0.00205	0.00136	0.00275	0.00000	0.00012	0.00034	0.00113	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.515	0.19560	0.01129	0.055102	0.013740	0.1946	0.0108	14.9965	0.735	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7347	15.73
338	696391.0	4146243.8	0.01325	0.00203	0.00135	0.00270	0.00000	0.00012	0.00034	0.00111	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.907	0.19369	0.01121	0.054100	0.013740	0.1946	0.0106	14.3846	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	15.09
339	696421.0	4146244.0	0.01272	0.00202	0.00135	0.00266	0.00000	0.00012	0.00034	0.00109	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.350	0.19274	0.01121	0.053298	0.013740	0.1946	0.0104	13.8264	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	14.50
340	696451.0	4146244.2	0.01224	0.00202	0.00136	0.00263	0.00000	0.00012	0.00034	0.00107	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.847	0.19274	0.01129	0.052697	0.013740	0.1946	0.0102	13.3219	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	13.96
341	696481.0	4146244.4	0.01181	0.00204	0.00138	0.00262	0.00000	0.00012	0.00034	0.00107	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.395	0.19465	0.01146	0.052497	0.013740	0.1946	0.0102	12.8725	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.48
342	696511.0	4146244.5	0.01142	0.00208	0.00142	0.00264	0.00000	0.00012	0.00034	0.00107	0.00055	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.986	0.19846	0.01179	0.052898	0.013740	0.1946	0.0102	12.4677	0.577	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5773	13.04
343	696541.0	4146244.7	0.01108	0.00214	0.00148	0.00269	0.00000	0.00013	0.00035	0.00109	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.629	0.20419	0.01229	0.053900	0.014885	0.2004	0.0104	12.1251	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	12.68
344	696571.0	4146244.9	0.01080	0.00225	0.00156	0.00278	0.00000	0.00013	0.00037	0.00112	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.335	0.21468	0.01295	0.055703	0.014885	0.2118	0.0107	11.8560	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	12.39
345	696601.0	4146245.1	0.01060	0.00244	0.00171	0.00296	0.00000	0.00015	0.00040	0.00119	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.125	0.23281	0.01419	0.059310	0.017175	0.2290	0.0114	11.6892	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	12.20
346	696631.0	4146245.3	0.01052	0.00280	0.00198	0.00332	0.00000	0.00017	0.00046	0.00133	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.041	0.26716	0.01644	0.066523	0.019465	0.2633	0.0127	11.6870	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	12.18
347	696661.0	4146245.5	0.01075	0.00365	0.00263	0.00420	0.00000	0.00022	0.00059	0.00167	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.283	0.34826	0.02183	0.084155	0.025189	0.3378	0.0159	12.1159	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	12.59
348	695730.8	4146269.8	0.07311	0.00783	0.00479	0.01213	0.00000	0.00042	0.00136	0.00510	0.00520	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	76.733	0.74709	0.03976	0.243049	0.048089	0.7786	0.0487	78.6384	5.458	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	5.4577	84.10
349	695760.8	4146270.0	0.06055	0.00644	0.00396	0.00993	0.00000	0.00035	0.00112	0.00417	0.00400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	63.551	0.61447	0.03287	0.198968	0.040074	0.6412	0.0398	65.1181	4.198	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.1982	69.32
350	695790.8	4146270.1	0.05202	0.00553	0.00341	0.00848	0.00000	0.00030	0.00096	0.00356	0.00328	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	54.598	0.52764	0.02831	0.169914	0.034349	0.5496	0.0340	55.9418	3.443	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.4426	59.38
351	695820.8	4146270.3	0.04552	0.00487	0.00301	0.00742	0.00000	0.00027	0.00084	0.00311	0.00278	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	47.776	0.46467	0.02499	0.148675	0.030914	0.4809	0.0297	48.9557	2.918	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.9178	51.87
352	695850.8	4146270.5	0.04042	0.00436	0.00271	0.00660	0.00000	0.00024	0.00075	0.00277	0.00240	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	42.423	0.41601	0.02250	0.132244	0.027479	0.4294	0.0264	43.4772	2.519	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.5189	46.00
353	695880.8	4146270.7	0.03629	0.00395	0.00247	0.00596	0.00000	0.00022	0.00068	0.00250	0.00211	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	38.088	0.37689	0.02050	0.119421	0.025189	0.3893	0.0239	39.0436	2.215	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2146	41.26
354	695910.8	4146270.9	0.03286	0.00363	0.00227	0.00543	0.00000	0.00020	0.00062	0.00227	0.00188	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	34.488	0.34635	0.01884	0.108801	0.022899	0.3549	0.0217	35.3620	1.973	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.9732	37.34
355	695940.8	4146271.1	0.03001	0.00336	0.00211	0.00500	0.00000	0.00019	0.00058	0.00209	0.00169	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	31.497	0.32059	0.01752	0.100185	0.021754	0.3320	0.0199	32.3093	1.774	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7738	34.08
356	695970.8	4146271.2	0.02760	0.00313	0.00198	0.00463	0.00000	0.00017	0.00054	0.00193	0.00154	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	28.968	0.29865	0.01644	0.092771	0.019465	0.3091	0.0184	29.7227	1.616	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6163	31.34
357	696000.8	4146271.4	0.02564	0.00295	0.00187	0.00434	0.00000	0.00016	0.00051	0.00181	0.00142	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	26.911	0.28147	0.01552	0.086961	0.018320	0.2920	0.0173	27.6222	1.490	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4904	29.11
358	696030.8	4146271.6	0.02418	0.00281	0.00179	0.00411	0.00000	0.00016	0.00048	0.00171	0.00133	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.378	0.26811	0.01486	0.082352	0.018320	0.2748	0.0163	26.0531	1.396	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3959	27.45
359	696060.8	4146271.8	0.02257	0.00267	0.00170	0.00387	0.00000	0.00015	0.00046	0.00161	0.00123	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.689	0.25476	0.01411	0.077543	0.017175	0.2633	0.0154	24.3308	1.291	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2910	25.62
360	696090.8	4146272.0	0.02113	0.00255	0.00163	0.00367	0.00000	0.00014	0.00043	0.00152	0.00115	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.177	0.24331	0.01353	0.073536	0.016030	0.2462	0.0145	22.7842	1.207	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2070	23.99
361	696120.8	4146272.2	0.01986	0.00244	0.00157	0.00349	0.00000	0.00014	0.00042	0.00145	0.00107	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.844	0.23281	0.01303	0.069929	0.016030	0.2404	0.0138	21.4303	1.123	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1230	22.55
362	696150.8	4146272.3	0.01872	0.00234	0.00151	0.00333	0.00000	0.00013	0.00040	0.00138	0.00100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.648	0.22327	0.01253	0.066723	0.014885	0.2290	0.0132	20.2073	1.050	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0496	21.26
363	696180.8	4146272.5	0.01769	0.00226	0.00147	0.00319	0.00000	0.00013	0.00038	0.00132	0.00094	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.567	0.21564	0.01220	0.063918	0.014885	0.2175	0.0126	19.1035	0.987	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9866	20.09
364	696210.8	4146272.7	0.01676	0.00219	0.00143	0.00307	0.00000	0.00012	0.00037	0.00127	0.00088	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.591	0.20896	0.01187	0.061514	0.013740	0.2118	0.0121	18.1106	0.924	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9236	19.03
365	696240.8	4146272.9	0.01592	0.00213	0.00139	0.00296	0.00000	0.00012	0.00036	0.00122	0.00083	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.709	0.20323	0.01154	0.059310	0.013740	0.2061	0.0116	17.2145	0.871	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8711	18.09
366	696270.8	4146273.1	0.01516	0.00208	0.00137	0.00287	0.00000	0.00012	0.00035	0.00118	0.00079	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.911	0.19846	0.01137	0.057506	0.013740	0.2004	0.0113	16.4040	0.829	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8292	17.23
367	696300.8	4146273.3	0.01447	0.00204	0.00135	0.00279	0.00000	0.00012	0.00034	0.00115	0.00074	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.187	0.19465	0.01121	0.055903	0.013740	0.1946	0.0110	15.6682	0.777	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7767	16.44
368	696330.8	4146273.4	0.01383	0.00201	0.00133	0.00272	0.00000	0.00012	0.00034	0.00112	0.00071	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.515	0.19178	0.01104	0.054501	0.013740	0.1946	0.0107	14.9918	0.745	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7452	15.74
369	696360.8	4146273.6	0.01325	0.00198	0.00132	0.00266	0.00000	0.00011	0.00033	0.00109	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.907	0.18892	0.01096	0.053298	0.012595	0.1889	0.0104	14.3717	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	15.07
370	696390.8	4146273.8	0.01272	0.00196	0.00131	0.00261	0.00000	0.00011	0.00033	0.00107	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.350	0.18701	0.01087	0.052297	0.012595	0.1889	0.0102	13.8123	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	14.48
371	696420.8	4146274.0	0.01223	0.00196	0.00132	0.00258	0.00000	0.00011	0.00033	0.00105	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.836	0.18701	0.01096	0.051696	0.012595	0.1889	0.0100	13.2973	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	13.94
372	696450.8	4146274.2	0.01179	0.00196	0.00133	0.00255	0.00000	0.00011	0.00033	0.00104	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.374	0.18701	0.01104	0.051094	0.012595	0.1889	0.0099	12.8349	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.44
373	696480.8	4146274.4	0.01138	0.00198	0.00135	0.00255	0.00000	0.00012	0.00033	0.00104	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.944	0.18892	0.01121	0.051094	0.013740	0.1889	0.0099	12.4078	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	13.00

Receptor No. (m)	UTM-X (m)	UTM-Y (m)	2045 Operation - Total Roads Period Average Concentration								2045 Operation - Rail Line Period Average Concentration								2045 - Total Roads Cancer Risks							2045 Roads Cancer Risks	2045 - Rail Line Cancer Risks							2045 Rail Cancer Risks	Total Cancer Risk
			DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde	Total	DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde	Total	
374	696510.8	4146274.5	0.01103	0.00202	0.00138	0.00257	0.00000	0.00012	0.00034	0.00104	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.577	0.19274	0.01146	0.051495	0.013740	0.1946	0.0099	12.0506	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	12.61
375	696540.8	4146274.7	0.01071	0.00208	0.00144	0.00262	0.00000	0.00012	0.00034	0.00106	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.241	0.19846	0.01195	0.052497	0.013740	0.1946	0.0101	11.7222	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	12.26
376	696570.8	4146274.9	0.01045	0.00219	0.00152	0.00271	0.00000	0.00013	0.00036	0.00110	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.968	0.20896	0.01262	0.054300	0.014885	0.2061	0.0105	11.4752	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.99
377	696600.8	4146275.1	0.01027	0.00238	0.00167	0.00289	0.00000	0.00014	0.00039	0.00116	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.779	0.22709	0.01386	0.057907	0.016030	0.2233	0.0111	11.3282	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	11.82
378	696630.8	4146275.3	0.01022	0.00273	0.00194	0.00324	0.00000	0.00017	0.00045	0.00130	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.726	0.26048	0.01610	0.064920	0.019465	0.2576	0.0124	11.3575	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	11.83
379	696660.8	4146275.5	0.01046	0.00357	0.00257	0.00412	0.00000	0.00022	0.00058	0.00164	0.00043	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.978	0.34063	0.02133	0.082553	0.025189	0.3320	0.0156	11.7958	0.451	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4513	12.25
380	695700.7	4146299.6	0.07626	0.00818	0.00500	0.01269	0.00000	0.00044	0.00142	0.00534	0.00534	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	80.039	0.78049	0.04151	0.254270	0.050379	0.8129	0.0510	82.0298	5.605	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	5.6046	87.63
381	695730.6	4146299.8	0.06226	0.00663	0.00407	0.01023	0.00000	0.00036	0.00115	0.00430	0.00404	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	65.345	0.63260	0.03379	0.204979	0.041219	0.6584	0.0410	66.9575	4.240	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.2402	71.20
382	695760.6	4146300.0	0.05320	0.00566	0.00349	0.00868	0.00000	0.00031	0.00098	0.00365	0.00331	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	55.836	0.54005	0.02897	0.173921	0.035494	0.5610	0.0348	57.2108	3.474	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.4740	60.68
383	695790.6	4146300.1	0.04641	0.00495	0.00306	0.00756	0.00000	0.00027	0.00086	0.00317	0.00280	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	48.710	0.47230	0.02540	0.151480	0.030914	0.4923	0.0302	49.9127	2.939	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.9388	52.85
384	695820.6	4146300.3	0.04109	0.00442	0.00274	0.00671	0.00000	0.00024	0.00076	0.00281	0.00242	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	43.126	0.42173	0.02274	0.134448	0.027479	0.4351	0.0268	44.1947	2.540	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.5399	46.73
385	695850.6	4146300.5	0.03679	0.00400	0.00249	0.00603	0.00000	0.00022	0.00069	0.00253	0.00213	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	38.613	0.38166	0.02067	0.120823	0.025189	0.3950	0.0241	39.5807	2.236	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2356	41.82
386	695880.6	4146300.7	0.03328	0.00366	0.00229	0.00549	0.00000	0.00020	0.00063	0.00230	0.00190	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	34.929	0.34922	0.01901	0.110003	0.022899	0.3607	0.0219	35.8130	1.994	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.9942	37.81
387	695910.6	4146300.9	0.03027	0.00338	0.00212	0.00503	0.00000	0.00019	0.00058	0.00210	0.00170	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	31.770	0.32250	0.01760	0.100786	0.021754	0.3320	0.0200	32.5848	1.784	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7842	34.37
388	695940.6	4146301.1	0.02778	0.00314	0.00198	0.00465	0.00000	0.00017	0.00054	0.00194	0.00154	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.157	0.29960	0.01644	0.093172	0.019465	0.3091	0.0185	29.9131	1.616	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6163	31.53
389	695970.6	4146301.2	0.02576	0.00295	0.00187	0.00435	0.00000	0.00016	0.00051	0.00181	0.00142	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.037	0.28147	0.01552	0.087161	0.018320	0.2920	0.0173	27.7483	1.490	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4904	29.24
390	696000.6	4146301.4	0.02424	0.00281	0.00178	0.00411	0.00000	0.00016	0.00048	0.00171	0.00133	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.441	0.26811	0.01478	0.082352	0.018320	0.2748	0.0163	26.1160	1.396	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3959	27.51
391	696030.6	4146301.6	0.02265	0.00267	0.00170	0.00387	0.00000	0.00015	0.00046	0.00161	0.00124	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.772	0.25476	0.01411	0.077543	0.017175	0.2633	0.0154	24.4148	1.301	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3015	25.72
392	696060.6	4146301.8	0.02120	0.00254	0.00162	0.00367	0.00000	0.00014	0.00043	0.00152	0.00115	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.251	0.24235	0.01345	0.073536	0.016030	0.2462	0.0145	22.8567	1.207	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2070	24.06
393	696090.6	4146302.0	0.01991	0.00243	0.00156	0.00348	0.00000	0.00014	0.00041	0.00145	0.00107	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.897	0.23186	0.01295	0.069729	0.016030	0.2347	0.0138	21.4758	1.123	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1230	22.60
394	696120.6	4146302.2	0.01876	0.00233	0.00150	0.00332	0.00000	0.00013	0.00040	0.00138	0.00100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.690	0.22232	0.01245	0.066523	0.014885	0.2290	0.0132	20.2480	1.050	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0496	21.30
395	696150.6	4146302.3	0.01772	0.00225	0.00146	0.00318	0.00000	0.00013	0.00038	0.00132	0.00094	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.598	0.21468	0.01212	0.063718	0.014885	0.2175	0.0126	19.1337	0.987	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9866	20.12
396	696180.6	4146302.5	0.01679	0.00218	0.00141	0.00305	0.00000	0.00012	0.00037	0.00126	0.00088	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.622	0.20800	0.01170	0.061113	0.013740	0.2118	0.0120	18.1405	0.924	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9236	19.06
397	696210.6	4146302.7	0.01594	0.00211	0.00138	0.00294	0.00000	0.00012	0.00036	0.00122	0.00083	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.730	0.20132	0.01146	0.058909	0.013740	0.2061	0.0116	17.2331	0.871	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8711	18.10
398	696240.6	4146302.9	0.01517	0.00206	0.00135	0.00285	0.00000	0.00012	0.00035	0.00117	0.00079	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.922	0.19655	0.01121	0.057106	0.013740	0.2004	0.0112	16.4119	0.829	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8292	17.24
399	696270.6	4146303.1	0.01447	0.00201	0.00133	0.00276	0.00000	0.00012	0.00034	0.00114	0.00075	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.187	0.19178	0.01104	0.055302	0.013740	0.1946	0.0109	15.6645	0.787	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7872	16.45
400	696300.6	4146303.3	0.01384	0.00198	0.00131	0.00269	0.00000	0.00011	0.00033	0.00111	0.00071	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.526	0.18892	0.01087	0.053900	0.012595	0.1889	0.0106	14.9917	0.745	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7452	15.74
401	696330.6	4146303.4	0.01325	0.00195	0.00129	0.00263	0.00000	0.00011	0.00033	0.00108	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.907	0.18606	0.01071	0.052697	0.012595	0.1889	0.0103	14.3679	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	15.07
402	696360.6	4146303.6	0.01271	0.00192	0.00128	0.00257	0.00000	0.00011	0.00032	0.00106	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.340	0.18320	0.01063	0.051495	0.012595	0.1832	0.0101	13.7911	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	14.46
403	696390.6	4146303.8	0.01222	0.00191	0.00128	0.00253	0.00000	0.00011	0.00032	0.00104	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.826	0.18224	0.01063	0.050694	0.012595	0.1832	0.0099	13.2749	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	13.92
404	696420.6	4146304.0	0.01177	0.00191	0.00128	0.00250	0.00000	0.00011	0.00032	0.00102	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.353	0.18224	0.01063	0.050093	0.012595	0.1832	0.0097	12.8018	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.41
405	696450.6	4146304.2	0.01136	0.00191	0.00129	0.00249	0.00000	0.00011	0.00032	0.00101	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.923	0.18224	0.01071	0.049892	0.012595	0.1832	0.0096	12.3713	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	12.96
406	696480.6	4146304.4	0.01099	0.00193	0.00132	0.00248	0.00000	0.00011	0.00032	0.00101	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.535	0.18415	0.01096	0.049692	0.012595	0.1832	0.0096	11.9849	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	12.54
407	696510.6	4146304.5	0.01065	0.00197	0.00135	0.00251	0.00000	0.00012	0.00033	0.00102	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.178	0.18797	0.01121	0.050293	0.013740	0.1889	0.0097	11.6397	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	12.17
408	696540.6	4146304.7	0.01037	0.00204	0.00141	0.00256	0.00000	0.00012	0.00034	0.00104	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.884	0.19465	0.01170	0.051295	0.013740	0.1946	0.0099	11.3599	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.87
409	696570.6	4146304.9	0.01013	0.00215	0.00149	0.00265	0.00000	0.00013	0.00035	0.00107	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.632	0.20514	0.01237	0.053098	0.014885	0.2004	0.0102	11.1281	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	11.62
410	696600.6	4146305.1	0.00997	0.00233	0.00164	0.00283	0.00000	0.00014	0.00038	0.00114	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.464	0.22232	0.01361	0.056705	0.016030	0.2175	0.0109	11.0012	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	11.47
411	696630.6	4146305.3	0.00993	0.00268	0.00190	0.00318	0.00000	0.00016	0.00044	0.00128	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.422	0.25571	0.01577	0.063718	0.018320	0.2519	0.0122	11.0397	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	11.50
412	696660.6	4146305.5	0.01018	0.00351	0.00253	0.00405	0.00000	0.00022	0.00057	0.00162	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.685	0.33490	0.02100	0.081150	0.025189	0.3263	0.0155	11.4885	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	11.93
413	695670.5	4146329.4	0.07928	0.00853	0.00521	0.01325	0.00000	0.00046	0.00148	0.00558	0.00545	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	83.209	0.81388	0.04325	0.265491	0.052669	0.8473	0.0532	85.2848	5.720	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	5.7201	91.00
414	695700.5	4146329.6	0.06398	0.00682	0.00418	0.01054	0.00000	0.00037	0.00118	0.00443	0.00409	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	67.151	0.65073	0.03470	0.211190	0.042364	0.6755	0.0423	68.8075	4.293	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.2927	73.10
415	695730.5	4146329.8	0.05436	0.00578	0.00356	0.00888	0.00000	0.00031	0.00100	0.00373	0.00334	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	57.054	0.55150	0.02955	0.177929	0.035494	0.5725	0.0356	58.4565	3.506	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.5055	61.96
416	695760.5	4146330.0	0.04723	0.00504	0.00311	0.00770	0.00000	0.00027	0.00087	0.00323	0.00282	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	49.571	0.48089	0.02582	0.154285	0.030914	0.4981	0.0308	50.7914	2.960	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.9598	53.75
417	695790.5	4146330.1	0.04171	0.00448	0.00278	0.00680	0.00000	0.00024	0.00077	0.00285	0.00244	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	43.777	0.42746	0.02308	0.136252	0.027479	0.4408	0.0272	44.8593	2.561	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.5609	47.42
418	695820.5	4146330.3	0.03726	0.00404	0.00251	0.00610	0.00000	0.00022	0.00070	0.00256	0.00214	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	39.107	0.38547	0.02084	0.122226	0.025189	0.4007	0.0244	40.0854	2.246	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2461	42.33
419	695850.5	4146330.5	0.03362	0.00369	0.00230	0.00554	0.00000	0.00020	0.00063	0.00232	0.00191	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	35.286	0.35208	0.01909	0.111005	0.022899	0.3607	0.0221	36.1740	2.005	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0047	38.18
420	695880.5	4146330.7	0.03061	0.00340	0.00213	0.00507	0.00000	0.00019	0.00058	0.00212	0.00171	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	32.127	0.32441	0.01768	0.101588	0.021754	0.3320	0.0202	32.9447	1.795	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7947	34.74
421	695910.5	4146330.9	0.02795	0.00315	0.00198	0.00467	0.00000	0.00017	0.00054	0.00195	0.00155	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.335	0.30056	0.01644	0.093573	0.019465	0.3091	0.0186	30.0929	1.627	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6268	31.72
422	695940.5	4146331.1	0.02576	0.00295	0.00186	0.00435	0.00000	0.00016	0.00051	0.00181	0.00141	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.037	0.28147	0.01544	0.087161	0.018320	0.2920	0.0173	27.7483	1.480	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4799	29.23
423	695970.5	4146331.2	0.02402	0.00279	0.00177	0.00408	0.00000	0.00015	0.00048	0.00170	0.00131	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.210	0.26621	0.01469	0.081751	0.017175	0.2748	0.0162	25.8812	1.375	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3749	27.26
424	696000.5	4146331.4	0.02271	0.00266	0.00170	0.00388	0.00000	0.00015	0.00046	0.00161	0.00124	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.835	0.25380	0.01411	0.077744	0.017175	0.2633	0.0154	24.4770	1.301	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3015	25.78
425	696030.5	4146331.6	0.02125	0.00254	0.00162	0.00367	0.00000	0.00014	0.00043	0.00152	0.00115	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.303	0.24235	0.01345	0.073536	0.016030	0.2462	0.0145	22.9091	1.207	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2070	24.12
426	696060.5	4146331.8	0.01995	0.00242	0.00155	0.00348	0.00000	0.00014	0.00041	0.00145	0.00107	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.939	0.23090	0.01287	0.069729	0.016030	0.2347	0.0138	21.5168	1.123	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1230	22.64
427	696090.5	4146332.0	0.01879	0.00232	0.00150	0.00332	0.00000	0.00013	0.00040	0.00138	0.00100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.721	0.22136	0.01245	0.066523	0.014885	0.2290	0.0132	20.2786	1.050	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0496	21.33
428	696120.5	4146332.2	0.01774	0.00224	0.00145	0.00317	0.00000	0.00013	0.00038	0.00132	0.00094	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.619	0.21373	0.01204	0.063517	0.014885	0.2175	0.0126	19.1535	0.987	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9866	20.14
429	696150.5	4146332.3	0.01680	0.00216	0.00140	0.00305	0.00000	0.00012	0.00037	0.00126	0.00089	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.633	0.20610	0.01162	0.061113	0.013740	0.2118	0.0120	18.1490	0.934	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9341	19.08
430	696180.5	4146332.5	0.01595	0.00210	0.00137	0.00293	0.00000	0.00012	0.00036	0.00121	0.00083	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.740	0.20037	0.01137	0.058708	0.013740	0.2061	0.0115	17.2423	0.871	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8711	18.11
431	696210.5	4146332.7	0.01518	0.00204	0.00134	0.00283	0.00000	0.00012	0.00035	0.00117	0.00079	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.932	0.19465	0.01112	0.056705	0.013740	0.2004	0.0112	16.4200	0.829	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8292	17.25
432	696240.5	4146332.9	0.01448	0.00200	0.00131	0.00275	0.00000	0.00011	0.00034	0.00113	0.00075	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.198	0.19083	0.01087	0.055102	0.012595	0.1946	0.0108	15.6724	0.787	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7872	16.46
433	696270.5	4146333.1	0.01384	0.00195	0.00129	0.00267	0.00000	0.00011	0.00033	0.00110	0.00071	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.526	0.18606	0.01071	0.053499	0.012595	0.1889	0.0105	14.9882	0.745	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7452	15.73
434	696300.5	4146333.3	0.01325	0.00192	0.00127	0.00260	0.00000	0.00011	0.00032	0.00107	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.907	0.18320	0.01054	0.052096	0.012595	0.1832	0.0102	14.3585	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	15.06
435	696330.5	4146333.4	0.01271	0.00189	0.00126	0.00255	0.00000	0.00011	0.00032	0.00105	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.340	0.18033	0.01046	0.051094	0.012595	0.1832	0.0100	13.7876	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	14.46
436	696360.5	4146333.6	0.01221	0.00188	0.00125	0.00250	0.00000	0.00011	0.00031	0.00103	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.815	0.17938	0.01038	0.050093	0.012595	0.1775	0.0098	13.2548	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	13.90
437	696390.5	4146333.8	0.01176	0.00186	0.00125	0.00246	0.00000	0.00011	0.00031	0.00101	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.343	0.17747	0.01038	0.049291	0.012595	0.1775	0.0096	12.7796	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.39
438	696420.5	4146334.0	0.01134	0.00186	0.00126	0.00244	0.00000	0.00011	0.00031	0.00100	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.902	0.17747	0.01046	0.048890	0.012595	0.1775	0.0095	12.3384	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	12.93
439	696450.5	4146334.2	0.01096	0.00187	0.00127	0.00242	0.00000	0.00011	0.00031	0.00099	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.503	0.17842	0.01054	0.048490	0.012595	0.1775	0.0094	11.9401	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	12.50
440	696480.5	4146334.4	0.01061	0.00189	0.00129	0.00243	0.00000	0.00011	0.00031	0.00099	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.136	0.18033	0.01071	0.048690	0.012595	0.1775	0.0094	11.5751	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	12.11
441	696510.5	4146334.5	0.01030	0.00193	0.00132	0.00245	0.00000	0.00011	0.00032	0.00100	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.810	0.18415	0.01096	0.049091	0.012595	0.1832	0.0095	11.2600	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.77
442	696540.5	4146334.7	0.01004	0.00200	0.00138	0.00250	0.00000	0.00012	0.00033	0.00101	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.538	0.19083	0.01146	0.050093	0.013740	0.1889	0.0096	11.0022	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	11.50
443	696570.5	4146334.9	0.00982	0.00211	0.00147	0.00260	0.00000	0.00013	0.00035	0.00105	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.307	0.20132	0.01220	0.052096	0.014885	0.2004	0.0100	10.7976	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	11.27
444	696600.5	4146335.1	0.00968	0.00229	0.00161	0.00278	0.00000	0.00014	0.00038	0.00112	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.160	0.21850	0.01336	0.055703	0.016030	0.2175	0.0107	10.6916	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	11.15
445	696630.4	4146335.3	0.00965	0.00263	0.00187	0.00313	0.00000	0.00016	0.00043	0.00126	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.128	0.25094	0.01552	0.062716	0.018320	0.2462	0.0120	10.7339	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	11.17
446	696660.4	4146335.5	0.00992	0.00346	0.00249	0.00399	0.00000	0.00021	0.00056	0.00159	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.412	0.33013	0.02067	0.079948	0.024044	0.3206	0.0152	11.2022	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	11.63
447	695640.3	4146359.2	0.08230	0.00888	0.00543	0.01382	0.00000	0.00048	0.00154	0.00582	0.00560	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	86.379	0.84728	0.04507	0.276912	0.054959	0.8816	0.0555	88.5400	5.878	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	5.8775	94.42
448	695670.3	4146359.4	0.06553	0.00700	0.00429	0.01082	0.00000	0.00038	0.00121	0.00455	0.00414	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	68.778	0.66790	0.03561	0.216801	0.043509	0.6927	0.0434	70.4775	4.345	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.3452	74.82
449	695700.3	4146359.6	0.05538	0.00590	0.00363	0.00907	0.00000	0.00032	0.00102	0.00381	0.00337	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	58.125	0.56294	0.03013	0.181736	0.036639	0.5839	0.0364	59.5563	3.537	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.5370	63.09
450	695730.3	4146359.8	0.04795	0.00512	0.00316	0.00782	0.00000	0.00028	0.00088	0.00328	0.00284	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	50.326	0.48852	0.02623	0.156690	0.032059	0.5038	0.0313	51.5649	2.981	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.9807	54.55
451	695760.3	4146360.0	0.04223	0.00453	0.00281	0.00689	0.00000	0.00025	0.00078	0.00289	0.00245	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	44.323	0.43223	0.02333	0.138055	0.028624	0.4465	0.0276	45.4192	2.571	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.5714	47.99
452	695790.3	4146360.1	0.03767	0.00408	0.00254	0.00616	0.00000	0.00022	0.00070	0.00258	0.00215	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	39.537	0.38929	0.02108	0.123428	0.025189	0.4007	0.0246	40.5212	2.257	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2566	42.78
453	695820.3	4146360.3	0.03392	0.00371	0.00232	0.00558	0.00000	0.00020	0.00064	0.00234	0.00191	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	35.601	0.35399	0.01926	0.111807	0.022899	0.3664	0.0223	36.4977	2.005	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0047	38.50
454	695850.3	4146360.5	0.03083	0.00342	0.00214	0.00511	0.00000	0.00019	0.00059	0.00214	0.00172	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	32.358	0.32632	0.01776	0.102389	0.021754	0.3378	0.0204	33.1843	1.805	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.8052	34.99
455	695880.3	4146360.7	0.02829	0.00318	0.00200	0.00472	0.00000	0.00018	0.00055	0.00197	0.00157	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.692	0.30342	0.01660	0.094575	0.020610	0.3149	0.0188	30.4609	1.648	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6478	32.11
456	695910.3	4146360.9	0.02626	0.00299	0.00188	0.00440	0.00000	0.00017	0.00051	0.00184	0.00144	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.561	0.28529	0.01561	0.088163	0.019465	0.2920	0.0176	28.2794	1.511	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5114	29.79
457	695940.3	4146361.1	0.02437	0.00281	0.00178	0.00412	0.00000	0.00016	0.00048	0.00172	0.00133	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.578	0.26811	0.01478	0.082553	0.018320	0.2748	0.0164	26.2527	1.396	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3959	27.65
458	695970.3	4146361.2	0.02271	0.00266	0.00169	0.00388	0.00000	0.00015	0.00046	0.00162	0.00123	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.835	0.25380	0.01403	0.077744	0.017175	0.2633	0.0155	24.4770	1.291	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2910	25.77
459	696000.3	4146361.4	0.02129	0.00253	0.00162	0.00367	0.00000	0.00014	0.00043	0.00153	0.00115	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.345	0.24140	0.01345	0.073536	0.016030	0.2462	0.0146	22.9503	1.207	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2070	24.16
460	696030.3	4146361.6	0.01998	0.00242	0.00155	0.00348	0.00000	0.00014	0.00041	0.00145	0.00107	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.970	0.23090	0.01287	0.069729	0.016030	0.2347	0.0138	21.5483	1.123	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1230	22.67
461	696060.3	4146361.8	0.01881	0.00232	0.00149	0.00331	0.00000	0.00013	0.00039	0.00138	0.00100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.742	0.22136	0.01237	0.066323	0.014885	0.2233	0.0132	20.2936	1.050	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0496	21.34
462	696090.3	4146362.0	0.01776	0.00223	0.00144	0.00317	0.00000	0.00013	0.00038	0.00131	0.00094	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.640	0.21277	0.01195	0.063517	0.014885	0.2175	0.0125	19.1733	0.987	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9866	20.16
463	696120.3	4146362.2	0.01681	0.00216	0.00140	0.00304	0.00000	0.00012	0.00037	0.00126	0.00089	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.643	0.20610	0.01162	0.060913	0.013740	0.2118	0.0120	18.1593	0.934	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9341	19.09
464	696150.3	4146362.3	0.01596	0.00209	0.00136	0.00293	0.00000	0.00012	0.00035	0.00121	0.00083	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.751	0.19942	0.01129	0.058708	0.013740	0.2004	0.0115	17.2460	0.871	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8711	18.12
465	696180.3	4146362.5	0.01518	0.00203	0.00133	0.00282	0.00000	0.00012	0.00034	0.00117	0.00079	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.932	0.19369	0.01104	0.056504	0.013740	0.1946	0.0112	16.4131	0.829	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8292	17.24
466	696210.3	4146362.7	0.01447	0.00198	0.00130	0.00273	0.00000	0.00011	0.00033	0.00113	0.00075	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.187	0.18892	0.01079	0.054701	0.012595	0.1889	0.0108	15.6538	0.787	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7872	16.44
467	696240.3	4146362.9	0.01383	0.00194	0.00128	0.00266	0.00000	0.00011	0.00033	0.00109	0.00071	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.515	0.18510	0.01063	0.053298	0.012595	0.1889	0.0104	14.9763	0.745	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7452	15.72
468	696270.3	4146363.1	0.01324	0.00190	0.00126	0.00259	0.00000	0.00011	0.00032	0.00106	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.896	0.18129	0.01046	0.051896	0.012595	0.1832	0.0101	14.3457	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	15.05
469	696300.3	4146363.3	0.01270	0.00187	0.00124	0.00253	0.00000	0.00011	0.00031	0.00104	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.329	0.17842	0.01029	0.050694	0.012595	0.1775	0.0099	13.7688	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	14.44
470	696330.3	4146363.4	0.01220	0.00185	0.00123	0.00248	0.00000	0.00011	0.00031	0.00102	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.805	0.17652	0.01021	0.049692	0.012595	0.1775	0.0097	13.2408	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	13.88
471	696360.3	4146363.6	0.01175	0.00183	0.00123	0.00243	0.00000	0.00011	0.00031	0.00100	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.332	0.17461	0.01021	0.048690	0.012595	0.1775	0.0095	12.7654	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.37
472	696390.3	4146363.8	0.01132	0.00182	0.00123	0.00240	0.00000	0.00011	0.00030	0.00098	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.881	0.17365	0.01021	0.048089	0.012595	0.1717	0.0094	12.3066	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	12.89
473	696420.3	4146364.0	0.01093	0.00182	0.00123	0.00238	0.00000	0.00011	0.00030	0.00097	0.00054	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.472	0.17365	0.01021	0.047688	0.012595	0.1717	0.0093	11.8968	0.567	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5668	12.46
474	696450.3	4146364.2	0.01058	0.00183	0.00125	0.00237	0.00000	0.00011	0.00031	0.00097	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.104	0.17461	0.01038	0.047488	0.012595	0.1775	0.0093	11.5361	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	12.07
475	696480.3	4146364.4	0.01026	0.00186	0.00127	0.00238	0.00000	0.00011	0.00031	0.00097	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.768	0.17747	0.01054	0.047688	0.012595	0.1775	0.0093	11.2035	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.72
476	696510.3	4146364.5	0.00998	0.00190	0.00130	0.00240	0.00000	0.00011	0.00031	0.00098	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.475	0.18129	0.01079	0.048089	0.012595	0.1775	0.0094	10.9142	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	11.41
477	696540.3	4146364.7	0.00973	0.00197	0.00136	0.00246	0.00000	0.00012	0.00032	0.00100	0.00046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.212	0.18797	0.01129	0.049291	0.013740	0.1832	0.0095	10.6672	0.483	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4828	11.15
478	696570.3	4146364.9	0.00953	0.00208	0.00145	0.00256	0.00000	0.00012	0.00034	0.00103	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.002	0.19846	0.01204	0.051295	0.013740	0.1946	0.0098	10.4823	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	10.94
479	696600.3	4146365.1	0.00940	0.00226	0.00159	0.00274	0.00000	0.00014	0.00037	0.00110	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.866	0.21564	0.01320	0.054901	0.016030	0.2118	0.0105	10.3879	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	10.83
480	696630.3	4146365.3	0.00940	0.00260	0.00185	0.00309	0.00000	0.00016	0.00042	0.00124	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.866	0.24808	0.01536	0.061914	0.018320	0.2404	0.0118	10.4618	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	10.89
481	696660.3	4146365.5	0.00967	0.00342	0.00246	0.00394	0.00000	0.00021	0.00055	0.00157	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.149	0.32632	0.02042	0.078946	0.024044	0.3149	0.0150	10.9288	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	11.34
482	695610.1	4146389.0	0.08471	0.00916	0.00560	0.01425	0.00000	0.00050	0.00159	0.00600	0.00577	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	88.908	0.87400	0.04649	0.285528	0.057249	0.9103	0.0572	91.1388	6.056	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	6.0560	97.19
483	695640.1	4146389.2	0.06665	0.00713	0.00437	0.01103	0.00000	0.00039	0.00124	0.00464	0.00419	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	69.953	0.68030	0.03628	0.221008	0.044654	0.7099	0.0443	71.6895	4.398	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.3976	76.09
484	695670.1	4146389.4	0.05614	0.00598	0.00368	0.00920	0.00000	0.00032	0.00104	0.00387	0.00339	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	58.922	0.57058	0.03055	0.184341	0.036639	0.5954	0.0369	60.3766	3.558	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.5580	63.93
485	695700.1	4146389.6	0.04846	0.00517	0.00319	0.00791	0.00000	0.00028	0.00089	0.00332	0.00286	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	50.862	0.49329	0.02648	0.158493	0.032059	0.5095	0.0317	52.1131	3.002	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.0017	55.11
486	695730.1	4146389.8	0.04261	0.00457	0.00283	0.00696	0.00000	0.00025	0.00079	0.00292	0.00246	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	44.722	0.43604	0.02349	0.139458	0.028624	0.4523	0.0279	45.8294	2.582	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.5819	48.41
487	695760.1	4146390.0	0.03795	0.00411	0.00255	0.00621	0.00000	0.00022	0.00071	0.00260	0.00216	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	39.831	0.39215	0.02117	0.124430	0.025189	0.4065	0.0248	40.8249	2.267	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2670	43.09
488	695790.1	4146390.1	0.03416	0.00374	0.00233	0.00562	0.00000	0.00021	0.00064	0.00235	0.00192	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	35.853	0.35685	0.01934	0.112608	0.024044	0.3664	0.0224	36.7546	2.015	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0152	38.77
489	695820.1	4146390.3	0.03099	0.00343	0.00215	0.00513	0.00000	0.00019	0.00059	0.00215	0.00173	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	32.526	0.32727	0.01785	0.102790	0.021754	0.3378	0.0205	33.3538	1.816	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.8157	35.17
490	695850.1	4146390.5	0.02834	0.00318	0.00200	0.00473	0.00000	0.00018	0.00055	0.00198	0.00156	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.744	0.30342	0.01660	0.094775	0.020610	0.3149	0.0189	30.5136	1.637	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6373	32.15
491	695880.1	4146390.7	0.02618	0.00298	0.00188	0.00440	0.00000	0.00017	0.00051	0.00184	0.00144	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.477	0.28433	0.01561	0.088163	0.019465	0.2920	0.0176	28.1945	1.511	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5114	29.71
492	695910.1	4146390.9	0.02450	0.00282	0.00179	0.00414	0.00000	0.00016	0.00048	0.00172	0.00134	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.714	0.26907	0.01486	0.082953	0.018320	0.2748	0.0164	26.3906	1.406	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4064	27.80
493	695940.1	4146391.1	0.02280	0.00267	0.00170	0.00389	0.00000	0.00015	0.00046	0.00162	0.00124	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.930	0.25476	0.01411	0.077944	0.017175	0.2633	0.0155	24.5727	1.301	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3015	25.87
494	695970.1	4146391.2	0.02130	0.00253	0.00162	0.00367	0.00000	0.00014	0.00043	0.00153	0.00115	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.356	0.24140	0.01345	0.073536	0.016030	0.2462	0.0146	22.9608	1.207	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2070	24.17
495	696000.1	4146391.4	0.01998	0.00242	0.00155	0.00348	0.00000	0.00014	0.00041	0.00145	0.00107	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.970	0.23090	0.01287	0.069729	0.016030	0.2347	0.0138	21.5483	1.123	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1230	22.67
496	696030.1	4146391.6	0.01881	0.00232	0.00149	0.00331	0.00000	0.00013	0.00039	0.00138	0.00100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.742	0.22136	0.01237	0.066323	0.014885	0.2233	0.0132	20.2936	1.050	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0496	21.34
497	696060.1	4146391.8	0.01776	0.00223	0.00144	0.00317	0.00000	0.00013	0.00038	0.00131	0.00094	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.640	0.21277	0.01195	0.063517	0.014885	0.2175	0.0125	19.1733	0.987	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9866	20.16
498	696090.1	4146392.0	0.01681	0.00215	0.00140	0.00304	0.00000	0.00012	0.00037	0.00126	0.00088	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.643	0.20514	0.01162	0.060913	0.013740	0.2118	0.0120	18.1583	0.924	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9236	19.08
499	696120.1	4146392.2	0.01595	0.00208	0.00136	0.00292	0.00000	0.00012	0.00035	0.00121	0.00083	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.740	0.19846	0.01129	0.058508	0.013740	0.2004	0.0115	17.2344	0.871	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8711	18.11
500	696150.1	4146392.3	0.01517	0.00203	0.00132	0.00282	0.00000	0.00012	0.00034	0.00116	0.00079	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.922	0.19369	0.01096	0.056504	0.013740	0.1946	0.0111	16.4024	0.829	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8292	17.23
501	696180.1	4146392.5	0.01447	0.00197	0.00129	0.00273	0.00000	0.00011	0.00033	0.00113	0.00075	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.187	0.18797	0.01071	0.054701	0.012595	0.1889	0.0108	15.6528	0.787	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7872	16.44

Receptor No. (m)	UTM-X (m)	UTM-Y (m)	2045 Operation - Total Roads Period Average Concentration								2045 Operation - Rail Line Period Average Concentration								2045 - Total Roads Cancer Risks							2045 Roads Cancer Risks	2045 - Rail Line Cancer Risks							2045 Rail Cancer Risks	Total Cancer Risk
			DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde	Total	DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde	Total	
502	696210.1	4146392.7	0.01382	0.00193	0.00127	0.00265	0.00000	0.00011	0.00033	0.00109	0.00071	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.505	0.18415	0.01054	0.053098	0.012595	0.1889	0.0104	14.9646	0.745	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7452	15.71
503	696240.1	4146392.9	0.01323	0.00189	0.00125	0.00258	0.00000	0.00011	0.00032	0.00106	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.886	0.18033	0.01038	0.051696	0.012595	0.1832	0.0101	14.3340	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	15.04
504	696270.1	4146393.1	0.01269	0.00186	0.00123	0.00251	0.00000	0.00011	0.00031	0.00103	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.319	0.17747	0.01021	0.050293	0.012595	0.1775	0.0098	13.7568	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	14.43
505	696300.1	4146393.3	0.01219	0.00183	0.00122	0.00246	0.00000	0.00011	0.00031	0.00101	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.794	0.17461	0.01013	0.049291	0.012595	0.1775	0.0096	13.2278	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	13.87
506	696330.1	4146393.4	0.01173	0.00181	0.00121	0.00241	0.00000	0.00010	0.00030	0.00099	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.311	0.17270	0.01004	0.048289	0.011450	0.1717	0.0094	12.7350	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.34
507	696360.1	4146393.6	0.01131	0.00180	0.00121	0.00238	0.00000	0.00010	0.00030	0.00097	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.871	0.17175	0.01004	0.047688	0.011450	0.1717	0.0093	12.2924	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	12.88
508	696390.1	4146393.8	0.01092	0.00179	0.00121	0.00235	0.00000	0.00010	0.00030	0.00096	0.00054	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.461	0.17079	0.01004	0.047087	0.011450	0.1717	0.0092	11.8815	0.567	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5668	12.45
509	696420.1	4146394.0	0.01056	0.00179	0.00121	0.00233	0.00000	0.00010	0.00030	0.00095	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.083	0.17079	0.01004	0.046686	0.011450	0.1717	0.0091	11.5031	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	12.04
510	696450.1	4146394.2	0.01023	0.00180	0.00123	0.00232	0.00000	0.00011	0.00030	0.00095	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.737	0.17175	0.01021	0.046486	0.012595	0.1717	0.0091	11.1588	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.67
511	696480.1	4146394.4	0.00993	0.00183	0.00125	0.00233	0.00000	0.00011	0.00030	0.00095	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.422	0.17461	0.01038	0.046686	0.012595	0.1717	0.0091	10.8472	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	11.34
512	696510.1	4146394.5	0.00966	0.00187	0.00129	0.00236	0.00000	0.00011	0.00031	0.00096	0.00046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.139	0.17842	0.01071	0.047287	0.012595	0.1775	0.0092	10.5744	0.483	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4828	11.06
513	696540.1	4146394.7	0.00944	0.00194	0.00134	0.00242	0.00000	0.00012	0.00032	0.00098	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.908	0.18510	0.01112	0.048490	0.013740	0.1832	0.0094	10.3588	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	10.82
514	696570.1	4146394.9	0.00926	0.00205	0.00143	0.00252	0.00000	0.00012	0.00034	0.00102	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.719	0.19560	0.01187	0.050493	0.013740	0.1946	0.0097	10.1950	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	10.64
515	696600.1	4146395.1	0.00915	0.00223	0.00157	0.00270	0.00000	0.00013	0.00037	0.00109	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.603	0.21277	0.01303	0.054100	0.014885	0.2118	0.0104	10.1205	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	10.55
516	696630.1	4146395.3	0.00915	0.00257	0.00183	0.00305	0.00000	0.00016	0.00042	0.00122	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.603	0.24521	0.01519	0.061113	0.018320	0.2404	0.0116	10.1954	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	10.60
517	696660.1	4146395.5	0.00944	0.00338	0.00244	0.00390	0.00000	0.00021	0.00055	0.00155	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.908	0.32250	0.02025	0.078144	0.024044	0.3149	0.0148	10.6824	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	11.08
518	695579.9	4146418.9	0.08649	0.00935	0.00571	0.01455	0.00000	0.00051	0.00162	0.00613	0.00595	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	90.776	0.89212	0.04740	0.291539	0.058394	0.9274	0.0585	93.0517	6.245	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	6.2449	99.30
519	695609.9	4146419.0	0.06730	0.00721	0.00442	0.01115	0.00000	0.00039	0.00125	0.00469	0.00423	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	70.635	0.68794	0.03669	0.223413	0.044654	0.7156	0.0447	72.3883	4.440	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.4396	76.83
520	695639.9	4146419.2	0.05657	0.00603	0.00371	0.00928	0.00000	0.00033	0.00104	0.00390	0.00342	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	59.374	0.57535	0.03080	0.185944	0.037784	0.5954	0.0372	60.8360	3.589	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.5895	64.43
521	695669.9	4146419.4	0.04874	0.00521	0.00321	0.00797	0.00000	0.00028	0.00090	0.00335	0.00287	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	51.155	0.49711	0.02665	0.159695	0.032059	0.5152	0.0320	52.4182	3.012	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.0122	55.43
522	695699.9	4146419.6	0.04277	0.00459	0.00285	0.00699	0.00000	0.00025	0.00079	0.00293	0.00247	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	44.890	0.43795	0.02366	0.140059	0.028624	0.4523	0.0280	46.0001	2.592	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.5924	48.59
523	695729.9	4146419.8	0.03807	0.00412	0.00256	0.00623	0.00000	0.00023	0.00071	0.00261	0.00217	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	39.957	0.39311	0.02125	0.124831	0.026334	0.4065	0.0249	40.9536	2.278	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2775	43.23
524	695759.9	4146420.0	0.03425	0.00375	0.00234	0.00563	0.00000	0.00021	0.00065	0.00236	0.00193	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	35.947	0.35780	0.01942	0.112808	0.024044	0.3721	0.0225	36.8561	2.026	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0256	38.88
525	695789.9	4146420.1	0.03109	0.00344	0.00216	0.00514	0.00000	0.00019	0.00059	0.00215	0.00173	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	32.631	0.32823	0.01793	0.102990	0.021754	0.3378	0.0205	33.4599	1.816	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.8157	35.28
526	695819.9	4146420.3	0.02842	0.00319	0.00201	0.00474	0.00000	0.00018	0.00055	0.00198	0.00157	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.828	0.30437	0.01669	0.094975	0.020610	0.3149	0.0189	30.5988	1.648	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6478	32.25
527	695849.9	4146420.5	0.02612	0.00298	0.00188	0.00440	0.00000	0.00017	0.00051	0.00184	0.00143	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.414	0.28433	0.01561	0.088163	0.019465	0.2920	0.0176	28.1316	1.501	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5009	29.63
528	695879.9	4146420.7	0.02425	0.00281	0.00178	0.00412	0.00000	0.00016	0.00048	0.00172	0.00132	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.452	0.26811	0.01478	0.082553	0.018320	0.2748	0.0164	26.1268	1.385	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3854	27.51
529	695909.9	4146420.9	0.02277	0.00267	0.00170	0.00389	0.00000	0.00015	0.00046	0.00162	0.00123	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.898	0.25476	0.01411	0.077944	0.017175	0.2633	0.0155	24.5412	1.291	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2910	25.83
530	695939.9	4146421.1	0.02128	0.00254	0.00162	0.00367	0.00000	0.00014	0.00043	0.00153	0.00115	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.335	0.24235	0.01345	0.073536	0.016030	0.2462	0.0146	22.9407	1.207	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2070	24.15
531	695969.9	4146421.2	0.01997	0.00242	0.00155	0.00348	0.00000	0.00014	0.00041	0.00145	0.00107	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.960	0.23090	0.01287	0.069729	0.016030	0.2347	0.0138	21.5378	1.123	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1230	22.66
532	695999.9	4146421.4	0.01879	0.00232	0.00149	0.00331	0.00000	0.00013	0.00039	0.00138	0.00100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.721	0.22136	0.01237	0.066323	0.014885	0.2233	0.0132	20.2726	1.050	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0496	21.32
533	696029.9	4146421.6	0.01774	0.00223	0.00144	0.00317	0.00000	0.00013	0.00038	0.00131	0.00094	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.619	0.21277	0.01195	0.063517	0.014885	0.2175	0.0125	19.1523	0.987	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9866	20.14
534	696059.9	4146421.8	0.01679	0.00215	0.00139	0.00304	0.00000	0.00012	0.00037	0.00126	0.00088	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.622	0.20514	0.01154	0.060913	0.013740	0.2118	0.0120	18.1373	0.924	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9236	19.06
535	696089.9	4146422.0	0.01594	0.00208	0.00135	0.00292	0.00000	0.00012	0.00035	0.00121	0.00083	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.730	0.19846	0.01121	0.058508	0.013740	0.2004	0.0115	17.2238	0.871	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8711	18.09
536	696119.9	4146422.2	0.01516	0.00202	0.00132	0.00282	0.00000	0.00011	0.00034	0.00116	0.00079	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.911	0.19274	0.01096	0.056504	0.012595	0.1946	0.0111	16.3898	0.829	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8292	17.22
537	696149.9	4146422.3	0.01445	0.00197	0.00129	0.00272	0.00000	0.00011	0.00033	0.00112	0.00075	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.166	0.18797	0.01071	0.054501	0.012595	0.1889	0.0107	15.6315	0.787	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7872	16.42
538	696179.9	4146422.5	0.01381	0.00192	0.00126	0.00264	0.00000	0.00011	0.00032	0.00109	0.00071	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.494	0.18320	0.01046	0.052898	0.012595	0.1832	0.0104	14.9471	0.745	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7452	15.69
539	696209.9	4146422.7	0.01321	0.00188	0.00124	0.00257	0.00000	0.00011	0.00032	0.00106	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.865	0.17938	0.01029	0.051495	0.012595	0.1832	0.0101	14.3117	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	15.01
540	696239.9	4146422.9	0.01267	0.00185	0.00122	0.00250	0.00000	0.00011	0.00031	0.00103	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.298	0.17652	0.01013	0.050093	0.012595	0.1775	0.0098	13.7345	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	14.41
541	696269.9	4146423.1	0.01217	0.00182	0.00121	0.00245	0.00000	0.00010	0.00031	0.00101	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.773	0.17365	0.01004	0.049091	0.011450	0.1775	0.0096	13.2045	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	13.84
542	696299.9	4146423.3	0.01171	0.00180	0.00120	0.00240	0.00000	0.00010	0.00030	0.00098	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.290	0.17175	0.00996	0.048089	0.011450	0.1717	0.0094	12.7127	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.32
543	696329.9	4146423.4	0.01129	0.00178	0.00119	0.00236	0.00000	0.00010	0.00030	0.00097	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.850	0.16984	0.00988	0.047287	0.011450	0.1717	0.0093	12.2690	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	12.86
544	696359.9	4146423.6	0.01090	0.00177	0.00119	0.00233	0.00000	0.00010	0.00030	0.00095	0.00054	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.440	0.16888	0.00988	0.046686	0.011450	0.1717	0.0091	11.8579	0.567	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5668	12.42
545	696389.9	4146423.8	0.01053	0.00176	0.00119	0.00230	0.00000	0.00010	0.00029	0.00094	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.052	0.16793	0.00988	0.046085	0.011450	0.1660	0.0090	11.4622	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	12.00
546	696419.9	4146424.0	0.01020	0.00177	0.00120	0.00229	0.00000	0.00010	0.00029	0.00093	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.705	0.16888	0.00996	0.045885	0.011450	0.1660	0.0089	11.1166	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.63
547	696449.9	4146424.2	0.00989	0.00178	0.00121	0.00228	0.00000	0.00010	0.00030	0.00093	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.380	0.16984	0.01004	0.045684	0.011450	0.1717	0.0089	10.7978	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	11.29
548	696479.9	4146424.4	0.00962	0.00181	0.00124	0.00229	0.00000	0.00011	0.00030	0.00093	0.00046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.097	0.17270	0.01029	0.045885	0.012595	0.1717	0.0089	10.5188	0.483	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4828	11.00
549	696509.9	4146424.5	0.00937	0.00185	0.00128	0.00233	0.00000	0.00011	0.00031	0.00094	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.834	0.17652	0.01063	0.046686	0.012595	0.1775	0.0090	10.2672	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	10.73
550	696539.9	4146424.7	0.00916	0.00192	0.00133	0.00239	0.00000	0.00011	0.00032	0.00097	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.614	0.18320	0.01104	0.047888	0.012595	0.1832	0.0093	10.0611	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	10.50
551	696569.9	4146424.9	0.00900	0.00203	0.00142	0.00249	0.00000	0.00012	0.00033	0.00100	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.446	0.19369	0.01179	0.049892	0.013740	0.1889	0.0095	9.9136	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	10.34
552	696599.9	4146425.1	0.00890	0.00221	0.00156	0.00267	0.00000	0.00013	0.00036	0.00107	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.341	0.21087	0.01295	0.053499	0.014885	0.2061	0.0102	9.8496	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	10.26
553	696625.9	4146425.7	0.00890	0.00249	0.00177	0.00295	0.00000	0.00015	0.00041	0.00118	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.341	0.23758	0.01469	0.059109	0.017175	0.2347	0.0113	9.9156	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	10.31
554	696655.9	4146425.1	0.00914	0.00319	0.00230	0.00369	0.00000	0.00020	0.00052	0.00147	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.593	0.30437	0.01909	0.073937	0.022899	0.2977	0.0140	10.3250	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	10.71
555	695549.7	4146448.7	0.08713	0.00944	0.00576	0.01469	0.00000	0.00051	0.00164	0.00618	0.00611	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	91.448	0.90071	0.04781	0.294344	0.058394	0.9389	0.0590	93.7471	6.413	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	6.4128	100.16
556	695579.7	4146448.9	0.06743	0.00724	0.00444	0.01120	0.00000	0.00039	0.00125	0.00471	0.00428	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	70.772	0.69080	0.03686	0.224415	0.044654	0.7156	0.0449	72.5290	4.492	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.4921	77.02
557	695609.7	4146449.0	0.05668	0.00605	0.00372	0.00931	0.00000	0.00033	0.00105	0.00391	0.00345	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	59.489	0.57726	0.03088	0.186545	0.037784	0.6011	0.0373	60.9598	3.621	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.6210	64.58
558	695639.7	4146449.2	0.04877	0.00522	0.00322	0.00798	0.00000	0.00028	0.00090	0.00335	0.00289	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	51.187	0.49806	0.02673	0.159895	0.032059	0.5152	0.0320	52.4509	3.033	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.0332	55.48
559	695669.7	4146449.4	0.04275	0.00460	0.00285	0.00699	0.00000	0.00025	0.00079	0.00293	0.00248	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	44.869	0.43891	0.02366	0.140059	0.028624	0.4523	0.0280	45.9801	2.603	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.6029	48.58
560	695699.7	4146449.6	0.03801	0.00412	0.00257	0.00623	0.00000	0.00023	0.00071	0.00261	0.00217	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	39.894	0.39311	0.02133	0.124831	0.026334	0.4065	0.0249	40.8907	2.278	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2775	43.17
561	695729.7	4146449.8	0.03420	0.00375	0.00234	0.00563	0.00000	0.00021	0.00065	0.00236	0.00193	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	35.895	0.35780	0.01942	0.112808	0.024044	0.3721	0.0225	36.8036	2.026	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0256	38.83
562	695759.7	4146450.0	0.03104	0.00345	0.00216	0.00514	0.00000	0.00019	0.00059	0.00215	0.00173	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	32.578	0.32918	0.01793	0.102990	0.021754	0.3378	0.0205	33.4084	1.816	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.8157	35.22
563	695789.7	4146450.1	0.02840	0.00320	0.00201	0.00474	0.00000	0.00018	0.00055	0.00198	0.00157	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.807	0.30533	0.01669	0.094975	0.020610	0.3149	0.0189	30.5788	1.648	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6478	32.23
564	695819.7	4146450.3	0.02614	0.00299	0.00189	0.00440	0.00000	0.00017	0.00051	0.00184	0.00143	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.435	0.28529	0.01569	0.088163	0.019465	0.2920	0.0176	28.1536	1.501	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5009	29.65
565	695849.7	4146450.5	0.02418	0.00281	0.00178	0.00411	0.00000	0.00016	0.00048	0.00171	0.00132	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.378	0.26811	0.01478	0.082352	0.018320	0.2748	0.0163	26.0530	1.385	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3854	27.44
566	695879.7	4146450.7	0.02253	0.00266	0.00169	0.00387	0.00000	0.00015	0.00045	0.00161	0.00122	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.647	0.25380	0.01403	0.077543	0.017175	0.2576	0.0154	24.2821	1.280	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2805	25.56
567	695909.7	4146450.9	0.02122	0.00254	0.00162	0.00367	0.00000	0.00014	0.00043	0.00153	0.00114	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.272	0.24235	0.01345	0.073536	0.016030	0.2462	0.0146	22.8778	1.196	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1965	24.07
568	695939.7	4146451.1	0.01991	0.00242	0.00155	0.00348	0.00000	0.00014	0.00041	0.00145	0.00107	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.897	0.23090	0.01287	0.069729	0.016030	0.2347	0.0138	21.4748	1.123	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1230	22.60
569	695969.7	4146451.2	0.01875	0.00232	0.00149	0.00331	0.00000	0.00013	0.00039	0.00138	0.00100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.679	0.22136	0.01237	0.066323	0.014885	0.2233	0.0132	20.2306	1.050	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0496	21.28
570	695999.7	4146451.4	0.01770	0.00223	0.00144	0.00317	0.00000	0.00013	0.00038	0.00131	0.00094	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.577	0.21277	0.01195	0.063517	0.014885	0.2175	0.0125	19.1104	0.987	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9866	20.10
571	696029.7	4146451.6	0.01676	0.00215	0.00140	0.00304	0.00000	0.00012	0.00037	0.00126	0.00088	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.591	0.20514	0.01162	0.060913	0.013740	0.2118	0.0120	18.1059	0.924	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9236	19.03
572	696059.7	4146451.8	0.01590	0.00208	0.00136	0.00292	0.00000	0.00012	0.00035	0.00121	0.00083	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.688	0.19846	0.01129	0.058508	0.013740	0.2004	0.0115	17.1819	0.871	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8711	18.05
573	696089.7	4146452.0	0.01513	0.00202	0.00132	0.00281	0.00000	0.00011	0.00034	0.00116	0.00079	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.880	0.19274	0.01096	0.056304	0.012595	0.1946	0.0111	16.3581	0.829	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8292	17.19
574	696119.7	4146452.2	0.01442	0.00197	0.00129	0.00272	0.00000	0.00011	0.00033	0.00112	0.00074	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.135	0.18797	0.01071	0.054501	0.012595	0.1889	0.0107	15.6000	0.777	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7767	16.38
575	696149.7	4146452.3	0.01378	0.00192	0.00126	0.00264	0.00000	0.00011	0.00032	0.00109	0.00071	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.463	0.18320	0.01046	0.052898	0.012595	0.1832	0.0104	14.9157	0.745	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7452	15.66
576	696179.7	4146452.5	0.01319	0.00188	0.00124	0.00256	0.00000	0.00011	0.00032	0.00106	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.844	0.17938	0.01029	0.051295	0.012595	0.1832	0.0101	14.2905	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	14.99
577	696209.7	4146452.7	0.01265	0.00184	0.00122	0.00250	0.00000	0.00011	0.00031	0.00103	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.277	0.17556	0.01013	0.050093	0.012595	0.1775	0.0098	13.7126	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	14.38
578	696239.7	4146452.9	0.01215	0.00181	0.00121	0.00244	0.00000	0.00010	0.00030	0.00100	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.752	0.17270	0.01004	0.048890	0.011450	0.1717	0.0095	13.1765	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	13.82
579	696269.7	4146453.1	0.01169	0.00179	0.00119	0.00239	0.00000	0.00010	0.00030	0.00098	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.269	0.17079	0.00988	0.047888	0.011450	0.1717	0.0094	12.6904	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.30
580	696299.7	4146453.3	0.01127	0.00177	0.00118	0.00235	0.00000	0.00010	0.00030	0.00096	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.829	0.16888	0.00980	0.047087	0.011450	0.1717	0.0092	12.2466	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	12.83
581	696329.7	4146453.4	0.01087	0.00175	0.00118	0.00231	0.00000	0.00010	0.00029	0.00095	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.409	0.16698	0.00980	0.046286	0.011450	0.1660	0.0091	11.8183	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	12.37
582	696359.7	4146453.6	0.01051	0.00174	0.00118	0.00228	0.00000	0.00010	0.00029	0.00093	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.031	0.16602	0.00980	0.045684	0.011450	0.1660	0.0089	11.4387	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	11.97
583	696389.7	4146453.8	0.01017	0.00174	0.00118	0.00226	0.00000	0.00010	0.00029	0.00092	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.674	0.16602	0.00980	0.045284	0.011450	0.1660	0.0088	11.0814	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.60
584	696419.7	4146454.0	0.00986	0.00175	0.00119	0.00225	0.00000	0.00010	0.00029	0.00092	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.349	0.16698	0.00988	0.045083	0.011450	0.1660	0.0088	10.7568	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	11.25
585	696449.7	4146454.2	0.00957	0.00176	0.00120	0.00225	0.00000	0.00010	0.00029	0.00091	0.00046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.044	0.16793	0.00996	0.045083	0.011450	0.1660	0.0087	10.4534	0.483	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4828	10.94
586	696479.7	4146454.4	0.00932	0.00179	0.00123	0.00226	0.00000	0.00011	0.00030	0.00092	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.782	0.17079	0.01021	0.045284	0.012595	0.1717	0.0088	10.2013	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	10.66
587	696509.7	4146454.5	0.00909	0.00184	0.00127	0.00230	0.00000	0.00011	0.00030	0.00093	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.540	0.17556	0.01054	0.046085	0.012595	0.1717	0.0089	9.9659	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	10.41
588	696539.7	4146454.7	0.00890	0.00191	0.00133	0.00236	0.00000	0.00011	0.00031	0.00095	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.341	0.18224	0.01104	0.047287	0.012595	0.1775	0.0091	9.7808	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	10.21
589	696569.7	4146454.9	0.00875	0.00202	0.00141	0.00246	0.00000	0.00012	0.00033	0.00099	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.184	0.19274	0.01170	0.049291	0.013740	0.1889	0.0094	9.6495	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	10.06
590	696599.7	4146455.1	0.00867	0.00220	0.00155	0.00264	0.00000	0.00013	0.00036	0.00106	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.100	0.20991	0.01287	0.052898	0.014885	0.2061	0.0101	9.6064	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	10.01
591	696626.4	4146455.6	0.00868	0.00248	0.00177	0.00294	0.00000	0.00015	0.00040	0.00118	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.110	0.23663	0.01469	0.058909	0.017175	0.2290	0.0113	9.6778	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	10.07
592	696656.4	4146455.1	0.00894	0.00319	0.00230	0.00368	0.00000	0.00020	0.00052	0.00147	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.383	0.30437	0.01909	0.073736	0.022899	0.2977	0.0140	10.1149	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	10.49
593	695549.6	4146478.7	0.06875	0.00735	0.00451	0.01137	0.00000	0.00040	0.00127	0.00478	0.00454	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	72.157	0.70130	0.03744	0.227821	0.045799	0.7271	0.0456	73.9421	4.765	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	4.7650	78.71
594	695579.6	4146478.9	0.05654	0.00605	0.00372	0.00930	0.00000	0.00033	0.00105	0.00391	0.00350	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	59.342	0.57726	0.03088	0.186344	0.037784	0.6011	0.0373	60.8127	3.673	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.6735	64.49
595	695609.6	4146479.0	0.04851	0.00520	0.00321	0.00795	0.00000	0.00028	0.00090	0.00334	0.00291	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	50.914	0.49615	0.02665	0.159294	0.032059	0.5152	0.0319	52.1753	3.054	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.0542	55.23
596	695639.6	4146479.2	0.04250	0.00458	0.00284	0.00696	0.00000	0.00025	0.00079	0.00292	0.00249	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	44.606	0.43700	0.02357	0.139458	0.028624	0.4523	0.0279	45.7150	2.613	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.6134	48.33
597	695669.6	4146479.4	0.03779	0.00411	0.00256	0.00621	0.00000	0.00023	0.00071	0.00260	0.00218	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	39.663	0.39215	0.02125	0.124430	0.026334	0.4065	0.0248	40.6582	2.288	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2880	42.95
598	695699.6	4146479.6	0.03400	0.00374	0.00234	0.00561	0.00000	0.00021	0.00064	0.00235	0.00193	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	35.685	0.35685	0.01942	0.112408	0.024044	0.3664	0.0224	36.5865	2.026	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0256	38.61
599	695729.5	4146479.8	0.03088	0.00344	0.00216	0.00513	0.00000	0.00019	0.00059	0.00214	0.00173	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	32.410	0.32823	0.01793	0.102790	0.021754	0.3378	0.0204	33.2392	1.816	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.8157	35.05
600	695759.5	4146480.0	0.02825	0.00319	0.00201	0.00473	0.00000	0.00018	0.00055	0.00198	0.00157	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.650	0.30437	0.01669	0.094775	0.020610	0.3149	0.0189	30.4202	1.648	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6478	32.07
601	695789.5	4146480.1	0.02603	0.00298	0.00189	0.00440	0.00000	0.00017	0.00051	0.00183	0.00143	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.320	0.28433	0.01569	0.088163	0.019465	0.2920	0.0175	28.0371	1.501	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5009	29.54
602	695819.5	4146480.3	0.02411	0.00281	0.00178	0.00411	0.00000	0.00016	0.00048	0.00171	0.00132	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.305	0.26811	0.01478	0.082352	0.018320	0.2748	0.0163	25.9795	1.385	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3854	27.36
603	695849.5	4146480.5	0.02246	0.00266	0.00169	0.00387	0.00000	0.00015	0.00045	0.00161	0.00122	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.573	0.25380	0.01403	0.077543	0.017175	0.2576	0.0154	24.2086	1.280	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2805	25.49
604	695879.5	4146480.7	0.02108	0.00253	0.00162	0.00366	0.00000	0.00014	0.00043	0.00152	0.00114	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.125	0.24140	0.01345	0.073335	0.016030	0.2462	0.0145	22.7296	1.196	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1965	23.93
605	695909.5	4146480.9	0.01981	0.00242	0.00155	0.00348	0.00000	0.00014	0.00041	0.00145	0.00106	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.792	0.23090	0.01287	0.069729	0.016030	0.2347	0.0138	21.3698	1.113	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1125	22.48
606	695939.5	4146481.1	0.01866	0.00232	0.00150	0.00331	0.00000	0.00013	0.00040	0.00138	0.00099	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.585	0.22136	0.01245	0.066323	0.014885	0.2290	0.0132	20.1419	1.039	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0391	21.18
607	695969.5	4146481.2	0.01763	0.00223	0.00144	0.00317	0.00000	0.00013	0.00038	0.00131	0.00093	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.504	0.21277	0.01195	0.063517	0.014885	0.2175	0.0125	19.0369	0.976	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9761	20.01
608	695999.5	4146481.4	0.01670	0.00216	0.00140	0.00304	0.00000	0.00012	0.00037	0.00126	0.00088	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.528	0.20610	0.01162	0.060913	0.013740	0.2118	0.0120	18.0438	0.924	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9236	18.97
609	696029.5	4146481.6	0.01585	0.00209	0.00136	0.00292	0.00000	0.00012	0.00035	0.00121	0.00083	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.635	0.19942	0.01129	0.058508	0.013740	0.2004	0.0115	17.1304	0.871	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8711	18.00
610	696059.5	4146481.8	0.01508	0.00203	0.00132	0.00282	0.00000	0.00012	0.00034	0.00116	0.00078	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.827	0.19369	0.01096	0.056504	0.013740	0.1946	0.0111	16.3079	0.819	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8187	17.13
611	696089.5	4146482.0	0.01438	0.00197	0.00129	0.00272	0.00000	0.00011	0.00033	0.00112	0.00074	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.093	0.18797	0.01071	0.054501	0.012595	0.1889	0.0107	15.5580	0.777	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7767	16.33
612	696119.5	4146482.2	0.01374	0.00192	0.00127	0.00264	0.00000	0.00011	0.00032	0.00109	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.421	0.18320	0.01054	0.052898	0.012595	0.1832	0.0104	14.8738	0.735	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7347	15.61
613	696149.5	4146482.3	0.01315	0.00188	0.00124	0.00256	0.00000	0.00011	0.00032	0.00106	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.802	0.17938	0.01029	0.051295	0.012595	0.1832	0.0101	14.2486	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	14.95
614	696179.5	4146482.5	0.01261	0.00184	0.00122	0.00250	0.00000	0.00011	0.00031	0.00103	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.235	0.17556	0.01013	0.050093	0.012595	0.1775	0.0098	13.6706	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	14.34
615	696209.5	4146482.7	0.01212	0.00181	0.00121	0.00244	0.00000	0.00010	0.00030	0.00100	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.721	0.17270	0.01004	0.048890	0.011450	0.1717	0.0095	13.1450	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	13.79
616	696239.5	4146482.9	0.01166	0.00178	0.00119	0.00239	0.00000	0.00010	0.00030	0.00098	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.238	0.16984	0.00988	0.047888	0.011450	0.1717	0.0094	12.6580	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.27
617	696269.5	4146483.1	0.01124	0.00176	0.00118	0.00234	0.00000	0.00010	0.00030	0.00096	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.797	0.16793	0.00980	0.046887	0.011450	0.1717	0.0092	12.2140	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	12.80
618	696299.5	4146483.3	0.01084	0.00174	0.00117	0.00230	0.00000	0.00010	0.00029	0.00094	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.377	0.16602	0.00971	0.046085	0.011450	0.1660	0.0090	11.7855	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	12.34
619	696329.5	4146483.4	0.01048	0.00173	0.00117	0.00227	0.00000	0.00010	0.00029	0.00093	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.999	0.16507	0.00971	0.045484	0.011450	0.1660	0.0089	11.4060	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	11.94
620	696359.5	4146483.6	0.01014	0.00172	0.00117	0.00224	0.00000	0.00010	0.00029	0.00092	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.643	0.16411	0.00971	0.044883	0.011450	0.1660	0.0088	11.0475	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.56
621	696389.5	4146483.8	0.00983	0.00172	0.00117	0.00223	0.00000	0.00010	0.00029	0.00091	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.317	0.16411	0.00971	0.044683	0.011450	0.1660	0.0087	10.7218	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	11.22
622	696419.5	4146484.0	0.00954	0.00173	0.00118	0.00222	0.00000	0.00010	0.00029	0.00090	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.013	0.16507	0.00980	0.044482	0.011450	0.1660	0.0086	10.4182	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	10.89
623	696449.5	4146484.2	0.00927	0.00175	0.00120	0.00222	0.00000	0.00010	0.00029	0.00090	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.729	0.16698	0.00996	0.044482	0.011450	0.1660	0.0086	10.1369	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	10.60
624	696479.5	4146484.3	0.00904	0.00178	0.00123	0.00224	0.00000	0.00011	0.00029	0.00091	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.488	0.16984	0.01021	0.044883	0.012595	0.1660	0.0087	9.9002	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	10.34
625	696509.5	4146484.5	0.00883	0.00182	0.00126	0.00227	0.00000	0.00011	0.00030	0.00092	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.268	0.17365	0.01046	0.045484	0.012595	0.1717	0.0088	9.6903	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	10.12
626	696539.5	4146484.7	0.00865	0.00189	0.00132	0.00234	0.00000	0.00011	0.00031	0.00094	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.079	0.18033	0.01096	0.046887	0.012595	0.1775	0.0090	9.5159	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	9.93
627	696569.5	4146484.9	0.00851	0.00200	0.00141	0.00244	0.00000	0.00012	0.00033	0.00098	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.932	0.19083	0.01170	0.048890	0.013740	0.1889	0.0094	9.3952	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	9.79
628	696599.5	4146485.1	0.00844	0.00219	0.00155	0.00262	0.00000	0.00013	0.00036	0.00105	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.858	0.20896	0.01287	0.052497	0.014885	0.2061	0.0100	9.3636	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	9.75
629	696627.0	4146485.6	0.00847	0.00248	0.00177	0.00293	0.00000	0.00015	0.00040	0.00117	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.890	0.23663	0.01469	0.058708	0.017175	0.2290	0.0112	9.4571	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	9.83

Receptor No. (m)	UTM-X (m)	UTM-Y (m)	2045 Operation - Total Roads Period Average Concentration								2045 Operation - Rail Line Period Average Concentration								2045 - Total Roads Cancer Risks							2045 Roads Cancer Risks Total	2045 - Rail Line Cancer Risks							2045 Rail Cancer Risks Total	Total Cancer Risk
			DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde		DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde		
630	696657.0	4146485.1	0.00875	0.00320	0.00231	0.00368	0.00000	0.00020	0.00052	0.00147	0.00035	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.184	0.30533	0.01918	0.073736	0.022899	0.2977	0.0140	9.9165	0.367	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3673	10.28
631	695549.4	4146508.7	0.05625	0.00600	0.00370	0.00922	0.00000	0.00033	0.00104	0.00387	0.00362	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	59.038	0.57249	0.03071	0.184741	0.037784	0.5954	0.0369	60.4957	3.799	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.7994	64.30
632	695579.4	4146508.9	0.04811	0.00516	0.00319	0.00788	0.00000	0.00028	0.00089	0.00331	0.00296	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	50.494	0.49234	0.02648	0.157892	0.032059	0.5095	0.0316	51.7441	3.107	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.1067	54.85
633	695609.4	4146509.0	0.04203	0.00454	0.00282	0.00690	0.00000	0.00025	0.00078	0.00289	0.00251	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	44.113	0.43318	0.02341	0.138255	0.028624	0.4465	0.0276	45.2105	2.634	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.6344	47.84
634	695639.4	4146509.2	0.03737	0.00408	0.00254	0.00615	0.00000	0.00022	0.00070	0.00258	0.00218	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	39.222	0.38929	0.02108	0.123228	0.025189	0.4007	0.0246	40.2061	2.288	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2880	42.49
635	695669.4	4146509.4	0.03364	0.00372	0.00233	0.00557	0.00000	0.00020	0.00064	0.00233	0.00193	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	35.307	0.35494	0.01934	0.111606	0.022899	0.3664	0.0222	36.2045	2.026	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0256	38.23
636	695699.4	4146509.6	0.03057	0.00342	0.00215	0.00510	0.00000	0.00019	0.00059	0.00213	0.00173	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	32.085	0.32632	0.01785	0.102189	0.021754	0.3378	0.0203	32.9112	1.816	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.8157	34.73
637	695729.4	4146509.8	0.02800	0.00318	0.00201	0.00471	0.00000	0.00018	0.00055	0.00197	0.00157	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.388	0.30342	0.01669	0.094374	0.020610	0.3149	0.0188	30.1564	1.648	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6478	31.80
638	695759.4	4146510.0	0.02582	0.00298	0.00188	0.00438	0.00000	0.00017	0.00051	0.00183	0.00143	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.100	0.28433	0.01561	0.087762	0.019465	0.2920	0.0175	27.8162	1.501	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5009	29.32
639	695789.4	4146510.1	0.02395	0.00281	0.00178	0.00410	0.00000	0.00016	0.00048	0.00171	0.00131	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.137	0.26811	0.01478	0.082152	0.018320	0.2748	0.0163	25.8114	1.375	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3749	27.19
640	695819.4	4146510.3	0.02232	0.00266	0.00170	0.00386	0.00000	0.00015	0.00045	0.00161	0.00121	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.426	0.25380	0.01411	0.077343	0.017175	0.2576	0.0154	24.0616	1.270	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2700	25.33
641	695849.4	4146510.5	0.02091	0.00253	0.00162	0.00365	0.00000	0.00014	0.00043	0.00152	0.00113	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.946	0.24140	0.01345	0.073135	0.016030	0.2462	0.0145	22.5509	1.186	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1860	23.74
642	695879.4	4146510.7	0.01967	0.00242	0.00156	0.00347	0.00000	0.00014	0.00041	0.00144	0.00105	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.645	0.23090	0.01295	0.069528	0.016030	0.2347	0.0137	21.2227	1.102	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1020	22.32
643	695909.4	4146510.9	0.01854	0.00233	0.00150	0.00331	0.00000	0.00013	0.00040	0.00137	0.00099	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.459	0.22232	0.01245	0.066323	0.014885	0.2290	0.0131	20.0168	1.039	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0391	21.06
644	695939.4	4146511.1	0.01752	0.00224	0.00145	0.00317	0.00000	0.00013	0.00038	0.00131	0.00093	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.388	0.21373	0.01204	0.063517	0.014885	0.2175	0.0125	18.9225	0.976	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9761	19.90
645	695969.4	4146511.2	0.01661	0.00216	0.00140	0.00304	0.00000	0.00012	0.00037	0.00126	0.00087	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.433	0.20610	0.01162	0.060913	0.013740	0.2118	0.0120	17.9494	0.913	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9131	18.86
646	695999.4	4146511.4	0.01577	0.00209	0.00136	0.00292	0.00000	0.00012	0.00035	0.00121	0.00082	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.552	0.19942	0.01129	0.058508	0.013740	0.2004	0.0115	17.0464	0.861	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8606	17.91
647	696029.4	4146511.6	0.01501	0.00203	0.00133	0.00282	0.00000	0.00012	0.00034	0.00116	0.00078	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.754	0.19369	0.01104	0.056504	0.013740	0.1946	0.0111	16.2346	0.819	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8187	17.05
648	696059.4	4146511.8	0.01432	0.00198	0.00130	0.00273	0.00000	0.00011	0.00033	0.00112	0.00074	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.030	0.18892	0.01079	0.054701	0.012595	0.1889	0.0107	15.4963	0.777	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7767	16.27
649	696089.4	4146512.0	0.01368	0.00193	0.00127	0.00264	0.00000	0.00011	0.00033	0.00109	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.358	0.18415	0.01054	0.052898	0.012595	0.1889	0.0104	14.8175	0.735	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7347	15.55
650	696119.4	4146512.2	0.01310	0.00189	0.00125	0.00257	0.00000	0.00011	0.00032	0.00106	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.749	0.18033	0.01038	0.051495	0.012595	0.1832	0.0101	14.1973	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	14.90
651	696149.4	4146512.3	0.01257	0.00185	0.00123	0.00250	0.00000	0.00011	0.00031	0.00103	0.00063	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.193	0.17652	0.01021	0.050093	0.012595	0.1775	0.0098	13.6297	0.661	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6612	14.29
652	696179.4	4146512.5	0.01207	0.00182	0.00121	0.00244	0.00000	0.00010	0.00030	0.00100	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.668	0.17365	0.01004	0.048890	0.011450	0.1717	0.0095	13.0935	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	13.73
653	696209.4	4146512.7	0.01162	0.00179	0.00119	0.00239	0.00000	0.00010	0.00030	0.00098	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.196	0.17079	0.00988	0.047888	0.011450	0.1717	0.0094	12.6170	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.23
654	696239.4	4146512.9	0.01120	0.00176	0.00118	0.00234	0.00000	0.00010	0.00030	0.00096	0.00055	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.755	0.16793	0.00980	0.046887	0.011450	0.1717	0.0092	12.1720	0.577	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5773	12.75
655	696269.4	4146513.1	0.01081	0.00174	0.00117	0.00230	0.00000	0.00010	0.00029	0.00094	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.346	0.16602	0.00971	0.046085	0.011450	0.1660	0.0090	11.7540	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	12.31
656	696299.4	4146513.2	0.01044	0.00173	0.00117	0.00226	0.00000	0.00010	0.00029	0.00093	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.957	0.16507	0.00971	0.045284	0.011450	0.1660	0.0089	11.3638	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	11.90
657	696329.4	4146513.4	0.01010	0.00172	0.00116	0.00223	0.00000	0.00010	0.00029	0.00091	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.601	0.16411	0.00963	0.044683	0.011450	0.1660	0.0087	11.0051	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.52
658	696359.4	4146513.6	0.00979	0.00171	0.00116	0.00221	0.00000	0.00010	0.00028	0.00090	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.275	0.16316	0.00963	0.044282	0.011450	0.1603	0.0086	10.6726	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	11.17
659	696389.4	4146513.8	0.00950	0.00171	0.00117	0.00220	0.00000	0.00010	0.00028	0.00089	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.971	0.16316	0.00971	0.044081	0.011450	0.1603	0.0085	10.3680	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	10.84
660	696419.4	4146514.0	0.00923	0.00172	0.00118	0.00219	0.00000	0.00010	0.00029	0.00089	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.687	0.16411	0.00980	0.043881	0.011450	0.1660	0.0085	10.0912	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	10.55
661	696449.4	4146514.2	0.00899	0.00174	0.00120	0.00220	0.00000	0.00010	0.00029	0.00089	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.436	0.16602	0.00996	0.044081	0.011450	0.1660	0.0085	9.8416	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	10.28
662	696479.4	4146514.3	0.00877	0.00177	0.00122	0.00222	0.00000	0.00011	0.00029	0.00090	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.205	0.16888	0.01013	0.044482	0.012595	0.1660	0.0086	9.6153	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	10.05
663	696509.4	4146514.5	0.00857	0.00182	0.00126	0.00225	0.00000	0.00011	0.00030	0.00091	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.995	0.17365	0.01046	0.045083	0.012595	0.1717	0.0087	9.4169	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	9.83
664	696539.4	4146514.7	0.00841	0.00189	0.00132	0.00232	0.00000	0.00011	0.00031	0.00094	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.827	0.18033	0.01096	0.046486	0.012595	0.1775	0.0090	9.2636	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	9.66
665	696569.4	4146514.9	0.00829	0.00200	0.00141	0.00242	0.00000	0.00012	0.00033	0.00098	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.701	0.19083	0.01170	0.048490	0.013740	0.1889	0.0094	9.1639	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	9.55
666	696599.4	4146515.1	0.00823	0.00218	0.00154	0.00261	0.00000	0.00013	0.00036	0.00105	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.638	0.20800	0.01278	0.052297	0.014885	0.2061	0.0100	9.1419	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	9.52
667	696627.5	4146515.6	0.00827	0.00249	0.00178	0.00292	0.00000	0.00015	0.00040	0.00117	0.00035	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.680	0.23758	0.01478	0.058508	0.017175	0.2290	0.0112	9.2480	0.367	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3673	9.62
668	696657.5	4146515.1	0.00856	0.00322	0.00233	0.00369	0.00000	0.00020	0.00052	0.00147	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.984	0.30723	0.01934	0.073937	0.022899	0.2977	0.0140	9.7193	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	10.08
669	695549.2	4146538.7	0.04701	0.00505	0.00313	0.00770	0.00000	0.00028	0.00087	0.00323	0.00299	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	49.340	0.48184	0.02598	0.154285	0.032059	0.4981	0.0308	50.5628	3.138	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	3.1382	53.70
670	695579.2	4146538.9	0.04121	0.00447	0.00278	0.00677	0.00000	0.00024	0.00077	0.00284	0.00252	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	43.252	0.42650	0.02308	0.135651	0.027479	0.4408	0.0271	44.3329	2.645	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.6449	46.98
671	695609.2	4146539.0	0.03669	0.00403	0.00251	0.00606	0.00000	0.00022	0.00069	0.00254	0.00219	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	38.508	0.38452	0.02084	0.121424	0.025189	0.3950	0.0242	39.4795	2.299	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2985	41.78
672	695639.2	4146539.2	0.03309	0.00368	0.00230	0.00550	0.00000	0.00020	0.00063	0.00230	0.00193	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	34.730	0.35112	0.01909	0.110204	0.022899	0.3607	0.0219	35.6158	2.026	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0256	37.64
673	695669.2	4146539.4	0.03011	0.00340	0.00214	0.00504	0.00000	0.00019	0.00058	0.00211	0.00173	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	31.602	0.32441	0.01776	0.100987	0.021754	0.3320	0.0201	32.4193	1.816	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.8157	34.24
674	695699.2	4146539.6	0.02762	0.00316	0.00200	0.00466	0.00000	0.00018	0.00054	0.00195	0.00156	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	28.989	0.30151	0.01660	0.093373	0.020610	0.3091	0.0186	29.7486	1.637	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6373	31.39
675	695729.2	4146539.8	0.02551	0.00297	0.00188	0.00435	0.00000	0.00016	0.00051	0.00181	0.00142	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	26.774	0.28338	0.01561	0.087161	0.018320	0.2920	0.0173	27.4879	1.490	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4904	28.98
676	695759.2	4146540.0	0.02368	0.00280	0.00178	0.00408	0.00000	0.00016	0.00048	0.00170	0.00131	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	24.854	0.26716	0.01478	0.081751	0.018320	0.2748	0.0162	25.5266	1.375	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3749	26.90
677	695789.2	4146540.1	0.02209	0.00266	0.00170	0.00384	0.00000	0.00015	0.00045	0.00160	0.00121	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.185	0.25380	0.01411	0.076942	0.017175	0.2576	0.0153	23.8197	1.270	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2700	25.09
678	695819.2	4146540.3	0.02069	0.00253	0.00162	0.00364	0.00000	0.00014	0.00043	0.00151	0.00112	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.715	0.24140	0.01345	0.072935	0.016030	0.2462	0.0144	22.3197	1.176	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1755	23.50
679	695849.2	4146540.5	0.01946	0.00242	0.00156	0.00346	0.00000	0.00014	0.00041	0.00144	0.00105	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.424	0.23090	0.01295	0.069328	0.016030	0.2347	0.0137	21.0021	1.102	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1020	22.10
680	695879.2	4146540.7	0.01837	0.00233	0.00150	0.00330	0.00000	0.00013	0.00040	0.00137	0.00098	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.280	0.22232	0.01245	0.066122	0.014885	0.2290	0.0131	19.8382	1.029	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0286	20.87
681	695909.2	4146540.9	0.01738	0.00224	0.00145	0.00316	0.00000	0.00013	0.00038	0.00131	0.00092	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.241	0.21373	0.01204	0.063317	0.014885	0.2175	0.0125	18.7753	0.966	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9656	19.74
682	695939.2	4146541.1	0.01648	0.00217	0.00141	0.00304	0.00000	0.00012	0.00037	0.00126	0.00087	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.297	0.20705	0.01170	0.060913	0.013740	0.2118	0.0120	17.8140	0.913	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9131	18.73
683	695969.2	4146541.2	0.01566	0.00210	0.00137	0.00292	0.00000	0.00012	0.00036	0.00121	0.00082	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.436	0.20037	0.01137	0.058508	0.013740	0.2061	0.0115	16.9377	0.861	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8606	17.80
684	695999.2	4146541.4	0.01492	0.00204	0.00134	0.00282	0.00000	0.00012	0.00034	0.00117	0.00077	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.659	0.19465	0.01112	0.056504	0.013740	0.1946	0.0112	16.1412	0.808	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8082	16.95
685	696029.2	4146541.6	0.01423	0.00199	0.00131	0.00273	0.00000	0.00011	0.00034	0.00113	0.00073	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.935	0.18987	0.01087	0.054701	0.012595	0.1946	0.0108	15.4087	0.766	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7662	16.17
686	696059.2	4146541.8	0.01361	0.00194	0.00128	0.00265	0.00000	0.00011	0.00033	0.00109	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.284	0.18510	0.01063	0.053098	0.012595	0.1889	0.0104	14.7452	0.735	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7347	15.48
687	696089.2	4146542.0	0.01303	0.00189	0.00125	0.00257	0.00000	0.00011	0.00032	0.00106	0.00066	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.676	0.18033	0.01038	0.051495	0.012595	0.1832	0.0101	14.1239	0.693	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6927	14.82
688	696119.2	4146542.1	0.01250	0.00186	0.00123	0.00250	0.00000	0.00011	0.00031	0.00103	0.00063	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.119	0.17747	0.01021	0.050093	0.012595	0.1775	0.0098	13.5571	0.661	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6612	14.22
689	696149.2	4146542.3	0.01202	0.00182	0.00121	0.00244	0.00000	0.00011	0.00031	0.00100	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.616	0.17365	0.01004	0.048890	0.012595	0.1775	0.0095	13.0479	0.630	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6297	13.68
690	696179.2	4146542.5	0.01156	0.00179	0.00120	0.00239	0.00000	0.00010	0.00030	0.00098	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.133	0.17079	0.00996	0.047888	0.011450	0.1717	0.0094	12.5541	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.16
691	696209.2	4146542.7	0.01115	0.00177	0.00119	0.00234	0.00000	0.00010	0.00030	0.00096	0.00055	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.703	0.16888	0.00988	0.046887	0.011450	0.1717	0.0092	12.1206	0.577	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5773	12.70
692	696239.2	4146542.9	0.01076	0.00175	0.00118	0.00230	0.00000	0.00010	0.00029	0.00094	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.293	0.16698	0.00980	0.046085	0.011450	0.1660	0.0090	11.7025	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	12.26
693	696269.2	4146543.1	0.01040	0.00173	0.00117	0.00226	0.00000	0.00010	0.00029	0.00092	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.915	0.16507	0.00971	0.045284	0.011450	0.1660	0.0088	11.3217	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	11.86
694	696299.2	4146543.2	0.01006	0.00172	0.00116	0.00223	0.00000	0.00010	0.00029	0.00091	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.559	0.16411	0.00963	0.044683	0.011450	0.1660	0.0087	10.9631	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.48
695	696329.2	4146543.4	0.00975	0.00171	0.00116	0.00221	0.00000	0.00010	0.00028	0.00090	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.233	0.16316	0.00963	0.044282	0.011450	0.1603	0.0086	10.6306	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	11.12
696	696359.2	4146543.6	0.00946	0.00171	0.00116	0.00219	0.00000	0.00010	0.00028	0.00089	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.929	0.16316	0.00963	0.043881	0.011450	0.1603	0.0085	10.3257	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	10.80
697	696389.2	4146543.8	0.00919	0.00171	0.00117	0.00218	0.00000	0.00010	0.00028	0.00088	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.645	0.16316	0.00971	0.043681	0.011450	0.1603	0.0084	10.0421	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	10.50
698	696419.2	4146544.0	0.00894	0.00172	0.00118	0.00217	0.00000	0.00010	0.00028	0.00088	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.383	0.16411	0.00980	0.043480	0.011450	0.1603	0.0084	9.7806	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	10.22
699	696449.2	4146544.2	0.00871	0.00174	0.00120	0.00218	0.00000	0.00010	0.00029	0.00088	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.142	0.16602	0.00996	0.043681	0.011450	0.1660	0.0084	9.5472	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	9.98
700	696479.2	4146544.3	0.00851	0.00177	0.00123	0.00220	0.00000	0.00011	0.00029	0.00089	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.932	0.16888	0.01021	0.044081	0.012595	0.1660	0.0085	9.3420	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	9.75
701	696509.2	4146544.5	0.00833	0.00182	0.00127	0.00224	0.00000	0.00011	0.00030	0.00090	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.743	0.17365	0.01054	0.044883	0.012595	0.1717	0.0086	9.1648	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	9.56
702	696539.2	4146544.7	0.00818	0.00189	0.00132	0.00230	0.00000	0.00011	0.00031	0.00093	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.585	0.18033	0.01096	0.046085	0.012595	0.1775	0.0089	9.0217	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	9.41
703	696569.2	4146544.9	0.00807	0.00200	0.00141	0.00241	0.00000	0.00012	0.00033	0.00097	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.470	0.19083	0.01170	0.048289	0.013740	0.1889	0.0093	8.9327	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	9.31
704	696599.2	4146545.1	0.00802	0.00218	0.00155	0.00259	0.00000	0.00013	0.00036	0.00104	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.417	0.20800	0.01287	0.051896	0.014885	0.2061	0.0099	8.9211	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	9.28
705	696628.0	4146545.6	0.00807	0.00250	0.00179	0.00292	0.00000	0.00015	0.00040	0.00117	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.470	0.23854	0.01486	0.058508	0.017175	0.2290	0.0112	9.0392	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	9.39
706	696658.0	4146545.1	0.00838	0.00324	0.00235	0.00370	0.00000	0.00020	0.00052	0.00147	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.795	0.30914	0.01951	0.074137	0.022899	0.2977	0.0140	9.5327	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	9.87
707	695549.0	4146568.7	0.03999	0.00437	0.00272	0.00660	0.00000	0.00024	0.00075	0.00277	0.00253	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	41.972	0.41696	0.02258	0.132244	0.027479	0.4294	0.0264	43.0269	2.655	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.6554	45.68
708	695579.0	4146568.9	0.03574	0.00395	0.00247	0.00593	0.00000	0.00022	0.00068	0.00248	0.00218	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	37.511	0.37689	0.02050	0.118820	0.025189	0.3893	0.0237	38.4656	2.288	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2880	40.75
709	695609.0	4146569.0	0.03232	0.00363	0.00228	0.00540	0.00000	0.00020	0.00062	0.00226	0.00193	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	33.922	0.34635	0.01893	0.108200	0.022899	0.3549	0.0216	34.7946	2.026	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0256	36.82
710	695639.0	4146569.2	0.02949	0.00336	0.00212	0.00497	0.00000	0.00019	0.00058	0.00208	0.00172	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	30.951	0.32059	0.01760	0.099584	0.021754	0.3320	0.0198	31.7629	1.805	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.8052	33.57
711	695669.0	4146569.4	0.02711	0.00313	0.00198	0.00461	0.00000	0.00017	0.00054	0.00192	0.00155	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	28.454	0.29865	0.01644	0.092371	0.019465	0.3091	0.0183	29.2079	1.627	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6268	30.83
712	695699.0	4146569.6	0.02507	0.00295	0.00187	0.00430	0.00000	0.00016	0.00050	0.00179	0.00142	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	26.312	0.28147	0.01552	0.086159	0.018320	0.2862	0.0171	27.0172	1.490	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4904	28.51
713	695729.0	4146569.8	0.02331	0.00279	0.00178	0.00404	0.00000	0.00016	0.00048	0.00168	0.00130	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	24.465	0.26621	0.01478	0.080950	0.018320	0.2748	0.0160	25.1363	1.364	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3644	26.50
714	695759.0	4146569.9	0.02177	0.00265	0.00170	0.00382	0.00000	0.00015	0.00045	0.00159	0.00120	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.849	0.25285	0.01411	0.076541	0.017175	0.2576	0.0152	23.4823	1.259	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2595	24.74
715	695789.0	4146570.1	0.02042	0.00253	0.00163	0.00362	0.00000	0.00014	0.00043	0.00150	0.00111	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.432	0.24140	0.01353	0.072534	0.016030	0.2462	0.0143	22.0360	1.165	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1650	23.20
716	695819.0	4146570.3	0.01922	0.00242	0.00156	0.00345	0.00000	0.00014	0.00041	0.00143	0.00104	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.173	0.23090	0.01295	0.069128	0.016030	0.2347	0.0136	20.7499	1.092	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0915	21.84
717	695849.0	4146570.5	0.01814	0.00233	0.00151	0.00330	0.00000	0.00013	0.00040	0.00137	0.00097	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.039	0.22232	0.01253	0.066122	0.014885	0.2290	0.0131	19.5969	1.018	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0181	20.61
718	695879.0	4146570.7	0.01718	0.00225	0.00146	0.00316	0.00000	0.00013	0.00038	0.00131	0.00091	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.031	0.21468	0.01212	0.063317	0.014885	0.2175	0.0125	18.5665	0.955	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9551	19.52
719	695909.0	4146570.9	0.01631	0.00218	0.00142	0.00304	0.00000	0.00012	0.00037	0.00126	0.00086	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.118	0.20800	0.01179	0.060913	0.013740	0.2118	0.0120	17.6366	0.903	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9026	18.54
720	695939.0	4146571.0	0.01551	0.00211	0.00138	0.00293	0.00000	0.00012	0.00036	0.00121	0.00081	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.279	0.20132	0.01146	0.058708	0.013740	0.2061	0.0115	16.7815	0.850	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8501	17.63
721	695969.0	4146571.2	0.01479	0.00205	0.00135	0.00283	0.00000	0.00012	0.00035	0.00117	0.00077	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.523	0.19560	0.01121	0.056705	0.013740	0.2004	0.0112	16.0118	0.808	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8082	16.82
722	695999.0	4146571.4	0.01412	0.00200	0.00132	0.00274	0.00000	0.00011	0.00034	0.00113	0.00073	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.820	0.19083	0.01096	0.054901	0.012595	0.1946	0.0108	15.2945	0.766	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7662	16.06
723	696029.0	4146571.6	0.01351	0.00195	0.00129	0.00265	0.00000	0.00011	0.00033	0.00109	0.00069	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.180	0.18606	0.01071	0.053098	0.012595	0.1889	0.0104	14.6413	0.724	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7242	15.37
724	696059.0	4146571.8	0.01294	0.00191	0.00127	0.00258	0.00000	0.00011	0.00032	0.00106	0.00066	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.581	0.18224	0.01054	0.051696	0.012595	0.1832	0.0101	14.0317	0.693	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6927	14.72
725	696089.0	4146572.0	0.01242	0.00187	0.00124	0.00251	0.00000	0.00011	0.00031	0.00103	0.00063	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.036	0.17842	0.01029	0.050293	0.012595	0.1775	0.0098	13.4744	0.661	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6612	14.14
726	696119.0	4146572.1	0.01194	0.00184	0.00123	0.00245	0.00000	0.00011	0.00031	0.00101	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.532	0.17556	0.01021	0.049091	0.012595	0.1775	0.0096	12.9663	0.630	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6297	13.60
727	696149.0	4146572.3	0.01150	0.00181	0.00121	0.00240	0.00000	0.00010	0.00030	0.00098	0.00057	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.070	0.17270	0.01004	0.048089	0.011450	0.1717	0.0094	12.4933	0.598	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5982	13.09
728	696179.0	4146572.5	0.01108	0.00178	0.00120	0.00235	0.00000	0.00010	0.00030	0.00096	0.00055	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.629	0.16984	0.00996	0.047087	0.011450	0.1717	0.0092	12.0483	0.577	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5773	12.63
729	696209.0	4146572.7	0.01070	0.00176	0.00118	0.00231	0.00000	0.00010	0.00029	0.00094	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.230	0.16793	0.00980	0.046286	0.011450	0.1660	0.0090	11.6407	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	12.20
730	696239.0	4146572.9	0.01034	0.00174	0.00118	0.00227	0.00000	0.00010	0.00029	0.00093	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.852	0.16602	0.00980	0.045484	0.011450	0.1660	0.0089	11.2601	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	11.80
731	696269.0	4146573.1	0.01001	0.00172	0.00117	0.00224	0.00000	0.00010	0.00029	0.00091	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.506	0.16411	0.00971	0.044883	0.011450	0.1660	0.0087	10.9109	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.43
732	696299.0	4146573.2	0.00970	0.00171	0.00117	0.00221	0.00000	0.00010	0.00028	0.00090	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.181	0.16316	0.00971	0.044282	0.011450	0.1603	0.0086	10.5782	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	11.07
733	696329.0	4146573.4	0.00941	0.00171	0.00117	0.00219	0.00000	0.00010	0.00028	0.00089	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.876	0.16316	0.00971	0.043881	0.011450	0.1603	0.0085	10.2733	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	10.75
734	696359.0	4146573.6	0.00914	0.00171	0.00117	0.00217	0.00000	0.00010	0.00028	0.00088	0.00043	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.593	0.16316	0.00971	0.043480	0.011450	0.1603	0.0084	9.9895	0.451	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4513	10.44
735	696389.0	4146573.8	0.00889	0.00171	0.00118	0.00216	0.00000	0.00010	0.00028	0.00088	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.331	0.16316	0.00980	0.043280	0.011450	0.1603	0.0084	9.7269	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	10.17
736	696419.0	4146574.0	0.00866	0.00172	0.00119	0.00216	0.00000	0.00010	0.00028	0.00088	0.00040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.089	0.16411	0.00988	0.043280	0.011450	0.1603	0.0084	9.4866	0.420	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4198	9.91
737	696449.0	4146574.2	0.00845	0.00174	0.00121	0.00217	0.00000	0.00010	0.00029	0.00088	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.869	0.16602	0.01004	0.043480	0.011450	0.1660	0.0084	9.2742	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	9.68
738	696479.0	4146574.3	0.00826	0.00177	0.00123	0.00219	0.00000	0.00011	0.00029	0.00089	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.669	0.16888	0.01021	0.043881	0.012595	0.1660	0.0085	9.0794	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	9.48
739	696509.0	4146574.5	0.00810	0.00182	0.00127	0.00223	0.00000	0.00011	0.00030	0.00090	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.501	0.17365	0.01054	0.044683	0.012595	0.1717	0.0086	8.9232	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	9.31
740	696539.0	4146574.7	0.00796	0.00190	0.00133	0.00230	0.00000	0.00011	0.00031	0.00093	0.00035	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.354	0.18129	0.01104	0.046085	0.012595	0.1775	0.0089	8.7918	0.367	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3673	9.16
741	696569.0	4146574.9	0.00786	0.00201	0.00142	0.00241	0.00000	0.00012	0.00033	0.00097	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.250	0.19178	0.01179	0.048289	0.013740	0.1889	0.0093	8.7133	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	9.07
742	696599.0	4146575.1	0.00782	0.00219	0.00156	0.00259	0.00000	0.00013	0.00036	0.00104	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.208	0.20896	0.01295	0.051896	0.014885	0.2061	0.0099	8.7123	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	9.06
743	696628.5	4146575.6	0.00789	0.00251	0.00180	0.00293	0.00000	0.00015	0.00041	0.00117	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.281	0.23949	0.01494	0.058708	0.017175	0.2347	0.0112	8.8572	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	9.19
744	696658.5	4146575.1	0.00821	0.00326	0.00237	0.00371	0.00000	0.00020	0.00053	0.00148	0.00031	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.617	0.31105	0.01967	0.074337	0.022899	0.3034	0.0141	9.3624	0.325	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3254	9.69
745	695548.8	4146598.7	0.03452	0.00386	0.00242	0.00577	0.00000	0.00021	0.00066	0.00241	0.00218	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	36.231	0.36830	0.02009	0.115614	0.024044	0.3778	0.0230	37.1596	2.288	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.2880	39.45
746	695578.8	4146598.8	0.03135	0.00356	0.00224	0.00528	0.00000	0.00020	0.00061	0.00221	0.00192	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	32.904	0.33968	0.01859	0.105795	0.022899	0.3492	0.0211	33.7609	2.015	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0152	35.78
747	695608.8	4146599.0	0.02869	0.00331	0.00209	0.00487	0.00000	0.00018	0.00057	0.00203	0.00171	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	30.112	0.31582	0.01735	0.097580	0.020610	0.3263	0.0194	30.9089	1.795	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7947	32.70
748	695638.8	4146599.2	0.02644	0.00310	0.00197	0.00454	0.00000	0.00017	0.00053	0.00189	0.00154	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.750	0.29578	0.01635	0.090968	0.019465	0.3034	0.0180	28.4943	1.616	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6163	30.11
749	695668.8	4146599.4	0.02451	0.00292	0.00186	0.00425	0.00000	0.00016	0.00050	0.00177	0.00140	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.725	0.27861	0.01544	0.085157	0.018320	0.2862	0.0169	26.4253	1.469	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4694	27.89
750	695698.8	4146599.6	0.02283	0.00277	0.00177	0.00400	0.00000	0.00015	0.00047	0.00166	0.00129	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.961	0.26430	0.01469	0.080148	0.017175	0.2691	0.0158	24.6226	1.354	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3539	25.98
751	695728.8	4146599.8	0.02136	0.00264	0.00170	0.00379	0.00000	0.00015	0.00045	0.00157	0.00119	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.419	0.25189	0.01411	0.075940	0.017175	0.2576	0.0150	23.0503	1.249	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2490	24.30
752	695758.8	4146599.9	0.02007	0.00253	0.00163	0.00360	0.00000	0.00014	0.00043	0.00149	0.00110	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.065	0.24140	0.01353	0.072133	0.016030	0.2462	0.0142	21.6681	1.155	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1545	22.82
753	695788.8	4146600.1	0.01891	0.00243	0.00157	0.00343	0.00000	0.00014	0.00041	0.00142	0.00103	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.847	0.23186	0.01303	0.068727	0.016030	0.2347	0.0135	20.4251	1.081	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0810	21.51
754	695818.8	4146600.3	0.01788	0.00234	0.00152	0.00329	0.00000	0.00013	0.00040	0.00136	0.00096	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.766	0.22327	0.01262	0.065922	0.014885	0.2290	0.0130	19.3248	1.008	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0076	20.33
755	695848.8	4146600.5	0.01694	0.00226	0.00147	0.00315	0.00000	0.00013	0.00038	0.00130	0.00090	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.780	0.21564	0.01220	0.063117	0.014885	0.2175	0.0124	18.3153	0.945	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9446	19.26
756	695878.8	4146600.7	0.01609	0.00219	0.00143	0.00303	0.00000	0.00012	0.00037	0.00125	0.00085	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.887	0.20896	0.01187	0.060712	0.013740	0.2118	0.0119	17.4064	0.892	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8921	18.30
757	695908.8	4146600.9	0.01532	0.00212	0.00139	0.00293	0.00000	0.00012	0.00036	0.00121	0.00080	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.079	0.20228	0.01154	0.058708	0.013740	0.2061	0.0115	16.5831	0.840	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8396	17.42

Receptor No. (m)	UTM-X (m)	UTM-Y (m)	2045 Operation - Total Roads Period Average Concentration								2045 Operation - Rail Line Period Average Concentration								2045 - Total Roads Cancer Risks							2045 Roads Cancer Risks	2045 - Rail Line Cancer Risks							2045 Rail Cancer Risks	Total Cancer Risk
			DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde	Total	DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde	Total	
758	695938.8	4146601.0	0.01462	0.00207	0.00136	0.00283	0.00000	0.00012	0.00035	0.00117	0.00076	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.345	0.19751	0.01129	0.056705	0.013740	0.2004	0.0112	15.8353	0.798	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7977	16.63
759	695968.8	4146601.2	0.01397	0.00201	0.00133	0.00274	0.00000	0.00012	0.00034	0.00113	0.00072	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.662	0.19178	0.01104	0.054901	0.013740	0.1946	0.0108	15.1392	0.756	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7557	15.89
760	695998.8	4146601.4	0.01337	0.00197	0.00130	0.00266	0.00000	0.00011	0.00033	0.00110	0.00069	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.033	0.18797	0.01079	0.053298	0.012595	0.1889	0.0105	14.4967	0.724	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7242	15.22
761	696028.8	4146601.6	0.01282	0.00193	0.00128	0.00259	0.00000	0.00011	0.00032	0.00106	0.00065	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.455	0.18415	0.01063	0.051896	0.012595	0.1832	0.0101	13.9079	0.682	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6822	14.59
762	696058.8	4146601.8	0.01231	0.00189	0.00126	0.00252	0.00000	0.00011	0.00032	0.00104	0.00062	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.920	0.18033	0.01046	0.050493	0.012595	0.1832	0.0099	13.3671	0.651	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6507	14.02
763	696088.8	4146602.0	0.01184	0.00185	0.00124	0.00246	0.00000	0.00011	0.00031	0.00101	0.00059	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.427	0.17652	0.01029	0.049291	0.012595	0.1775	0.0096	12.8626	0.619	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6192	13.48
764	696118.8	4146602.1	0.01141	0.00182	0.00122	0.00241	0.00000	0.00011	0.00030	0.00099	0.00057	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.975	0.17365	0.01013	0.048289	0.012595	0.1717	0.0094	12.4013	0.598	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5982	13.00
765	696148.8	4146602.3	0.01100	0.00180	0.00121	0.00236	0.00000	0.00010	0.00030	0.00097	0.00055	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.545	0.17175	0.01004	0.047287	0.011450	0.1717	0.0093	11.9667	0.577	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5773	12.54
766	696178.8	4146602.5	0.01062	0.00177	0.00120	0.00232	0.00000	0.00010	0.00030	0.00095	0.00052	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.146	0.16888	0.00996	0.046486	0.011450	0.1717	0.0091	11.5639	0.546	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5458	12.11
767	696208.8	4146602.7	0.01027	0.00176	0.00119	0.00228	0.00000	0.00010	0.00029	0.00093	0.00050	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.779	0.16793	0.00988	0.045684	0.011450	0.1660	0.0089	11.1888	0.525	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5248	11.71
768	696238.8	4146602.9	0.00995	0.00174	0.00118	0.00225	0.00000	0.00010	0.00029	0.00092	0.00048	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.443	0.16602	0.00980	0.045083	0.011450	0.1660	0.0088	10.8503	0.504	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5038	11.35
769	696268.8	4146603.1	0.00964	0.00173	0.00118	0.00222	0.00000	0.00010	0.00029	0.00090	0.00046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.118	0.16507	0.00980	0.044482	0.011450	0.1660	0.0086	10.5231	0.483	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4828	11.01
770	696298.8	4146603.2	0.00935	0.00172	0.00117	0.00219	0.00000	0.00010	0.00028	0.00089	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.813	0.16411	0.00971	0.043881	0.011450	0.1603	0.0085	10.2113	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	10.68
771	696328.8	4146603.4	0.00909	0.00171	0.00117	0.00217	0.00000	0.00010	0.00028	0.00088	0.00043	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.540	0.16316	0.00971	0.043480	0.011450	0.1603	0.0084	9.9370	0.451	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4513	10.39
772	696358.8	4146603.6	0.00884	0.00171	0.00118	0.00216	0.00000	0.00010	0.00028	0.00088	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.278	0.16316	0.00980	0.043280	0.011450	0.1603	0.0084	9.6745	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	10.12
773	696388.8	4146603.8	0.00861	0.00172	0.00119	0.00215	0.00000	0.00010	0.00028	0.00087	0.00040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.037	0.16411	0.00988	0.043080	0.011450	0.1603	0.0083	9.4338	0.420	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4198	9.85
774	696418.8	4146604.0	0.00839	0.00173	0.00120	0.00215	0.00000	0.00010	0.00029	0.00087	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.806	0.16507	0.00996	0.043080	0.011450	0.1660	0.0083	9.2097	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	9.62
775	696448.8	4146604.2	0.00820	0.00175	0.00122	0.00217	0.00000	0.00010	0.00029	0.00088	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.606	0.16698	0.01013	0.043480	0.011450	0.1660	0.0084	9.0128	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	9.41
776	696478.8	4146604.3	0.00802	0.00179	0.00125	0.00219	0.00000	0.00011	0.00029	0.00088	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.417	0.17079	0.01038	0.043881	0.012595	0.1660	0.0084	8.8295	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	9.21
777	696508.8	4146604.5	0.00787	0.00184	0.00129	0.00223	0.00000	0.00011	0.00030	0.00090	0.00035	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.260	0.17556	0.01071	0.044683	0.012595	0.1717	0.0086	8.6839	0.367	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3673	9.05
778	696538.8	4146604.7	0.00775	0.00191	0.00134	0.00230	0.00000	0.00011	0.00031	0.00093	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.134	0.18224	0.01112	0.046085	0.012595	0.1775	0.0089	8.5725	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	8.93
779	696568.8	4146604.9	0.00766	0.00202	0.00143	0.00241	0.00000	0.00012	0.00033	0.00097	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.040	0.19274	0.01187	0.048289	0.013740	0.1889	0.0093	8.5044	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	8.85
780	696598.8	4146605.1	0.00763	0.00220	0.00157	0.00259	0.00000	0.00013	0.00036	0.00104	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.008	0.20991	0.01303	0.051896	0.014885	0.2061	0.0099	8.5139	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	8.85
781	696629.0	4146605.6	0.00771	0.00253	0.00182	0.00294	0.00000	0.00016	0.00041	0.00117	0.00031	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.092	0.24140	0.01511	0.058909	0.018320	0.2347	0.0112	8.6717	0.325	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3254	9.00
782	696659.0	4146605.1	0.00805	0.00330	0.00240	0.00374	0.00000	0.00020	0.00053	0.00149	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.449	0.31487	0.01992	0.074938	0.022899	0.3034	0.0142	9.1992	0.315	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3149	9.51
783	695548.6	4146628.7	0.03016	0.00347	0.00219	0.00513	0.00000	0.00019	0.00060	0.00214	0.00191	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	31.655	0.33109	0.01818	0.102790	0.021754	0.3435	0.0204	32.4924	2.005	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	2.0047	34.50
784	695578.6	4146628.8	0.02771	0.00325	0.00206	0.00476	0.00000	0.00018	0.00056	0.00198	0.00170	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	29.083	0.31010	0.01710	0.095376	0.020610	0.3206	0.0189	29.8659	1.784	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7842	31.65
785	695608.6	4146629.0	0.02561	0.00305	0.00194	0.00444	0.00000	0.00017	0.00052	0.00185	0.00153	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	26.879	0.29101	0.01610	0.088964	0.019465	0.2977	0.0177	27.6101	1.606	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.6058	29.22
786	695638.6	4146629.2	0.02381	0.00289	0.00185	0.00418	0.00000	0.00016	0.00049	0.00174	0.00139	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	24.990	0.27575	0.01536	0.083755	0.018320	0.2805	0.0166	25.6803	1.459	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4589	27.14
787	695668.6	4146629.4	0.02224	0.00275	0.00177	0.00395	0.00000	0.00015	0.00047	0.00164	0.00127	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.342	0.26239	0.01469	0.079146	0.017175	0.2691	0.0156	24.0003	1.333	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3329	25.33
788	695698.6	4146629.6	0.02085	0.00263	0.00169	0.00375	0.00000	0.00015	0.00045	0.00155	0.00118	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.883	0.25094	0.01403	0.075139	0.017175	0.2576	0.0148	22.5130	1.238	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2385	23.75
789	695728.6	4146629.8	0.01962	0.00252	0.00163	0.00357	0.00000	0.00014	0.00043	0.00148	0.00109	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.592	0.24044	0.01353	0.071532	0.016030	0.2462	0.0141	21.1942	1.144	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1440	22.34
790	695758.6	4146629.9	0.01852	0.00243	0.00158	0.00341	0.00000	0.00014	0.00041	0.00141	0.00102	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.438	0.23186	0.01312	0.068326	0.016030	0.2347	0.0135	20.0153	1.071	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0705	21.09
791	695788.6	4146630.1	0.01754	0.00234	0.00153	0.00327	0.00000	0.00013	0.00040	0.00135	0.00095	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.409	0.22327	0.01270	0.065521	0.014885	0.2290	0.0129	18.9675	0.997	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9971	19.96
792	695818.6	4146630.3	0.01664	0.00227	0.00148	0.00315	0.00000	0.00013	0.00038	0.00130	0.00089	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.465	0.21659	0.01229	0.063117	0.014885	0.2175	0.0124	18.0015	0.934	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9341	18.94
793	695848.6	4146630.5	0.01583	0.00220	0.00144	0.00303	0.00000	0.00013	0.00037	0.00125	0.00084	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.615	0.20991	0.01195	0.060712	0.014885	0.2118	0.0119	17.1357	0.882	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8816	18.02
794	695878.6	4146630.7	0.01509	0.00214	0.00141	0.00293	0.00000	0.00012	0.00036	0.00121	0.00079	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.838	0.20419	0.01170	0.058708	0.013740	0.2061	0.0115	16.3438	0.829	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8292	17.17
795	695908.6	4146630.9	0.01441	0.00208	0.00138	0.00284	0.00000	0.00012	0.00035	0.00117	0.00075	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.124	0.19846	0.01146	0.056905	0.013740	0.2004	0.0112	15.6162	0.787	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7872	16.40
796	695938.6	4146631.0	0.01378	0.00203	0.00135	0.00275	0.00000	0.00012	0.00034	0.00113	0.00071	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.463	0.19369	0.01121	0.055102	0.013740	0.1946	0.0108	14.9421	0.745	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7452	15.69
797	695968.6	4146631.2	0.01321	0.00199	0.00132	0.00268	0.00000	0.00011	0.00033	0.00110	0.00068	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.865	0.18987	0.01096	0.053699	0.012595	0.1889	0.0105	14.3312	0.714	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7137	15.04
798	695998.6	4146631.4	0.01268	0.00195	0.00130	0.00260	0.00000	0.00011	0.00033	0.00107	0.00065	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.308	0.18606	0.01079	0.052096	0.012595	0.1889	0.0102	13.7691	0.682	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6822	14.45
799	696028.6	4146631.6	0.01218	0.00191	0.00128	0.00254	0.00000	0.00011	0.00032	0.00104	0.00062	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.784	0.18224	0.01063	0.050894	0.012595	0.1832	0.0099	13.2331	0.651	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6507	13.88
800	696058.6	4146631.8	0.01172	0.00188	0.00126	0.00248	0.00000	0.00011	0.00031	0.00102	0.00059	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.301	0.17938	0.01046	0.049692	0.012595	0.1775	0.0097	12.7402	0.619	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6192	13.36
801	696088.6	4146632.0	0.01130	0.00185	0.00124	0.00243	0.00000	0.00011	0.00031	0.00099	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.860	0.17652	0.01029	0.048690	0.012595	0.1775	0.0094	12.2950	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	12.88
802	696118.6	4146632.1	0.01090	0.00182	0.00123	0.00238	0.00000	0.00011	0.00030	0.00097	0.00054	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.440	0.17365	0.01021	0.047688	0.012595	0.1717	0.0093	11.8653	0.567	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5668	12.43
803	696148.6	4146632.3	0.01053	0.00180	0.00122	0.00234	0.00000	0.00011	0.00030	0.00095	0.00052	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.052	0.17175	0.01013	0.046887	0.012595	0.1717	0.0091	11.4740	0.546	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5458	12.02
804	696178.6	4146632.5	0.01019	0.00178	0.00121	0.00230	0.00000	0.00010	0.00030	0.00094	0.00050	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.695	0.16984	0.01004	0.046085	0.011450	0.1717	0.0090	11.1131	0.525	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5248	11.64
805	696208.6	4146632.7	0.00987	0.00176	0.00120	0.00226	0.00000	0.00010	0.00029	0.00092	0.00048	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.359	0.16793	0.00996	0.045284	0.011450	0.1660	0.0088	10.7686	0.504	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5038	11.27
806	696238.6	4146632.9	0.00957	0.00175	0.00119	0.00223	0.00000	0.00010	0.00029	0.00091	0.00046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.044	0.16698	0.00988	0.044683	0.011450	0.1660	0.0087	10.4520	0.483	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4828	10.93
807	696268.6	4146633.1	0.00929	0.00174	0.00119	0.00221	0.00000	0.00010	0.00029	0.00090	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.750	0.16602	0.00988	0.044282	0.011450	0.1660	0.0086	10.1566	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	10.62
808	696298.6	4146633.2	0.00903	0.00173	0.00119	0.00219	0.00000	0.00010	0.00029	0.00089	0.00043	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.478	0.16507	0.00988	0.043881	0.011450	0.1660	0.0085	9.8823	0.451	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4513	10.33
809	696328.6	4146633.4	0.00878	0.00173	0.00119	0.00217	0.00000	0.00010	0.00029	0.00088	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.215	0.16507	0.00988	0.043480	0.011450	0.1660	0.0084	9.6194	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	10.05
810	696358.6	4146633.6	0.00855	0.00173	0.00120	0.00216	0.00000	0.00010	0.00029	0.00087	0.00040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.974	0.16507	0.00996	0.043280	0.011450	0.1660	0.0083	9.3778	0.420	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4198	9.80
811	696388.6	4146633.8	0.00834	0.00174	0.00120	0.00215	0.00000	0.00010	0.00029	0.00087	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.753	0.16602	0.00996	0.043080	0.011450	0.1660	0.0083	9.1581	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	9.57
812	696418.6	4146634.0	0.00814	0.00175	0.00122	0.00216	0.00000	0.00010	0.00029	0.00087	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.543	0.16698	0.01013	0.043280	0.011450	0.1660	0.0083	8.9496	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	9.35
813	696448.6	4146634.2	0.00796	0.00177	0.00124	0.00217	0.00000	0.00011	0.00029	0.00088	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.354	0.16888	0.01029	0.043480	0.012595	0.1660	0.0084	8.7642	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	9.14
814	696478.6	4146634.3	0.00780	0.00181	0.00127	0.00220	0.00000	0.00011	0.00030	0.00089	0.00035	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.187	0.17270	0.01054	0.044081	0.012595	0.1717	0.0085	8.6067	0.367	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3673	8.97
815	696508.6	4146634.5	0.00766	0.00186	0.00131	0.00224	0.00000	0.00011	0.00030	0.00090	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.040	0.17747	0.01087	0.044883	0.012595	0.1717	0.0086	8.4658	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	8.82
816	696538.6	4146634.7	0.00755	0.00193	0.00136	0.00231	0.00000	0.00012	0.00032	0.00093	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.924	0.18415	0.01129	0.046286	0.013740	0.1832	0.0089	8.3717	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	8.72
817	696568.6	4146634.9	0.00747	0.00204	0.00145	0.00242	0.00000	0.00012	0.00033	0.00097	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.840	0.19465	0.01204	0.048490	0.013740	0.1889	0.0093	8.3073	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	8.64
818	696598.6	4146635.1	0.00745	0.00222	0.00159	0.00260	0.00000	0.00014	0.00036	0.00104	0.00031	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.819	0.21182	0.01320	0.052096	0.016030	0.2061	0.0099	8.3284	0.325	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3254	8.65
819	696629.6	4146635.6	0.00755	0.00257	0.00185	0.00296	0.00000	0.00016	0.00041	0.00118	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.924	0.24521	0.01536	0.059310	0.018320	0.2347	0.0113	8.5083	0.315	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3149	8.82
820	696659.5	4146635.1	0.00790	0.00334	0.00243	0.00377	0.00000	0.00021	0.00054	0.00150	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.292	0.31868	0.02017	0.075540	0.024044	0.3091	0.0143	9.0534	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	9.36
821	695548.5	4146658.7	0.02649	0.00317	0.00202	0.00461	0.00000	0.00018	0.00054	0.00192	0.00168	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	27.803	0.30246	0.01677	0.092371	0.020610	0.3091	0.0183	28.5625	1.763	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.7633	30.33
822	695578.5	4146658.8	0.02460	0.00300	0.00192	0.00433	0.00000	0.00017	0.00051	0.00180	0.00151	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	25.819	0.28624	0.01594	0.086760	0.019465	0.2920	0.0172	26.5367	1.585	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5848	28.12
823	695608.5	4146659.0	0.02295	0.00285	0.00183	0.00409	0.00000	0.00016	0.00049	0.00170	0.00137	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	24.087	0.27193	0.01519	0.081951	0.018320	0.2805	0.0162	24.7715	1.438	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4379	26.21
824	695638.5	4146659.2	0.02150	0.00273	0.00176	0.00388	0.00000	0.00015	0.00046	0.00161	0.00126	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	22.566	0.26048	0.01461	0.077744	0.017175	0.2633	0.0154	23.2142	1.322	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3224	24.54
825	695668.5	4146659.4	0.02022	0.00261	0.00169	0.00369	0.00000	0.00015	0.00044	0.00153	0.00116	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.222	0.24903	0.01403	0.073937	0.017175	0.2519	0.0146	21.8427	1.217	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2175	23.06
826	695698.5	4146659.6	0.01907	0.00252	0.00164	0.00353	0.00000	0.00014	0.00043	0.00146	0.00108	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.015	0.24044	0.01361	0.070731	0.016030	0.2462	0.0139	20.6160	1.134	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1335	21.75
827	695728.5	4146659.8	0.01805	0.00243	0.00158	0.00339	0.00000	0.00014	0.00041	0.00140	0.00100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.945	0.23186	0.01312	0.067925	0.016030	0.2347	0.0134	19.5215	1.050	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0496	20.57
828	695758.4	4146659.9	0.01712	0.00235	0.00154	0.00326	0.00000	0.00013	0.00040	0.00134	0.00094	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.968	0.22422	0.01278	0.065321	0.014885	0.2290	0.0128	18.5274	0.987	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9866	19.51
829	695788.4	4146660.1	0.01628	0.00228	0.00150	0.00314	0.00000	0.00013	0.00038	0.00129	0.00088	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.087	0.21754	0.01245	0.062916	0.014885	0.2175	0.0123	17.6245	0.924	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9236	18.55
830	695818.4	4146660.3	0.01551	0.00222	0.00146	0.00303	0.00000	0.00013	0.00037	0.00125	0.00083	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.279	0.21182	0.01212	0.060712	0.014885	0.2118	0.0119	16.8019	0.871	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8711	17.67
831	695848.4	4146660.5	0.01480	0.00216	0.00143	0.00293	0.00000	0.00012	0.00036	0.00121	0.00079	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.533	0.20610	0.01187	0.058708	0.013740	0.2061	0.0115	16.0415	0.829	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8292	16.87
832	695878.4	4146660.7	0.01415	0.00211	0.00140	0.00285	0.00000	0.00012	0.00035	0.00117	0.00074	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.851	0.20132	0.01162	0.057106	0.013740	0.2004	0.0112	15.3466	0.777	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7767	16.12
833	695908.4	4146660.9	0.01356	0.00206	0.00137	0.00276	0.00000	0.00012	0.00035	0.00114	0.00071	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.232	0.19655	0.01137	0.055302	0.013740	0.2004	0.0109	14.7202	0.745	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7452	15.47
834	695938.4	4146661.0	0.01300	0.00202	0.00135	0.00269	0.00000	0.00012	0.00034	0.00110	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.644	0.19274	0.01121	0.053900	0.013740	0.1946	0.0105	14.1210	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	14.82
835	695968.4	4146661.2	0.01249	0.00198	0.00133	0.00262	0.00000	0.00011	0.00033	0.00107	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.109	0.18892	0.01104	0.052497	0.012595	0.1889	0.0102	13.5732	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	14.24
836	695998.4	4146661.4	0.01202	0.00194	0.00131	0.00256	0.00000	0.00011	0.00032	0.00105	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.616	0.18510	0.01087	0.051295	0.012595	0.1832	0.0100	13.0688	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	13.71
837	696028.4	4146661.6	0.01158	0.00191	0.00129	0.00250	0.00000	0.00011	0.00032	0.00102	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.154	0.18224	0.01071	0.050093	0.012595	0.1832	0.0097	12.6024	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.21
838	696058.4	4146661.8	0.01116	0.00188	0.00127	0.00245	0.00000	0.00011	0.00031	0.00100	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.713	0.17938	0.01054	0.049091	0.012595	0.1775	0.0095	12.1517	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	12.74
839	696088.4	4146662.0	0.01078	0.00186	0.00126	0.00240	0.00000	0.00011	0.00031	0.00098	0.00054	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.314	0.17747	0.01046	0.048089	0.012595	0.1775	0.0094	11.7497	0.567	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5668	12.32
840	696118.4	4146662.1	0.01042	0.00183	0.00125	0.00236	0.00000	0.00011	0.00030	0.00096	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.936	0.17461	0.01038	0.047287	0.012595	0.1717	0.0092	11.3622	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	11.90
841	696148.4	4146662.3	0.01009	0.00181	0.00124	0.00232	0.00000	0.00011	0.00030	0.00095	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.590	0.17270	0.01029	0.046486	0.012595	0.1717	0.0091	11.0129	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.53
842	696178.4	4146662.5	0.00978	0.00179	0.00123	0.00229	0.00000	0.00011	0.00030	0.00093	0.00048	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.265	0.17079	0.01021	0.045885	0.012595	0.1717	0.0089	10.6848	0.504	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5038	11.19
843	696208.4	4146662.7	0.00948	0.00178	0.00122	0.00226	0.00000	0.00010	0.00030	0.00092	0.00046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.950	0.16984	0.01013	0.045284	0.011450	0.1717	0.0088	10.3670	0.483	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4828	10.85
844	696238.4	4146662.9	0.00921	0.00177	0.00122	0.00223	0.00000	0.00010	0.00029	0.00091	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.666	0.16888	0.01013	0.044683	0.011450	0.1660	0.0087	10.0763	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	10.54
845	696268.4	4146663.1	0.00895	0.00176	0.00121	0.00221	0.00000	0.00010	0.00029	0.00090	0.00043	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.394	0.16793	0.01004	0.044282	0.011450	0.1660	0.0086	9.8019	0.451	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4513	10.25
846	696298.4	4146663.2	0.00871	0.00176	0.00121	0.00219	0.00000	0.00010	0.00029	0.00089	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.142	0.16793	0.01004	0.043881	0.011450	0.1660	0.0085	9.5495	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	9.98
847	696328.4	4146663.4	0.00849	0.00175	0.00122	0.00218	0.00000	0.00010	0.00029	0.00088	0.00040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.911	0.16698	0.01013	0.043681	0.011450	0.1660	0.0084	9.3174	0.420	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4198	9.74
848	696358.4	4146663.6	0.00827	0.00176	0.00122	0.00217	0.00000	0.00010	0.00029	0.00088	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.680	0.16793	0.01013	0.043480	0.011450	0.1660	0.0084	9.0873	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	9.50
849	696388.4	4146663.8	0.00808	0.00177	0.00123	0.00217	0.00000	0.00011	0.00029	0.00088	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.480	0.16888	0.01021	0.043480	0.012595	0.1660	0.0084	8.8900	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	9.28
850	696418.4	4146664.0	0.00790	0.00178	0.00124	0.00217	0.00000	0.00011	0.00029	0.00088	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.292	0.16984	0.01029	0.043480	0.012595	0.1660	0.0084	8.7021	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	9.08
851	696448.4	4146664.2	0.00773	0.00180	0.00126	0.00219	0.00000	0.00011	0.00030	0.00088	0.00035	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.113	0.17175	0.01046	0.043881	0.012595	0.1717	0.0084	8.5319	0.367	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3673	8.90
852	696478.4	4146664.3	0.00758	0.00184	0.00129	0.00222	0.00000	0.00011	0.00030	0.00089	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.956	0.17556	0.01071	0.044482	0.012595	0.1717	0.0085	8.3792	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	8.74
853	696508.4	4146664.5	0.00746	0.00189	0.00133	0.00226	0.00000	0.00011	0.00031	0.00091	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.830	0.18033	0.01104	0.045284	0.012595	0.1775	0.0087	8.2651	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	8.61
854	696538.4	4146664.7	0.00736	0.00196	0.00139	0.00233	0.00000	0.00012	0.00032	0.00093	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.725	0.18701	0.01154	0.046686	0.013740	0.1832	0.0089	8.1758	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	8.51
855	696568.4	4146664.9	0.00729	0.00207	0.00148	0.00244	0.00000	0.00013	0.00034	0.00098	0.00031	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.651	0.19751	0.01229	0.048890	0.014885	0.1946	0.0094	8.1288	0.325	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3254	8.45
856	696598.4	4146665.1	0.00728	0.00225	0.00161	0.00262	0.00000	0.00014	0.00037	0.00105	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.641	0.21468	0.01336	0.052497	0.016030	0.2118	0.0100	8.1592	0.315	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3149	8.47
857	696630.1	4146665.6	0.00739	0.00261	0.00188	0.00299	0.00000	0.00016	0.00042	0.00119	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.756	0.24903	0.01561	0.059911	0.018320	0.2404	0.0114	8.3509	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	8.66
858	696660.1	4146665.1	0.00776	0.00339	0.00247	0.00382	0.00000	0.00021	0.00054	0.00151	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.145	0.32345	0.02050	0.076541	0.024044	0.3091	0.0144	8.9127	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	9.22
859	695548.3	4146688.7	0.02338	0.00294	0.00189	0.00420	0.00000	0.00017	0.00050	0.00174	0.00148	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	24.539	0.28052	0.01569	0.084155	0.019465	0.2862	0.0166	25.2413	1.553	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.5533	26.79
860	695578.3	4146688.8	0.02192	0.00281	0.00182	0.00399	0.00000	0.00016	0.00048	0.00165	0.00135	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	23.006	0.26811	0.01511	0.079948	0.018320	0.2748	0.0157	23.6783	1.417	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.4169	25.10
861	695608.3	4146689.0	0.02062	0.00270	0.00175	0.00380	0.00000	0.00015	0.00046	0.00157	0.00124	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.642	0.25762	0.01453	0.076141	0.017175	0.2633	0.0150	22.2857	1.301	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3015	23.59
862	695638.3	4146689.2	0.01945	0.00260	0.00169	0.00364	0.00000	0.00015	0.00044	0.00150	0.00114	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.414	0.24808	0.01403	0.072935	0.017175	0.2519	0.0143	21.0323	1.196	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1965	22.23
863	695668.3	4146689.4	0.01841	0.00251	0.00164	0.00349	0.00000	0.00014	0.00042	0.00144	0.00106	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.322	0.23949	0.01361	0.069929	0.016030	0.2404	0.0137	19.9156	1.113	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1125	21.03
864	695698.3	4146689.6	0.01747	0.00243	0.00160	0.00336	0.00000	0.00014	0.00041	0.00139	0.00099	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.336	0.23186	0.01328	0.067324	0.016030	0.2347	0.0133	18.9123	1.039	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0391	19.95
865	695728.3	4146689.8	0.01661	0.00236	0.00156	0.00324	0.00000	0.00014	0.00040	0.00133	0.00092	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.433	0.22518	0.01295	0.064920	0.016030	0.2290	0.0127	17.9939	0.966	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9656	18.96
866	695758.3	4146689.9	0.01583	0.00230	0.00152	0.00313	0.00000	0.00013	0.00039	0.00129	0.00087	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.615	0.21945	0.01262	0.062716	0.014885	0.2233	0.0123	17.1598	0.913	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9131	18.07
867	695788.3	4146690.1	0.01511	0.00224	0.00149	0.00303	0.00000	0.00013	0.00038	0.00125	0.00082	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.859	0.21373	0.01237	0.060712	0.014885	0.2175	0.0119	16.3900	0.861	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8606	17.25
868	695818.3	4146690.3	0.01446	0.00219	0.00146	0.00294	0.00000	0.00013	0.00037	0.00121	0.00077	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.177	0.20896	0.01212	0.058909	0.014885	0.2118	0.0115	15.6948	0.808	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8082	16.50
869	695848.3	4146690.5	0.01385	0.00214	0.00143	0.00286	0.00000	0.00012	0.00036	0.00117	0.00073	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.536	0.20419	0.01187	0.057306	0.013740	0.2061	0.0112	15.0407	0.766	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7662	15.81
870	695878.3	4146690.7	0.01328	0.00210	0.00140	0.00278	0.00000	0.00012	0.00035	0.00114	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.938	0.20037	0.01162	0.055703	0.013740	0.2004	0.0109	14.4308	0.735	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7347	15.17
871	695908.3	4146690.9	0.01276	0.00206	0.00138	0.00271	0.00000	0.00012	0.00034	0.00111	0.00066	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.392	0.19655	0.01146	0.054300	0.013740	0.1946	0.0106	13.8736	0.693	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6927	14.57
872	695938.3	4146691.0	0.01227	0.00202	0.00136	0.00265	0.00000	0.00012	0.00034	0.00108	0.00063	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.878	0.19274	0.01129	0.053098	0.013740	0.1946	0.0103	13.3539	0.661	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6612	14.02
873	695968.3	4146691.2	0.01182	0.00198	0.00134	0.00259	0.00000	0.00012	0.00033	0.00106	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.406	0.18892	0.01112	0.051896	0.013740	0.1889	0.0101	12.8705	0.630	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6297	13.50
874	695998.3	4146691.4	0.01140	0.00195	0.00132	0.00253	0.00000	0.00011	0.00033	0.00103	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.965	0.18606	0.01096	0.050694	0.012595	0.1889	0.0098	12.4240	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.03
875	696028.3	4146691.6	0.01100	0.00193	0.00131	0.00248	0.00000	0.00011	0.00032	0.00101	0.00055	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.545	0.18415	0.01087	0.049692	0.012595	0.1832	0.0096	11.9953	0.577	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5773	12.57
876	696058.3	4146691.8	0.01064	0.00190	0.00129	0.00244	0.00000	0.00011	0.00032	0.00099	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.167	0.18129	0.01071	0.048890	0.012595	0.1832	0.0094	11.6134	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	12.17
877	696088.3	4146692.0	0.01029	0.00188	0.00128	0.00240	0.00000	0.00011	0.00031	0.00098	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.800	0.17938	0.01063	0.048089	0.012595	0.1775	0.0094	11.2375	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	11.77
878	696118.3	4146692.1	0.00997	0.00186	0.00127	0.00236	0.00000	0.00011	0.00031	0.00096	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.464	0.17747	0.01054	0.047287	0.012595	0.1775	0.0092	10.8986	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.41
879	696148.3	4146692.3	0.00967	0.00184	0.00126	0.00233	0.00000	0.00011	0.00030	0.00094	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.149	0.17556	0.01046	0.046686	0.012595	0.1717	0.0090	10.5752	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	11.07
880	696178.3	4146692.5	0.00939	0.00183	0.00126	0.00230	0.00000	0.00011	0.00030	0.00093	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.855	0.17461	0.01046	0.046085	0.012595	0.1717	0.0089	10.2797	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	10.75
881	696208.3	4146692.7	0.00912	0.00181	0.00125	0.00227	0.00000	0.00011	0.00030	0.00092	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.572	0.17270	0.01038	0.045484	0.012595	0.1717	0.0088	9.9937	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	10.46
882	696238.3	4146692.9	0.00887	0.00180	0.00125	0.00225	0.00000	0.00011	0.00030	0.00091	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.310	0.17175	0.01038	0.045083	0.012595	0.1717	0.0087	9.7298	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	10.17
883	696268.3	4146693.1	0.00864	0.00180	0.00125	0.00223	0.00000	0.00011	0.00030	0.00090	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.068	0.17175	0.01038	0.044683	0.012595	0.1717	0.0086	9.4879	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	9.92
884	696298.3	4146693.2	0.00842	0.00179	0.00125	0.00221	0.00000	0.00011	0.00030	0.00089	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.837	0.17079	0.01038	0.044282	0.012595	0.1717	0.0085	9.2556	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	9.66
885	696328.3	4146693.4	0.00821	0.00179	0.00125	0.00220	0.00000	0.00011	0.00030	0.00089	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.617	0.17079	0.01038	0.044081	0.012595	0.1717	0.0085	9.0350	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	9.43

Receptor No. (m)	UTM-X (m)	UTM-Y (m)	2045 Operation - Total Roads Period Average Concentration DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	2045 Operation - Rail Line Period Average Concentration DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	2045 - Total Roads Cancer Risks DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde	2045 Roads Cancer Risks Total	2045 - Rail Line Cancer Risks DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde	2045 Rail Cancer Risks Total	Total Cancer Risk
886	696358.3	4146693.6	0.00802	0.00180	0.00126	0.00219	0.00000	0.00011	0.00030	0.00088	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.417	0.17175	0.01046	0.043881	0.012595	0.1717	0.0084	8.8363	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	9.22
887	696388.3	4146693.8	0.00783	0.00181	0.00127	0.00219	0.00000	0.00011	0.00030	0.00088	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.218	0.17270	0.01054	0.043881	0.012595	0.1717	0.0084	8.6379	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	9.02
888	696418.3	4146694.0	0.00767	0.00182	0.00128	0.00220	0.00000	0.00011	0.00030	0.00089	0.00035	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.050	0.17365	0.01063	0.044081	0.012595	0.1717	0.0085	8.4713	0.367	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3673	8.84
889	696448.3	4146694.2	0.00752	0.00185	0.00130	0.00222	0.00000	0.00011	0.00030	0.00089	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.893	0.17652	0.01079	0.044482	0.012595	0.1717	0.0085	8.3173	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	8.67
890	696478.3	4146694.3	0.00738	0.00188	0.00133	0.00225	0.00000	0.00011	0.00031	0.00090	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.746	0.17938	0.01104	0.045083	0.012595	0.1775	0.0086	8.1799	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	8.53
891	696508.3	4146694.5	0.00727	0.00193	0.00137	0.00229	0.00000	0.00012	0.00032	0.00092	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.630	0.18415	0.01137	0.045885	0.013740	0.1832	0.0088	8.0774	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	8.41
892	696538.3	4146694.7	0.00718	0.00201	0.00143	0.00236	0.00000	0.00012	0.00033	0.00095	0.00031	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.536	0.19178	0.01187	0.047287	0.013740	0.1889	0.0091	7.9985	0.325	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3254	8.32
893	696568.3	4146694.9	0.00712	0.00212	0.00151	0.00247	0.00000	0.00013	0.00034	0.00099	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.473	0.20228	0.01253	0.049491	0.014885	0.1946	0.0094	7.9561	0.315	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3149	8.27
894	696598.3	4146695.1	0.00712	0.00230	0.00165	0.00266	0.00000	0.00014	0.00037	0.00106	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.473	0.21945	0.01370	0.053298	0.016030	0.2118	0.0101	7.9973	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	8.30
895	696630.6	4146695.6	0.00724	0.00266	0.00193	0.00304	0.00000	0.00016	0.00043	0.00121	0.00028	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.599	0.25380	0.01602	0.060913	0.018320	0.2462	0.0115	8.2056	0.294	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2939	8.50
896	696660.6	4146695.1	0.00762	0.00346	0.00253	0.00388	0.00000	0.00021	0.00056	0.00154	0.00028	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.998	0.33013	0.02100	0.077744	0.024044	0.3206	0.0147	8.7858	0.294	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2939	9.08
897	695548.1	4146718.7	0.02071	0.00277	0.00180	0.00387	0.00000	0.00016	0.00047	0.00160	0.00132	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.736	0.26430	0.01494	0.077543	0.018320	0.2691	0.0153	22.3958	1.385	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3854	23.78
898	695578.1	4146718.8	0.01958	0.00267	0.00175	0.00371	0.00000	0.00015	0.00045	0.00154	0.00121	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	20.550	0.25476	0.01453	0.074337	0.017175	0.2576	0.0147	21.1835	1.270	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2700	22.45
899	695608.1	4146719.0	0.01856	0.00259	0.00170	0.00357	0.00000	0.00015	0.00044	0.00147	0.00112	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.480	0.24712	0.01411	0.071532	0.017175	0.2519	0.0140	20.0957	1.176	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1755	21.27
900	695638.1	4146719.2	0.01764	0.00251	0.00166	0.00344	0.00000	0.00014	0.00042	0.00142	0.00104	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.514	0.23949	0.01378	0.068927	0.016030	0.2404	0.0135	19.1064	1.092	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0915	20.20
901	695668.1	4146719.4	0.01679	0.00245	0.00162	0.00333	0.00000	0.00014	0.00041	0.00137	0.00097	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.622	0.23377	0.01345	0.066723	0.016030	0.2347	0.0131	18.1998	1.018	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0181	19.22
902	695698.1	4146719.6	0.01602	0.00238	0.00158	0.00322	0.00000	0.00014	0.00040	0.00133	0.00091	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.814	0.22709	0.01312	0.064519	0.016030	0.2290	0.0127	17.3764	0.955	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9551	18.33
903	695728.1	4146719.8	0.01531	0.00233	0.00155	0.00312	0.00000	0.00013	0.00039	0.00128	0.00085	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.069	0.22232	0.01287	0.062516	0.014885	0.2233	0.0122	16.6168	0.892	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8921	17.51
904	695758.1	4146719.9	0.01465	0.00228	0.00152	0.00304	0.00000	0.00013	0.00038	0.00125	0.00081	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.376	0.21754	0.01262	0.060913	0.014885	0.2175	0.0119	15.9115	0.850	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8501	16.76
905	695788.1	4146720.1	0.01405	0.00223	0.00149	0.00295	0.00000	0.00013	0.00037	0.00121	0.00076	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.746	0.21277	0.01237	0.059109	0.014885	0.2118	0.0115	15.2688	0.798	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7977	16.07
906	695818.1	4146720.3	0.01349	0.00218	0.00147	0.00288	0.00000	0.00013	0.00037	0.00118	0.00072	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.159	0.20800	0.01220	0.057707	0.014885	0.2118	0.0113	14.6744	0.756	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7557	15.43
907	695848.1	4146720.5	0.01296	0.00214	0.00145	0.00281	0.00000	0.00012	0.00036	0.00115	0.00069	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.602	0.20419	0.01204	0.056304	0.013740	0.2061	0.0110	14.1056	0.724	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7242	14.83
908	695878.1	4146720.7	0.01248	0.00211	0.00142	0.00274	0.00000	0.00012	0.00035	0.00112	0.00065	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.098	0.20132	0.01179	0.054901	0.013740	0.2004	0.0107	13.5913	0.682	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6822	14.27
909	695908.1	4146720.9	0.01202	0.00207	0.00140	0.00268	0.00000	0.00012	0.00035	0.00110	0.00062	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.616	0.19751	0.01162	0.053699	0.013740	0.2004	0.0105	13.1031	0.651	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6507	13.75
910	695938.1	4146721.0	0.01159	0.00204	0.00139	0.00263	0.00000	0.00012	0.00034	0.00107	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.164	0.19465	0.01154	0.052697	0.013740	0.1946	0.0102	12.6419	0.630	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6297	13.27
911	695968.1	4146721.2	0.01120	0.00201	0.00137	0.00258	0.00000	0.00012	0.00033	0.00105	0.00057	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.755	0.19178	0.01137	0.051696	0.013740	0.1889	0.0100	12.2226	0.598	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5982	12.82
912	695998.1	4146721.4	0.01082	0.00198	0.00136	0.00253	0.00000	0.00012	0.00033	0.00103	0.00055	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.356	0.18892	0.01129	0.050694	0.013740	0.1889	0.0098	11.8196	0.577	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5773	12.40
913	696028.1	4146721.6	0.01047	0.00196	0.00134	0.00249	0.00000	0.00012	0.00033	0.00101	0.00052	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.989	0.18701	0.01112	0.049892	0.013740	0.1889	0.0096	11.4492	0.546	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5458	11.99
914	696058.1	4146721.8	0.01014	0.00194	0.00133	0.00245	0.00000	0.00011	0.00032	0.00099	0.00050	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.643	0.18510	0.01104	0.049091	0.012595	0.1832	0.0094	11.0930	0.525	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5248	11.62
915	696088.1	4146722.0	0.00984	0.00192	0.00132	0.00241	0.00000	0.00011	0.00032	0.00098	0.00048	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.328	0.18320	0.01096	0.048289	0.012595	0.1832	0.0094	10.7752	0.504	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5038	11.28
916	696118.1	4146722.1	0.00955	0.00190	0.00131	0.00238	0.00000	0.00011	0.00031	0.00096	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.023	0.18129	0.01087	0.047688	0.012595	0.1775	0.0092	10.4624	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	10.96
917	696148.1	4146722.3	0.00928	0.00189	0.00131	0.00235	0.00000	0.00011	0.00031	0.00095	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.740	0.18033	0.01087	0.047087	0.012595	0.1775	0.0091	10.1773	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	10.65
918	696178.1	4146722.5	0.00902	0.00188	0.00130	0.00232	0.00000	0.00011	0.00031	0.00094	0.00043	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.467	0.17938	0.01079	0.046486	0.012595	0.1775	0.0090	9.9027	0.451	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4513	10.35
919	696208.1	4146722.7	0.00878	0.00187	0.00130	0.00230	0.00000	0.00011	0.00031	0.00093	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.215	0.17842	0.01079	0.046085	0.012595	0.1775	0.0089	9.6494	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	10.09
920	696238.1	4146722.9	0.00855	0.00186	0.00129	0.00228	0.00000	0.00011	0.00031	0.00092	0.00040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.974	0.17747	0.01071	0.045684	0.012595	0.1775	0.0088	9.4064	0.420	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4198	9.83
921	696268.1	4146723.1	0.00834	0.00185	0.00129	0.00226	0.00000	0.00011	0.00030	0.00091	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.753	0.17652	0.01071	0.045284	0.012595	0.1717	0.0087	9.1788	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	9.59
922	696298.1	4146723.2	0.00814	0.00185	0.00129	0.00225	0.00000	0.00011	0.00030	0.00091	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.543	0.17652	0.01071	0.045083	0.012595	0.1717	0.0087	8.9687	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	9.37
923	696328.1	4146723.4	0.00795	0.00185	0.00130	0.00224	0.00000	0.00011	0.00030	0.00090	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.344	0.17652	0.01079	0.044883	0.012595	0.1717	0.0086	8.7691	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	9.16
924	696358.1	4146723.6	0.00777	0.00186	0.00131	0.00224	0.00000	0.00011	0.00030	0.00090	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.155	0.17747	0.01087	0.044883	0.012595	0.1717	0.0086	8.5812	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	8.96
925	696388.1	4146723.8	0.00761	0.00187	0.00132	0.00224	0.00000	0.00011	0.00031	0.00090	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.987	0.17842	0.01096	0.044883	0.012595	0.1775	0.0086	8.4201	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	8.78
926	696418.1	4146724.0	0.00746	0.00189	0.00133	0.00225	0.00000	0.00011	0.00031	0.00090	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.830	0.18033	0.01104	0.045083	0.012595	0.1775	0.0086	8.2648	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	8.61
927	696448.1	4146724.2	0.00732	0.00191	0.00135	0.00227	0.00000	0.00012	0.00031	0.00091	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.683	0.18224	0.01121	0.045484	0.013740	0.1775	0.0087	8.1216	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	8.47
928	696478.1	4146724.3	0.00720	0.00195	0.00138	0.00230	0.00000	0.00012	0.00032	0.00092	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.557	0.18606	0.01146	0.046085	0.013740	0.1832	0.0088	8.0061	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	8.34
929	696508.1	4146724.5	0.00709	0.00200	0.00142	0.00234	0.00000	0.00012	0.00033	0.00094	0.00031	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.441	0.19083	0.01179	0.046887	0.013740	0.1889	0.0090	7.9025	0.325	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3254	8.23
930	696538.1	4146724.7	0.00702	0.00207	0.00148	0.00241	0.00000	0.00013	0.00034	0.00096	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.368	0.19751	0.01229	0.048289	0.014885	0.1946	0.0092	7.8447	0.315	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3149	8.16
931	696568.1	4146724.9	0.00697	0.00218	0.00157	0.00253	0.00000	0.00013	0.00035	0.00101	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.315	0.20800	0.01303	0.050694	0.014885	0.2004	0.0096	7.8120	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	8.12
932	696598.1	4146725.1	0.00698	0.00236	0.00170	0.00271	0.00000	0.00014	0.00038	0.00108	0.00028	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.326	0.22518	0.01411	0.054300	0.016030	0.2175	0.0103	7.8634	0.294	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2939	8.16
933	696631.1	4146725.6	0.00711	0.00273	0.00198	0.00310	0.00000	0.00017	0.00044	0.00123	0.00027	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.462	0.26048	0.01644	0.062115	0.019465	0.2519	0.0117	8.0845	0.283	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2834	8.37
934	696661.1	4146725.1	0.00751	0.00354	0.00259	0.00395	0.00000	0.00022	0.00057	0.00156	0.00027	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.882	0.33777	0.02150	0.079146	0.025189	0.3263	0.0149	8.6870	0.283	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2834	8.97
935	695523.9	4146736.6	0.02012	0.00276	0.00181	0.00383	0.00000	0.00016	0.00047	0.00158	0.00132	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	21.117	0.26334	0.01502	0.076742	0.018320	0.2691	0.0151	21.7747	1.385	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.3854	23.16
936	695547.9	4146748.7	0.01842	0.00266	0.00176	0.00363	0.00000	0.00015	0.00045	0.00150	0.00118	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	19.333	0.25380	0.01461	0.072734	0.017175	0.2576	0.0143	19.9631	1.238	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2385	21.20
937	695577.9	4146748.8	0.01756	0.00259	0.00172	0.00351	0.00000	0.00015	0.00044	0.00145	0.00109	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.430	0.24712	0.01428	0.070330	0.017175	0.2519	0.0138	19.0449	1.144	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1440	20.19
938	695607.9	4146749.0	0.01676	0.00253	0.00168	0.00341	0.00000	0.00015	0.00043	0.00140	0.00101	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.591	0.24140	0.01395	0.068326	0.017175	0.2462	0.0134	18.1910	1.060	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0601	19.25
939	695637.9	4146749.2	0.01603	0.00248	0.00165	0.00331	0.00000	0.00014	0.00042	0.00136	0.00095	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.824	0.23663	0.01370	0.066323	0.016030	0.2404	0.0130	17.4105	0.997	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9971	18.41
940	695667.9	4146749.4	0.01535	0.00242	0.00162	0.00322	0.00000	0.00014	0.00041	0.00132	0.00089	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.111	0.23090	0.01345	0.064519	0.016030	0.2347	0.0126	16.6829	0.934	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9341	17.62
941	695697.9	4146749.6	0.01472	0.00237	0.00159	0.00313	0.00000	0.00014	0.00040	0.00128	0.00084	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.449	0.22613	0.01320	0.062716	0.016030	0.2290	0.0122	16.0088	0.882	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8816	16.89
942	695727.9	4146749.8	0.01414	0.00233	0.00157	0.00306	0.00000	0.00014	0.00039	0.00125	0.00079	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.841	0.22232	0.01303	0.061313	0.016030	0.2233	0.0119	15.3886	0.829	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8292	16.22
943	695757.9	4146749.9	0.01359	0.00229	0.00155	0.00298	0.00000	0.00013	0.00038	0.00122	0.00075	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.263	0.21850	0.01287	0.059710	0.014885	0.2175	0.0116	14.7986	0.787	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7872	15.59
944	695787.9	4146750.1	0.01308	0.00225	0.00152	0.00292	0.00000	0.00013	0.00037	0.00119	0.00071	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.728	0.21468	0.01262	0.058508	0.014885	0.2118	0.0114	14.2521	0.745	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7452	15.00
945	695817.9	4146750.3	0.01260	0.00221	0.00150	0.00285	0.00000	0.00013	0.00037	0.00116	0.00067	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.224	0.21087	0.01245	0.057106	0.014885	0.2118	0.0111	13.7426	0.703	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7032	14.45
946	695847.9	4146750.5	0.01216	0.00218	0.00148	0.00279	0.00000	0.00013	0.00036	0.00114	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.763	0.20800	0.01229	0.055903	0.014885	0.2061	0.0109	13.2707	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	13.94
947	695877.9	4146750.7	0.01174	0.00215	0.00147	0.00274	0.00000	0.00013	0.00036	0.00111	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.322	0.20514	0.01220	0.054901	0.014885	0.2061	0.0106	12.8256	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	13.47
948	695907.9	4146750.9	0.01134	0.00212	0.00145	0.00269	0.00000	0.00012	0.00035	0.00109	0.00059	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.902	0.20228	0.01204	0.053900	0.013740	0.2004	0.0104	12.3947	0.619	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6192	13.01
949	695937.9	4146751.0	0.01097	0.00209	0.00144	0.00264	0.00000	0.00012	0.00035	0.00107	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.514	0.19942	0.01195	0.052898	0.013740	0.2004	0.0102	12.0022	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	12.59
950	695967.9	4146751.2	0.01062	0.00207	0.00142	0.00260	0.00000	0.00012	0.00034	0.00105	0.00054	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.146	0.19751	0.01179	0.052096	0.013740	0.1946	0.0100	11.6261	0.567	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5668	12.19
951	695997.9	4146751.4	0.01029	0.00205	0.00141	0.00256	0.00000	0.00012	0.00034	0.00104	0.00052	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.800	0.19560	0.01170	0.051295	0.013740	0.1946	0.0099	11.2769	0.546	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5458	11.82
952	696027.9	4146751.6	0.00998	0.00202	0.00140	0.00252	0.00000	0.00012	0.00033	0.00102	0.00050	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.475	0.19274	0.01162	0.050493	0.013740	0.1889	0.0097	10.9418	0.525	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5248	11.47
953	696057.9	4146751.8	0.00969	0.00201	0.00139	0.00248	0.00000	0.00012	0.00033	0.00100	0.00048	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.170	0.19178	0.01154	0.049692	0.013740	0.1889	0.0095	10.6354	0.504	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5038	11.14
954	696087.9	4146752.0	0.00942	0.00199	0.00138	0.00245	0.00000	0.00012	0.00033	0.00099	0.00046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.887	0.18987	0.01146	0.049091	0.013740	0.1889	0.0094	10.3494	0.483	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4828	10.83
955	696117.9	4146752.1	0.00916	0.00197	0.00137	0.00242	0.00000	0.00012	0.00033	0.00098	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.614	0.18797	0.01137	0.048490	0.013740	0.1889	0.0094	10.0738	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	10.54
956	696147.9	4146752.3	0.00892	0.00196	0.00137	0.00240	0.00000	0.00012	0.00032	0.00097	0.00043	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.362	0.18701	0.01137	0.048089	0.013740	0.1832	0.0093	9.8147	0.451	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4513	10.27
957	696177.9	4146752.5	0.00869	0.00195	0.00136	0.00238	0.00000	0.00012	0.00032	0.00096	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.121	0.18606	0.01129	0.047688	0.013740	0.1832	0.0092	9.5718	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	10.00
958	696207.9	4146752.7	0.00847	0.00194	0.00136	0.00236	0.00000	0.00012	0.00032	0.00095	0.00040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.890	0.18510	0.01129	0.047287	0.013740	0.1832	0.0091	9.3394	0.420	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4198	9.76
959	696237.9	4146752.9	0.00827	0.00194	0.00136	0.00234	0.00000	0.00012	0.00032	0.00094	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.680	0.18510	0.01129	0.046887	0.013740	0.1832	0.0090	9.1290	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	9.54
960	696267.9	4146753.1	0.00807	0.00194	0.00136	0.00233	0.00000	0.00012	0.00032	0.00094	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.470	0.18510	0.01129	0.046686	0.013740	0.1832	0.0090	8.9189	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	9.31
961	696297.9	4146753.2	0.00789	0.00193	0.00136	0.00232	0.00000	0.00012	0.00032	0.00093	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.281	0.18415	0.01129	0.046486	0.013740	0.1832	0.0089	8.7287	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	9.11
962	696327.9	4146753.4	0.00772	0.00194	0.00137	0.00231	0.00000	0.00012	0.00032	0.00093	0.00035	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.103	0.18510	0.01137	0.046286	0.013740	0.1832	0.0089	8.5512	0.367	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3673	8.92
963	696357.9	4146753.6	0.00756	0.00194	0.00137	0.00231	0.00000	0.00012	0.00032	0.00093	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.935	0.18510	0.01137	0.046286	0.013740	0.1832	0.0089	8.3832	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	8.74
964	696387.9	4146753.8	0.00741	0.00196	0.00139	0.00231	0.00000	0.00012	0.00032	0.00093	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.777	0.18701	0.01154	0.046286	0.013740	0.1832	0.0089	8.2279	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	8.57
965	696417.9	4146754.0	0.00727	0.00197	0.00140	0.00232	0.00000	0.00012	0.00032	0.00093	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.630	0.18797	0.01162	0.046486	0.013740	0.1832	0.0089	8.0822	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	8.42
966	696447.9	4146754.2	0.00715	0.00200	0.00142	0.00234	0.00000	0.00012	0.00033	0.00094	0.00031	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.504	0.19083	0.01179	0.046887	0.013740	0.1889	0.0090	7.9655	0.325	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3254	8.29
967	696477.9	4146754.3	0.00704	0.00203	0.00145	0.00237	0.00000	0.00012	0.00033	0.00095	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.389	0.19369	0.01204	0.047488	0.013740	0.1889	0.0091	7.8538	0.315	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3149	8.17
968	696507.9	4146754.5	0.00694	0.00209	0.00149	0.00242	0.00000	0.00013	0.00034	0.00097	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.284	0.19942	0.01237	0.048490	0.014885	0.1946	0.0093	7.7630	0.315	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3149	8.08
969	696537.9	4146754.7	0.00687	0.00216	0.00155	0.00249	0.00000	0.00013	0.00035	0.00099	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.210	0.20610	0.01287	0.049892	0.014885	0.2004	0.0094	7.7040	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	8.01
970	696567.9	4146754.9	0.00684	0.00227	0.00163	0.00260	0.00000	0.00014	0.00037	0.00104	0.00028	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.179	0.21659	0.01353	0.052096	0.016030	0.2118	0.0099	7.6990	0.294	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2939	7.99
971	696597.9	4146755.1	0.00686	0.00245	0.00177	0.00279	0.00000	0.00015	0.00040	0.00111	0.00027	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.200	0.23377	0.01469	0.055903	0.017175	0.2290	0.0106	7.7611	0.283	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2834	8.04
972	696631.6	4146755.6	0.00700	0.00283	0.00206	0.00318	0.00000	0.00017	0.00046	0.00126	0.00027	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.347	0.27002	0.01710	0.063718	0.019465	0.2633	0.0120	7.9926	0.283	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2834	8.28
973	696661.6	4146755.1	0.00741	0.00365	0.00268	0.00405	0.00000	0.00023	0.00058	0.00160	0.00026	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.777	0.34826	0.02225	0.081150	0.026334	0.3320	0.0153	8.6025	0.273	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2729	8.88
974	695521.7	4146774.5	0.01736	0.00267	0.00178	0.00358	0.00000	0.00015	0.00045	0.00147	0.00115	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	18.220	0.25476	0.01478	0.071733	0.017175	0.2576	0.0140	18.8504	1.207	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.2070	20.06
975	695547.7	4146778.7	0.01650	0.00263	0.00176	0.00348	0.00000	0.00015	0.00044	0.00143	0.00106	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	17.318	0.25094	0.01461	0.069729	0.017175	0.2519	0.0136	17.9357	1.113	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.1125	19.05
976	695577.7	4146778.8	0.01584	0.00258	0.00174	0.00340	0.00000	0.00015	0.00043	0.00139	0.00099	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	16.625	0.24617	0.01444	0.068126	0.017175	0.2462	0.0133	17.2303	1.039	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	1.0391	18.27
977	695607.7	4146779.0	0.01522	0.00254	0.00171	0.00332	0.00000	0.00015	0.00042	0.00136	0.00092	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.974	0.24235	0.01419	0.066523	0.017175	0.2404	0.0130	16.5679	0.966	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9656	17.53
978	695637.7	4146779.2	0.01464	0.00250	0.00169	0.00324	0.00000	0.00015	0.00042	0.00133	0.00087	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.366	0.23854	0.01403	0.064920	0.017175	0.2404	0.0127	15.9533	0.913	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9131	16.87
979	695667.7	4146779.4	0.01410	0.00246	0.00167	0.00317	0.00000	0.00014	0.00041	0.00129	0.00082	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.799	0.23472	0.01386	0.063517	0.016030	0.2347	0.0123	15.3739	0.861	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8606	16.23
980	695697.7	4146779.6	0.01359	0.00242	0.00165	0.00311	0.00000	0.00014	0.00040	0.00127	0.00077	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.263	0.23090	0.01370	0.062315	0.016030	0.2290	0.0121	14.8276	0.808	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8082	15.64
981	695727.7	4146779.8	0.01311	0.00238	0.00163	0.00305	0.00000	0.00014	0.00040	0.00124	0.00073	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.760	0.22709	0.01353	0.061113	0.016030	0.2290	0.0118	14.3183	0.766	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7662	15.08
982	695757.7	4146779.9	0.01265	0.00235	0.00161	0.00299	0.00000	0.00014	0.00039	0.00121	0.00069	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.277	0.22422	0.01336	0.059911	0.016030	0.2233	0.0115	13.8253	0.724	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7242	14.55
983	695787.7	4146780.1	0.01223	0.00232	0.00159	0.00293	0.00000	0.00014	0.00038	0.00119	0.00066	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.836	0.22136	0.01320	0.058708	0.016030	0.2175	0.0114	13.3743	0.693	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6927	14.07
984	695817.7	4146780.3	0.01182	0.00229	0.00157	0.00288	0.00000	0.00014	0.00038	0.00117	0.00063	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.406	0.21850	0.01303	0.057707	0.016030	0.2175	0.0112	12.9398	0.661	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6612	13.60
985	695847.7	4146780.5	0.01144	0.00226	0.00156	0.00283	0.00000	0.00013	0.00037	0.00115	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.007	0.21564	0.01295	0.056705	0.014885	0.2118	0.0110	12.5299	0.630	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6297	13.16
986	695877.7	4146780.7	0.01108	0.00224	0.00154	0.00278	0.00000	0.00013	0.00037	0.00113	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.629	0.21373	0.01278	0.055703	0.014885	0.2118	0.0108	12.1488	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	12.76
987	695907.7	4146780.9	0.01074	0.00221	0.00153	0.00274	0.00000	0.00013	0.00036	0.00111	0.00055	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.272	0.21087	0.01270	0.054901	0.014885	0.2061	0.0106	11.7823	0.577	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5773	12.36
988	695937.7	4146781.0	0.01042	0.00219	0.00152	0.00270	0.00000	0.00013	0.00036	0.00109	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.936	0.20896	0.01262	0.054100	0.014885	0.2061	0.0104	11.4435	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	12.00
989	695967.7	4146781.2	0.01011	0.00217	0.00151	0.00266	0.00000	0.00013	0.00036	0.00108	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.611	0.20705	0.01253	0.053298	0.014885	0.2061	0.0103	11.1152	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	11.65
990	695997.7	4146781.4	0.00982	0.00215	0.00150	0.00263	0.00000	0.00013	0.00035	0.00106	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.307	0.20514	0.01245	0.052697	0.014885	0.2004	0.0101	10.8023	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.32
991	696027.7	4146781.6	0.00955	0.00213	0.00149	0.00259	0.00000	0.00013	0.00035	0.00105	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.023	0.20323	0.01237	0.051896	0.014885	0.2004	0.0100	10.5161	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	11.01
992	696057.7	4146781.8	0.00929	0.00211	0.00148	0.00256	0.00000	0.00013	0.00035	0.00103	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.750	0.20132	0.01229	0.051295	0.014885	0.2004	0.0098	10.2404	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	10.71
993	696087.7	4146782.0	0.00905	0.00210	0.00147	0.00254	0.00000	0.00013	0.00034	0.00102	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.499	0.20037	0.01220	0.050894	0.014885	0.1946	0.0097	9.9812	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	10.44
994	696117.7	4146782.1	0.00882	0.00209	0.00147	0.00251	0.00000	0.00013	0.00034	0.00101	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.257	0.19942	0.01220	0.050293	0.014885	0.1946	0.0096	9.7382	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	10.18
995	696147.7	4146782.3	0.00860	0.00208	0.00146	0.00249	0.00000	0.00012	0.00034	0.00100	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.026	0.19846	0.01212	0.049892	0.013740	0.1946	0.0095	9.5046	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	9.93
996	696177.7	4146782.5	0.00840	0.00207	0.00146	0.00247	0.00000	0.00012	0.00034	0.00099	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.816	0.19751	0.01212	0.049491	0.013740	0.1946	0.0094	9.2932	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	9.70
997	696207.7	4146782.7	0.00820	0.00206	0.00146	0.00245	0.00000	0.00012	0.00034	0.00098	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.606	0.19655	0.01212	0.049091	0.013740	0.1946	0.0094	9.0819	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	9.48
998	696237.7	4146782.9	0.00802	0.00206	0.00146	0.00244	0.00000	0.00012	0.00034	0.00098	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.417	0.19655	0.01212	0.048890	0.013740	0.1946	0.0094	8.8928	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	9.28
999	696267.7	4146783.1	0.00785	0.00206	0.00146	0.00243	0.00000	0.00012	0.00034	0.00097	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.239	0.19655	0.01212	0.048690	0.013740	0.1946	0.0093	8.7140	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	9.09
1000	696297.7	4146783.2	0.00768	0.00206	0.00146	0.00242	0.00000	0.00012	0.00034	0.00097	0.00035	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.061	0.19655	0.01212	0.048490	0.013740	0.1946	0.0093	8.5354	0.367	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3673	8.90
1001	696327.7	4146783.4	0.00753	0.00206	0.00146	0.00242	0.00000	0.00012	0.00034	0.00097	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.903	0.19655	0.01212	0.048490	0.013740	0.1946	0.0093	8.3780	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	8.73
1002	696357.7	4146783.6	0.00738	0.00207	0.00147	0.00242	0.00000	0.00013	0.00034	0.00097	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.746	0.19751	0.01220	0.048490	0.014885	0.1946	0.0093	8.2227	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	8.57
1003	696387.7	4146783.8	0.00724	0.00208	0.00148	0.00242	0.00000	0.00013	0.00034	0.00097	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.599	0.19846	0.01229	0.048490	0.014885	0.1946	0.0093	8.0768	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	8.41
1004	696417.7	4146784.0	0.00712	0.00210	0.00150	0.00243	0.00000	0.00013	0.00034	0.00097	0.00031	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.473	0.20037	0.01245	0.048690	0.014885	0.1946	0.0093	7.9532	0.325	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3254	8.28
1005	696447.7	4146784.2	0.00701	0.00212	0.00152	0.00245	0.00000	0.00013	0.00035	0.00098	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.357	0.20228	0.01262	0.049091	0.014885	0.2004	0.0094	7.8460	0.315	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3149	8.16
1006	696477.7	4146784.3	0.00691	0.00216	0.00155	0.00248	0.00000	0.00013	0.00035	0.00099	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.252	0.20610	0.01287	0.049692	0.014885	0.2004	0.0094	7.7458	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	8.05
1007	696507.7	4146784.5	0.00682	0.00221	0.00159	0.00253	0.00000	0.00014	0.00036	0.00101	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.158	0.21087	0.01320	0.050694	0.016030	0.2061	0.0096	7.6645	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	7.97
1008	696537.7	4146784.7	0.00676	0.00229	0.00165	0.00261	0.00000	0.00014	0.00037	0.00104	0.00028	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.095	0.21850	0.01370	0.052297	0.016030	0.2118	0.0099	7.6173	0.294	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2939	7.91
1009	696569.7	4146784.9	0.00674	0.00241	0.00174	0.00273	0.00000	0.00015	0.00039	0.00108	0.00027	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.074	0.22995	0.01444	0.054701	0.017175	0.2233	0.0103	7.6239	0.283	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2834	7.91
1010	696599.7	4146785.1	0.00677	0.00259	0.00188	0.00292	0.00000	0.00016	0.00042	0.00116	0.00026	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.106	0.24712	0.01561	0.058508	0.018320	0.2404	0.0111	7.6966	0.273	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2729	7.97
1011	696632.1	4146785.6	0.00692	0.00296	0.00216	0.00331	0.00000	0.00018	0.00048	0.00131	0.00026	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.263	0.28243	0.01793	0.066323	0.020610	0.2748	0.0125	7.9375	0.273	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2729	8.21
1012	696662.1	4146785.1	0.00734	0.00379	0.00279	0.00418	0.00000	0.00024	0.00061	0.00165	0.00025	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.704	0.36162	0.02316	0.083755	0.027479	0.3492	0.0157	8.5647	0.262	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2624	8.83
1013	695545.6	4146812.6	0.01478	0.00272	0.00186	0.00347	0.00000	0.00016	0.00045	0.00141	0.00094	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.512	0.25953	0.01544	0.069528	0.018320	0.2576	0.0135	16.1464	0.987	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9866	17.13

Receptor No. (m)	UTM-X (m)	UTM-Y (m)	2045 Operation - Total Roads Period Average Concentration								2045 Operation - Rail Line Period Average Concentration								2045 - Total Roads Cancer Risks							2045 Roads Cancer Risks Total	2045 - Rail Line Cancer Risks							2045 Rail Cancer Risks Total	Total Cancer Risk
			DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde		DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde		
1014	695577.5	4146808.8	0.01443	0.00267	0.00182	0.00339	0.00000	0.00016	0.00044	0.00138	0.00089	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.145	0.25476	0.01511	0.067925	0.018320	0.2519	0.0132	15.7663	0.934	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.9341	16.70
1015	695607.5	4146809.0	0.01394	0.00263	0.00181	0.00333	0.00000	0.00016	0.00044	0.00136	0.00084	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.631	0.25094	0.01502	0.066723	0.018320	0.2519	0.0130	15.2467	0.882	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8816	16.13
1016	695637.5	4146809.2	0.01349	0.00260	0.00179	0.00328	0.00000	0.00015	0.00043	0.00133	0.00079	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.159	0.24808	0.01486	0.065721	0.017175	0.2462	0.0127	14.7632	0.829	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8292	15.59
1017	695667.5	4146809.4	0.01305	0.00257	0.00177	0.00322	0.00000	0.00015	0.00043	0.00131	0.00075	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.697	0.24521	0.01469	0.064519	0.017175	0.2462	0.0125	14.2970	0.787	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7872	15.08
1018	695697.5	4146809.6	0.01263	0.00254	0.00176	0.00317	0.00000	0.00015	0.00042	0.00128	0.00071	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.256	0.24235	0.01461	0.063517	0.017175	0.2404	0.0122	13.8462	0.745	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7452	14.59
1019	695727.5	4146809.8	0.01224	0.00251	0.00174	0.00312	0.00000	0.00015	0.00041	0.00126	0.00068	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.847	0.23949	0.01444	0.062516	0.017175	0.2347	0.0120	13.4270	0.714	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7137	14.14
1020	695757.5	4146809.9	0.01186	0.00249	0.00173	0.00307	0.00000	0.00015	0.00041	0.00124	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.448	0.23758	0.01436	0.061514	0.017175	0.2347	0.0118	13.0249	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	13.70
1021	695787.5	4146810.1	0.01150	0.00246	0.00171	0.00303	0.00000	0.00015	0.00041	0.00122	0.00062	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.070	0.23472	0.01419	0.060712	0.017175	0.2347	0.0116	12.6431	0.651	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6507	13.29
1022	695817.5	4146810.3	0.01116	0.00244	0.00170	0.00298	0.00000	0.00015	0.00040	0.00120	0.00059	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.713	0.23281	0.01411	0.059710	0.017175	0.2290	0.0114	12.2773	0.619	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6192	12.90
1023	695847.5	4146810.5	0.01084	0.00241	0.00169	0.00294	0.00000	0.00014	0.00040	0.00119	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.377	0.22995	0.01403	0.058909	0.016030	0.2290	0.0114	11.9365	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	12.52
1024	695877.5	4146810.7	0.01053	0.00239	0.00167	0.00290	0.00000	0.00014	0.00039	0.00117	0.00054	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.052	0.22804	0.01386	0.058107	0.016030	0.2233	0.0112	11.6023	0.567	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5668	12.17
1025	695907.5	4146810.9	0.01023	0.00237	0.00166	0.00287	0.00000	0.00014	0.00039	0.00115	0.00052	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.737	0.22613	0.01378	0.057506	0.016030	0.2233	0.0110	11.2847	0.546	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5458	11.83
1026	695937.5	4146811.0	0.00995	0.00235	0.00165	0.00283	0.00000	0.00014	0.00039	0.00114	0.00050	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.443	0.22422	0.01370	0.056705	0.016030	0.2233	0.0109	10.9879	0.525	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5248	11.51
1027	695967.5	4146811.2	0.00969	0.00234	0.00164	0.00280	0.00000	0.00014	0.00038	0.00112	0.00048	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.170	0.22327	0.01361	0.056104	0.016030	0.2175	0.0107	10.7075	0.504	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5038	11.21
1028	695997.5	4146811.4	0.00943	0.00232	0.00163	0.00277	0.00000	0.00014	0.00038	0.00111	0.00046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.897	0.22136	0.01353	0.055503	0.016030	0.2175	0.0106	10.4319	0.483	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4828	10.91
1029	696027.5	4146811.6	0.00919	0.00230	0.00162	0.00274	0.00000	0.00014	0.00038	0.00110	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.645	0.21945	0.01345	0.054901	0.016030	0.2175	0.0105	10.1773	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	10.65
1030	696057.5	4146811.8	0.00897	0.00229	0.00162	0.00271	0.00000	0.00014	0.00037	0.00109	0.00043	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.415	0.21850	0.01345	0.054300	0.016030	0.2118	0.0104	9.9390	0.451	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4513	10.39
1031	696087.5	4146812.0	0.00875	0.00228	0.00161	0.00269	0.00000	0.00014	0.00037	0.00108	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.184	0.21754	0.01336	0.053900	0.016030	0.2118	0.0103	9.7066	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	10.15
1032	696117.5	4146812.1	0.00855	0.00227	0.00161	0.00267	0.00000	0.00014	0.00037	0.00107	0.00040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.974	0.21659	0.01336	0.053499	0.016030	0.2118	0.0102	9.4952	0.420	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4198	9.92
1033	696147.5	4146812.3	0.00835	0.00226	0.00160	0.00265	0.00000	0.00014	0.00037	0.00106	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.764	0.21564	0.01328	0.053098	0.016030	0.2118	0.0101	9.2838	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	9.69
1034	696177.5	4146812.5	0.00817	0.00225	0.00160	0.00263	0.00000	0.00014	0.00037	0.00105	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.575	0.21468	0.01328	0.052697	0.016030	0.2118	0.0100	9.0934	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	9.49
1035	696207.5	4146812.7	0.00800	0.00225	0.00160	0.00262	0.00000	0.00014	0.00037	0.00105	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.396	0.21468	0.01328	0.052497	0.016030	0.2118	0.0100	8.9148	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	9.29
1036	696237.5	4146812.9	0.00783	0.00224	0.00160	0.00260	0.00000	0.00014	0.00037	0.00104	0.00035	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.218	0.21373	0.01328	0.052096	0.016030	0.2118	0.0099	8.7349	0.367	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3673	9.10
1037	696267.5	4146813.1	0.00767	0.00224	0.00160	0.00260	0.00000	0.00014	0.00036	0.00104	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.050	0.21373	0.01328	0.052096	0.016030	0.2061	0.0099	8.5613	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	8.92
1038	696297.5	4146813.2	0.00752	0.00224	0.00160	0.00259	0.00000	0.00014	0.00036	0.00103	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.893	0.21373	0.01328	0.051896	0.016030	0.2061	0.0098	8.4035	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	8.75
1039	696327.5	4146813.4	0.00738	0.00225	0.00161	0.00259	0.00000	0.00014	0.00037	0.00103	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.746	0.21468	0.01336	0.051896	0.016030	0.2118	0.0098	8.2634	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	8.60
1040	696357.5	4146813.6	0.00725	0.00225	0.00162	0.00259	0.00000	0.00014	0.00037	0.00103	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.609	0.21468	0.01345	0.051896	0.016030	0.2118	0.0098	8.1270	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	8.46
1041	696387.5	4146813.8	0.00713	0.00227	0.00163	0.00259	0.00000	0.00014	0.00037	0.00103	0.00031	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.483	0.21659	0.01353	0.051896	0.016030	0.2118	0.0098	8.0030	0.325	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3254	8.33
1042	696417.5	4146814.0	0.00702	0.00228	0.00164	0.00260	0.00000	0.00014	0.00037	0.00104	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.368	0.21754	0.01361	0.052096	0.016030	0.2118	0.0099	7.8889	0.315	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3149	8.20
1043	696447.5	4146814.2	0.00691	0.00231	0.00166	0.00263	0.00000	0.00014	0.00037	0.00104	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.252	0.22041	0.01378	0.052697	0.016030	0.2118	0.0099	7.7771	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	8.08
1044	696477.5	4146814.3	0.00682	0.00235	0.00169	0.00266	0.00000	0.00014	0.00038	0.00106	0.00028	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.158	0.22422	0.01403	0.053298	0.016030	0.2175	0.0101	7.6932	0.294	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2939	7.99
1045	696507.5	4146814.5	0.00675	0.00240	0.00173	0.00271	0.00000	0.00015	0.00039	0.00107	0.00028	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.085	0.22899	0.01436	0.054300	0.017175	0.2233	0.0102	7.6328	0.294	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2939	7.93
1046	696537.5	4146814.7	0.00670	0.00247	0.00179	0.00278	0.00000	0.00015	0.00040	0.00110	0.00027	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.032	0.23567	0.01486	0.055703	0.017175	0.2290	0.0105	7.5949	0.283	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2834	7.88
1047	696569.5	4146814.9	0.00668	0.00259	0.00188	0.00290	0.00000	0.00016	0.00042	0.00115	0.00026	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.011	0.24712	0.01561	0.058107	0.018320	0.2404	0.0110	7.6016	0.273	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2729	7.87
1048	696599.5	4146815.1	0.00672	0.00277	0.00202	0.00309	0.00000	0.00017	0.00045	0.00122	0.00026	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.053	0.26430	0.01677	0.061914	0.019465	0.2576	0.0116	7.6847	0.273	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2729	7.96
1049	696632.7	4146815.6	0.00688	0.00316	0.00231	0.00349	0.00000	0.00020	0.00051	0.00138	0.00025	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.221	0.30151	0.01918	0.069929	0.022899	0.2920	0.0132	7.9396	0.262	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2624	8.20
1050	696662.7	4146815.1	0.00732	0.00399	0.00294	0.00438	0.00000	0.00025	0.00064	0.00172	0.00024	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.683	0.38070	0.02441	0.087762	0.028624	0.3664	0.0164	8.5871	0.252	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2519	8.84
1051	695557.3	4146848.6	0.01328	0.00303	0.00212	0.00368	0.00000	0.00018	0.00050	0.00148	0.00081	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.938	0.28911	0.01760	0.073736	0.020610	0.2862	0.0141	14.6395	0.850	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8501	15.49
1052	695577.4	4146838.8	0.01333	0.00289	0.00201	0.00355	0.00000	0.00017	0.00048	0.00143	0.00081	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.991	0.27575	0.01669	0.071131	0.019465	0.2748	0.0136	14.6621	0.850	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.8501	15.51
1053	695607.4	4146839.0	0.01295	0.00287	0.00200	0.00350	0.00000	0.00017	0.00047	0.00141	0.00076	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.592	0.27384	0.01660	0.070130	0.019465	0.2691	0.0135	14.2543	0.798	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7977	15.05
1054	695637.4	4146839.2	0.01258	0.00285	0.00199	0.00346	0.00000	0.00017	0.00047	0.00139	0.00072	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.203	0.27193	0.01652	0.069328	0.019465	0.2691	0.0133	13.8630	0.756	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7557	14.62
1055	695667.4	4146839.4	0.01223	0.00282	0.00198	0.00341	0.00000	0.00017	0.00046	0.00137	0.00069	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.836	0.26907	0.01644	0.068326	0.019465	0.2633	0.0131	13.4858	0.724	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7242	14.21
1056	695697.4	4146839.6	0.01188	0.00280	0.00196	0.00337	0.00000	0.00017	0.00046	0.00136	0.00066	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.469	0.26716	0.01627	0.067525	0.019465	0.2633	0.0130	13.1155	0.693	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6927	13.81
1057	695727.4	4146839.8	0.01156	0.00277	0.00195	0.00333	0.00000	0.00017	0.00045	0.00134	0.00063	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.133	0.26430	0.01619	0.066723	0.019465	0.2576	0.0128	12.7700	0.661	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6612	13.43
1058	695757.4	4146839.9	0.01124	0.00275	0.00194	0.00329	0.00000	0.00017	0.00045	0.00132	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.797	0.26239	0.01610	0.065922	0.019465	0.2576	0.0126	12.4311	0.630	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6297	13.06
1059	695787.3	4146840.1	0.01094	0.00273	0.00193	0.00325	0.00000	0.00016	0.00045	0.00130	0.00057	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.482	0.26048	0.01602	0.065120	0.018320	0.2576	0.0124	12.1121	0.598	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5982	12.71
1060	695817.3	4146840.3	0.01065	0.00271	0.00191	0.00321	0.00000	0.00016	0.00044	0.00129	0.00055	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.178	0.25857	0.01586	0.064319	0.018320	0.2519	0.0123	11.7991	0.577	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5773	12.38
1061	695847.3	4146840.5	0.01037	0.00269	0.00190	0.00318	0.00000	0.00016	0.00044	0.00127	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.884	0.25666	0.01577	0.063718	0.018320	0.2519	0.0121	11.5024	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	12.06
1062	695877.3	4146840.7	0.01011	0.00267	0.00189	0.00314	0.00000	0.00016	0.00044	0.00126	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.611	0.25476	0.01569	0.062916	0.018320	0.2519	0.0120	11.2266	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	11.76
1063	695907.3	4146840.9	0.00985	0.00265	0.00188	0.00311	0.00000	0.00016	0.00043	0.00125	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.338	0.25285	0.01561	0.062315	0.018320	0.2462	0.0119	10.9453	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.46
1064	695937.3	4146841.0	0.00961	0.00264	0.00187	0.00308	0.00000	0.00016	0.00043	0.00123	0.00047	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.086	0.25189	0.01552	0.061714	0.018320	0.2462	0.0117	10.6916	0.493	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4933	11.18
1065	695967.3	4146841.2	0.00938	0.00262	0.00186	0.00305	0.00000	0.00016	0.00043	0.00122	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.845	0.24999	0.01544	0.061113	0.018320	0.2462	0.0116	10.4475	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	10.92
1066	695997.3	4146841.4	0.00915	0.00261	0.00186	0.00303	0.00000	0.00016	0.00042	0.00121	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.603	0.24903	0.01544	0.060712	0.018320	0.2404	0.0115	10.1990	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	10.66
1067	696027.3	4146841.6	0.00894	0.00259	0.00185	0.00300	0.00000	0.00016	0.00042	0.00120	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.383	0.24712	0.01536	0.060111	0.018320	0.2404	0.0114	9.9759	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	10.42
1068	696057.3	4146841.8	0.00874	0.00258	0.00184	0.00298	0.00000	0.00016	0.00042	0.00119	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.173	0.24617	0.01527	0.059710	0.018320	0.2404	0.0114	9.7644	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	10.19
1069	696087.3	4146842.0	0.00855	0.00257	0.00184	0.00295	0.00000	0.00016	0.00042	0.00118	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.974	0.24521	0.01527	0.059109	0.018320	0.2404	0.0113	9.5633	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	9.97
1070	696117.3	4146842.1	0.00837	0.00256	0.00183	0.00294	0.00000	0.00016	0.00042	0.00117	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.785	0.24426	0.01519	0.058909	0.018320	0.2404	0.0112	9.3731	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	9.77
1071	696147.3	4146842.3	0.00820	0.00255	0.00183	0.00292	0.00000	0.00016	0.00041	0.00116	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.606	0.24331	0.01519	0.058508	0.018320	0.2347	0.0111	9.1875	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	9.58
1072	696177.3	4146842.5	0.00803	0.00254	0.00183	0.00290	0.00000	0.00016	0.00041	0.00115	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.428	0.24235	0.01519	0.058107	0.018320	0.2347	0.0110	9.0076	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	9.39
1073	696207.3	4146842.7	0.00788	0.00254	0.00182	0.00289	0.00000	0.00016	0.00041	0.00115	0.00035	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.271	0.24235	0.01511	0.057907	0.018320	0.2347	0.0110	8.8499	0.367	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3673	9.22
1074	696237.3	4146842.9	0.00773	0.00253	0.00182	0.00288	0.00000	0.00016	0.00041	0.00114	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.113	0.24140	0.01511	0.057707	0.018320	0.2347	0.0109	8.6912	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	9.05
1075	696267.3	4146843.1	0.00759	0.00253	0.00183	0.00287	0.00000	0.00016	0.00041	0.00114	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.966	0.24140	0.01519	0.057506	0.018320	0.2347	0.0109	8.5442	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	8.89
1076	696297.3	4146843.2	0.00745	0.00254	0.00183	0.00287	0.00000	0.00016	0.00041	0.00114	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.819	0.24235	0.01519	0.057506	0.018320	0.2347	0.0109	8.3982	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	8.73
1077	696327.3	4146843.4	0.00732	0.00254	0.00183	0.00286	0.00000	0.00016	0.00041	0.00114	0.00031	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.683	0.24235	0.01519	0.057306	0.018320	0.2347	0.0109	8.2615	0.325	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3254	8.59
1078	696357.3	4146843.6	0.00721	0.00255	0.00184	0.00286	0.00000	0.00016	0.00041	0.00114	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.567	0.24331	0.01527	0.057306	0.018320	0.2347	0.0109	8.1471	0.315	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3149	8.46
1079	696387.3	4146843.8	0.00709	0.00256	0.00185	0.00287	0.00000	0.00016	0.00041	0.00114	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.441	0.24426	0.01536	0.057506	0.018320	0.2347	0.0109	8.0224	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	8.33
1080	696417.3	4146844.0	0.00699	0.00258	0.00187	0.00288	0.00000	0.00016	0.00042	0.00114	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.336	0.24617	0.01552	0.057707	0.018320	0.2404	0.0109	7.9255	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	8.23
1081	696447.3	4146844.2	0.00690	0.00260	0.00189	0.00290	0.00000	0.00016	0.00042	0.00115	0.00028	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.242	0.24808	0.01569	0.058107	0.018320	0.2404	0.0110	7.8336	0.294	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2939	8.13
1082	696477.3	4146844.3	0.00682	0.00264	0.00191	0.00294	0.00000	0.00016	0.00043	0.00116	0.00027	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.158	0.25189	0.01586	0.058909	0.018320	0.2462	0.0111	7.7602	0.283	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2834	8.04
1083	696507.3	4146844.5	0.00675	0.00269	0.00195	0.00298	0.00000	0.00017	0.00043	0.00118	0.00027	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.085	0.25666	0.01619	0.059710	0.019465	0.2462	0.0113	7.6940	0.283	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2834	7.98
1084	696537.3	4146844.7	0.00671	0.00276	0.00201	0.00306	0.00000	0.00017	0.00044	0.00121	0.00026	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.043	0.26334	0.01669	0.061313	0.019465	0.2519	0.0115	7.6668	0.273	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2729	7.94
1085	696569.3	4146844.9	0.00670	0.00288	0.00210	0.00318	0.00000	0.00018	0.00046	0.00125	0.00025	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.032	0.27479	0.01743	0.063718	0.020610	0.2633	0.0119	7.6839	0.262	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2624	7.95
1086	696599.3	4146845.1	0.00674	0.00306	0.00224	0.00336	0.00000	0.00019	0.00049	0.00133	0.00025	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.074	0.29197	0.01859	0.067324	0.021754	0.2805	0.0127	7.7669	0.262	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2624	8.03
1087	696633.2	4146845.6	0.00692	0.00345	0.00253	0.00377	0.00000	0.00021	0.00055	0.00149	0.00024	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.263	0.32918	0.02100	0.075540	0.024044	0.3149	0.0142	8.0418	0.252	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2519	8.29
1088	696663.2	4146845.1	0.00737	0.00430	0.00317	0.00467	0.00000	0.00027	0.00069	0.00184	0.00023	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.735	0.41028	0.02631	0.093573	0.030914	0.3950	0.0176	8.7089	0.241	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2414	8.95
1089	695581.1	4146878.8	0.01241	0.00367	0.00262	0.00424	0.00000	0.00022	0.00060	0.00169	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.025	0.35017	0.02175	0.084957	0.025189	0.3435	0.0161	13.8667	0.735	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7347	14.60
1090	695607.2	4146869.0	0.01228	0.00337	0.00240	0.00395	0.00000	0.00020	0.00055	0.00158	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.889	0.32155	0.01992	0.079146	0.022899	0.3149	0.0151	13.6620	0.735	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.7347	14.40
1091	695637.2	4146869.2	0.01199	0.00335	0.00239	0.00391	0.00000	0.00020	0.00055	0.00156	0.00066	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.584	0.31964	0.01984	0.078345	0.022899	0.3149	0.0149	13.3547	0.693	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6927	14.05
1092	695667.2	4146869.4	0.01170	0.00333	0.00237	0.00387	0.00000	0.00020	0.00054	0.00155	0.00063	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.280	0.31773	0.01967	0.077543	0.022899	0.3091	0.0148	13.0416	0.661	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6612	13.70
1093	695697.2	4146869.6	0.01141	0.00331	0.00236	0.00384	0.00000	0.00020	0.00054	0.00153	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.975	0.31582	0.01959	0.076942	0.022899	0.3091	0.0146	12.7345	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	13.37
1094	695727.2	4146869.8	0.01114	0.00329	0.00235	0.00380	0.00000	0.00020	0.00054	0.00152	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.692	0.31391	0.01951	0.076141	0.022899	0.3091	0.0145	12.4482	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.06
1095	695757.2	4146869.9	0.01087	0.00327	0.00234	0.00377	0.00000	0.00020	0.00053	0.00150	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.409	0.31201	0.01942	0.075540	0.022899	0.3034	0.0143	12.1563	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	12.74
1096	695787.2	4146870.1	0.01061	0.00325	0.00233	0.00373	0.00000	0.00020	0.00053	0.00149	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.136	0.31010	0.01934	0.074738	0.022899	0.3034	0.0142	11.8805	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	12.44
1097	695817.2	4146870.3	0.01037	0.00323	0.00232	0.00370	0.00000	0.00020	0.00052	0.00147	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.884	0.30819	0.01926	0.074137	0.022899	0.2977	0.0140	11.6201	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	12.16
1098	695847.2	4146870.5	0.01013	0.00321	0.00231	0.00367	0.00000	0.00020	0.00052	0.00146	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.632	0.30628	0.01918	0.073536	0.022899	0.2977	0.0139	11.3655	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	11.88
1099	695877.2	4146870.7	0.00990	0.00319	0.00230	0.00363	0.00000	0.00020	0.00052	0.00144	0.00048	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.391	0.30437	0.01909	0.072734	0.022899	0.2977	0.0137	11.1212	0.504	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5038	11.62
1100	695907.2	4146870.9	0.00967	0.00318	0.00229	0.00360	0.00000	0.00019	0.00052	0.00143	0.00046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.149	0.30342	0.01901	0.072133	0.021754	0.2977	0.0136	10.8769	0.483	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4828	11.36
1101	695937.2	4146871.0	0.00946	0.00316	0.00228	0.00358	0.00000	0.00019	0.00051	0.00142	0.00044	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.929	0.30151	0.01893	0.071733	0.021754	0.2920	0.0135	10.6483	0.462	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4618	11.11
1102	695967.2	4146871.2	0.00926	0.00314	0.00227	0.00355	0.00000	0.00019	0.00051	0.00141	0.00043	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.719	0.29960	0.01884	0.071131	0.021754	0.2920	0.0135	10.4357	0.451	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4513	10.89
1103	695997.2	4146871.4	0.00906	0.00313	0.00226	0.00352	0.00000	0.00019	0.00051	0.00140	0.00041	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.509	0.29865	0.01876	0.070530	0.021754	0.2920	0.0134	10.2240	0.430	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4303	10.65
1104	696027.2	4146871.6	0.00888	0.00311	0.00225	0.00350	0.00000	0.00019	0.00050	0.00139	0.00040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.320	0.29674	0.01868	0.070130	0.021754	0.2862	0.0133	10.0269	0.420	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4198	10.45
1105	696057.2	4146871.8	0.00870	0.00310	0.00224	0.00347	0.00000	0.00019	0.00050	0.00138	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.131	0.29578	0.01859	0.069528	0.021754	0.2862	0.0132	9.8362	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	10.25
1106	696087.2	4146872.0	0.00852	0.00309	0.00223	0.00345	0.00000	0.00019	0.00050	0.00137	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.942	0.29483	0.01851	0.069128	0.021754	0.2862	0.0131	9.6458	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	10.03
1107	696117.2	4146872.1	0.00836	0.00307	0.00223	0.00343	0.00000	0.00019	0.00050	0.00136	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.774	0.29292	0.01851	0.068727	0.021754	0.2862	0.0130	9.4754	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	9.85
1108	696147.2	4146872.3	0.00821	0.00307	0.00222	0.00341	0.00000	0.00019	0.00050	0.00135	0.00035	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.617	0.29292	0.01843	0.068326	0.021754	0.2862	0.0129	9.3174	0.367	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3673	9.68
1109	696177.2	4146872.5	0.00806	0.00306	0.00222	0.00340	0.00000	0.00019	0.00049	0.00134	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.459	0.29197	0.01843	0.068126	0.021754	0.2805	0.0128	9.1530	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	9.51
1110	696207.2	4146872.7	0.00792	0.00305	0.00222	0.00339	0.00000	0.00019	0.00049	0.00134	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.313	0.29101	0.01843	0.067925	0.021754	0.2805	0.0128	9.0049	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	9.35
1111	696237.2	4146872.9	0.00778	0.00305	0.00221	0.00337	0.00000	0.00019	0.00049	0.00133	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.166	0.29101	0.01835	0.067525	0.021754	0.2805	0.0127	8.8574	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	9.19
1112	696267.2	4146873.1	0.00765	0.00304	0.00221	0.00337	0.00000	0.00019	0.00049	0.00133	0.00031	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.029	0.29006	0.01835	0.067525	0.021754	0.2805	0.0127	8.7200	0.325	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3254	9.05
1113	696297.2	4146873.2	0.00753	0.00304	0.00222	0.00336	0.00000	0.00019	0.00049	0.00133	0.00031	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.903	0.29006	0.01843	0.067324	0.021754	0.2805	0.0127	8.5939	0.325	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3254	8.92
1114	696327.2	4146873.4	0.00742	0.00305	0.00222	0.00335	0.00000	0.00019	0.00049	0.00132	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.788	0.29101	0.01843	0.067124	0.021754	0.2805	0.0126	8.4792	0.315	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3149	8.79
1115	696357.2	4146873.6	0.00731	0.00305	0.00222	0.00335	0.00000	0.00019	0.00049	0.00132	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.672	0.29101	0.01843	0.067124	0.021754	0.2805	0.0126	8.3637	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	8.67
1116	696387.2	4146873.8	0.00720	0.00306	0.00223	0.00336	0.00000	0.00019	0.00049	0.00132	0.00028	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.557	0.29197	0.01851	0.067324	0.021754	0.2805	0.0126	8.2495	0.294	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2939	8.54
1117	696417.2	4146874.0	0.00711	0.00308	0.00225	0.00337	0.00000	0.00019	0.00050	0.00133	0.00028	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.462	0.29388	0.01868	0.067525	0.021754	0.2862	0.0127	8.1631	0.294	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2939	8.46
1118	696447.2	4146874.2	0.00703	0.00310	0.00226	0.00339	0.00000	0.00019	0.00050	0.00133	0.00027	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.378	0.29578	0.01876	0.067925	0.021754	0.2862	0.0127	8.0816	0.283	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2834	8.36
1119	696477.2	4146874.3	0.00695	0.00313	0.00229	0.00342	0.00000	0.00019	0.00050	0.00135	0.00026	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.294	0.29865	0.01901	0.068527	0.021754	0.2862	0.0129	8.0015	0.273	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2729	8.27
1120	696507.2	4146874.5	0.00690	0.00318	0.00233	0.00346	0.00000	0.00020	0.00051	0.00136	0.00026	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.242	0.30342	0.01934	0.069328	0.022899	0.2920	0.0130	7.9619	0.273	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2729	8.23
1121	696537.2	4146874.7	0.00686	0.00325	0.00238	0.00353	0.00000	0.00020	0.00052	0.00139	0.00025	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.200	0.31010	0.01976	0.070731	0.022899	0.2977	0.0133	7.9344	0.262	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2624	8.20
1122	696569.1	4146874.9	0.00685	0.00336	0.00247	0.00365	0.00000	0.00021	0.00054	0.00144	0.00024	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.189	0.32059	0.02050	0.073135	0.024044	0.3091	0.0137	7.9506	0.252	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2519	8.20
1123	696599.1	4146875.1	0.00690	0.00354	0.00260	0.00383	0.00000	0.00022	0.00057	0.00151	0.00024	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.242	0.33777	0.02158	0.076742	0.025189	0.3263	0.0144	8.0440	0.252	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2519	8.30
1124	696633.7	4146875.6	0.00709	0.00394	0.00290	0.00425	0.00000	0.00025	0.00063	0.00167	0.00023	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.441	0.37593	0.02407	0.085157	0.028624	0.3607	0.0159	8.3318	0.241	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2414	8.57
1125	696663.7	4146875.1	0.00753	0.00477	0.00353	0.00514	0.00000	0.00030	0.00076	0.00202	0.00023	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.903	0.45513	0.02930	0.102990	0.034349	0.4351	0.0193	8.9793	0.241	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2414	9.22
1126	695603.0	4146899.0	0.01219	0.00459	0.00333	0.00512	0.00000	0.00028	0.00074	0.00202	0.00064	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.794	0.43795	0.02764	0.102590	0.032059	0.4236	0.0193	13.8373	0.672	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6717	14.51
1127	695637.0	4146899.2	0.01191	0.00456	0.00331	0.00507	0.00000	0.00028	0.00074	0.00201	0.00061	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.500	0.43509	0.02748	0.101588	0.032059	0.4236	0.0192	13.5393	0.640	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6402	14.18
1128	695667.0	4146899.4	0.01166	0.00454	0.00329	0.00503	0.00000	0.00028	0.00073	0.00199	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.238	0.43318	0.02731	0.100786	0.032059	0.4179	0.0190	13.2681	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	13.88
1129	695697.0	4146899.6	0.01142	0.00451	0.00328	0.00499	0.00000	0.00028	0.00073	0.00197	0.00056	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.986	0.43032	0.02723	0.099985	0.032059	0.4179	0.0188	13.0123	0.588	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5878	13.60
1130	695727.0	4146899.8	0.01118	0.00449	0.00326	0.00496	0.00000	0.00028	0.00072	0.00196	0.00054	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.734	0.42841	0.02706	0.099384	0.032059	0.4122	0.0187	12.7519	0.567	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5668	13.32
1131	695757.0	4146899.9	0.01095	0.00446	0.00325	0.00492	0.00000	0.00028	0.00072	0.00194	0.00052	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.493	0.42555	0.02698	0.098582	0.032059	0.4122	0.0185	12.5065	0.546	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5458	13.05
1132	695787.0	4146900.1	0.01073	0.00444	0.00323	0.00488	0.00000	0.00027	0.00072	0.00193	0.00050	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.262	0.42364	0.02681	0.097781	0.030914	0.4122	0.0184	12.2715	0.525	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5248	12.80
1133	695817.0	4146900.3	0.01051	0.00441	0.00321	0.00484	0.00000	0.00027	0.00071	0.00191	0.00048	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.031	0.42078	0.02665	0.096979	0.030914	0.4065	0.0182	12.0309	0.504	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5038	12.53
1134	695847.0	4146900.5	0.01030	0.00439	0.00320	0.00481	0.00000	0.00027	0.00071	0.00189	0.00046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.810	0.41887	0.02656	0.096378	0.030914	0.4065	0.0180	11.8077	0.483	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4828	12.29
1135	695877.0	4146900.7	0.01010	0.00436	0.00318	0.00477	0.00000	0.00027	0.00070	0.00188	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.601	0.41601	0.02640	0.095577	0.030914	0.4007	0.0179	11.5881	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	12.06
1136	695907.0	4146900.9	0.00990	0.00434	0.00317	0.00474	0.00000	0.00027	0.00070	0.00187	0.00043	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.391	0.41410	0.02631	0.094975	0.030914	0.4007	0.0178	11.3755	0.451	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4513	11.83
1137	695937.0	4146901.0	0.00971	0.00431	0.00315	0.00470	0.00000	0.00027	0.00069	0.00185	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.191	0.41124	0.02615	0.094174	0.030914	0.3950	0.0177	11.1664	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	11.61
1138	695967.0	4146901.2	0.00953	0.00429	0.00314	0.00467	0.00000	0.00027	0.00069	0.00184	0.00040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.002	0.40933	0.02607	0.093573	0.030914	0.3950	0.0176	10.9747	0.420	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4198	11.39
1139	695997.0	4146901.4	0.00935	0.00427	0.00312	0.00464	0.00000	0.00026	0.00069	0.00182	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.813	0.40742	0.02590	0.092972	0.029769	0.3950	0.0174	10.7818	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	11.19
1140	696027.0	4146901.6	0.00918	0.00425	0.00311	0.00461	0.00000	0.00026	0.00068	0.00181	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.635	0.40551	0.02582	0.092371	0.029769	0.3893	0.0173	10.5950	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	10.99
1141	696057.0	4146901.8	0.00902	0.00423	0.00310	0.00458	0.00000	0.00026	0.00068	0.00180	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.467	0.40360	0.02573	0.091770	0.029769	0.3893	0.0172	10.4244	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	10.81

Receptor No. (m)	UTM-X (m)	UTM-Y (m)	2045 Operation - Total Roads Period Average Concentration								2045 Operation - Rail Line Period Average Concentration								2045 - Total Roads Cancer Risks							2045 Roads Cancer Risks Total	2045 - Rail Line Cancer Risks							2045 Rail Cancer Risks Total	Total Cancer Risk
			DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	PAHs	Naphthalene	1,3 Butadiene	Aceltaldehyde	DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde		DPM	Benzene	Ethylbenzene	Formaldehyde	Naphthalene	1,3 Butadiene	Aceltaldehyde		
1142	696087.0	4146902.0	0.00886	0.00420	0.00308	0.00455	0.00000	0.00026	0.00068	0.00179	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.299	0.40074	0.02557	0.091168	0.029769	0.3893	0.0171	10.2527	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	10.63
1143	696117.0	4146902.1	0.00871	0.00418	0.00307	0.00452	0.00000	0.00026	0.00067	0.00178	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.142	0.39883	0.02548	0.090567	0.029769	0.3836	0.0170	10.0869	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	10.44
1144	696147.0	4146902.3	0.00857	0.00416	0.00305	0.00449	0.00000	0.00026	0.00067	0.00177	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.995	0.39692	0.02532	0.089966	0.029769	0.3836	0.0169	9.9371	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	10.29
1145	696177.0	4146902.5	0.00844	0.00415	0.00305	0.00447	0.00000	0.00026	0.00067	0.00176	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.858	0.39597	0.02532	0.089565	0.029769	0.3836	0.0168	9.7993	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	10.15
1146	696207.0	4146902.7	0.00830	0.00413	0.00304	0.00445	0.00000	0.00026	0.00066	0.00175	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.711	0.39406	0.02524	0.089165	0.029769	0.3778	0.0167	9.6441	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	9.98
1147	696237.0	4146902.9	0.00818	0.00412	0.00303	0.00443	0.00000	0.00026	0.00066	0.00174	0.00031	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.585	0.39311	0.02515	0.088764	0.029769	0.3778	0.0166	9.5166	0.325	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3254	9.84
1148	696267.0	4146903.1	0.00806	0.00411	0.00302	0.00442	0.00000	0.00026	0.00066	0.00173	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.459	0.39215	0.02507	0.088564	0.029769	0.3778	0.0165	9.3893	0.315	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3149	9.70
1149	696297.0	4146903.2	0.00795	0.00411	0.00302	0.00441	0.00000	0.00026	0.00066	0.00173	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.344	0.39215	0.02507	0.088363	0.029769	0.3778	0.0165	9.2737	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	9.58
1150	696327.0	4146903.4	0.00784	0.00410	0.00302	0.00439	0.00000	0.00026	0.00066	0.00172	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.229	0.39120	0.02507	0.087963	0.029769	0.3778	0.0164	9.1568	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	9.46
1151	696357.0	4146903.6	0.00773	0.00410	0.00302	0.00439	0.00000	0.00026	0.00066	0.00172	0.00028	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.113	0.39120	0.02507	0.087963	0.029769	0.3778	0.0164	9.0413	0.294	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2939	9.34
1152	696387.0	4146903.8	0.00764	0.00410	0.00302	0.00438	0.00000	0.00026	0.00066	0.00172	0.00027	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.019	0.39120	0.02507	0.087762	0.029769	0.3778	0.0164	8.9467	0.283	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2834	9.23
1153	696417.0	4146904.0	0.00755	0.00410	0.00302	0.00438	0.00000	0.00026	0.00066	0.00172	0.00026	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.924	0.39120	0.02507	0.087762	0.029769	0.3778	0.0164	8.8522	0.273	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2729	9.13
1154	696447.0	4146904.2	0.00747	0.00411	0.00303	0.00439	0.00000	0.00026	0.00066	0.00172	0.00026	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.840	0.39215	0.02515	0.087963	0.029769	0.3778	0.0164	8.7695	0.273	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2729	9.04
1155	696477.0	4146904.3	0.00740	0.00413	0.00305	0.00441	0.00000	0.00026	0.00066	0.00173	0.00025	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.767	0.39406	0.02532	0.088363	0.029769	0.3778	0.0165	8.6986	0.262	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2624	8.96
1156	696507.0	4146904.5	0.00735	0.00417	0.00308	0.00444	0.00000	0.00026	0.00067	0.00174	0.00025	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.714	0.39788	0.02557	0.088964	0.029769	0.3836	0.0166	8.6566	0.262	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2624	8.92
1157	696537.0	4146904.7	0.00731	0.00423	0.00313	0.00451	0.00000	0.00026	0.00068	0.00176	0.00024	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.672	0.40360	0.02598	0.090367	0.029769	0.3893	0.0168	8.6281	0.252	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2519	8.88
1158	696569.0	4146904.9	0.00731	0.00434	0.00320	0.00461	0.00000	0.00027	0.00069	0.00181	0.00023	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.672	0.41410	0.02656	0.092371	0.030914	0.3950	0.0173	8.6485	0.241	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2414	8.89
1159	696599.0	4146905.1	0.00736	0.00450	0.00333	0.00479	0.00000	0.00028	0.00072	0.00187	0.00023	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.725	0.42936	0.02764	0.095977	0.032059	0.4122	0.0178	8.7398	0.241	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2414	8.98
1160	696634.2	4146905.6	0.00756	0.00491	0.00364	0.00521	0.00000	0.00031	0.00078	0.00204	0.00022	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	7.935	0.46848	0.03022	0.104393	0.035494	0.4465	0.0195	9.0393	0.231	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2309	9.27
1161	696664.2	4146905.1	0.00800	0.00572	0.00425	0.00608	0.00000	0.00036	0.00091	0.00238	0.00022	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	8.396	0.54577	0.03528	0.121825	0.041219	0.5210	0.0227	9.6842	0.231	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2309	9.92
1162	695606.8	4146929.0	0.01356	0.00933	0.00691	0.00981	0.00000	0.00058	0.00149	0.00383	0.00058	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	14.232	0.89022	0.05736	0.196563	0.066408	0.8530	0.0365	16.3321	0.609	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.6087	16.94
1163	695636.8	4146929.2	0.01333	0.00923	0.00683	0.00969	0.00000	0.00058	0.00148	0.00378	0.00055	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.991	0.88067	0.05670	0.194159	0.066408	0.8473	0.0361	16.0719	0.577	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5773	16.65
1164	695666.8	4146929.4	0.01310	0.00913	0.00677	0.00959	0.00000	0.00057	0.00146	0.00374	0.00053	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.749	0.87113	0.05620	0.192155	0.065263	0.8358	0.0357	15.8055	0.556	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5563	16.36
1165	695696.8	4146929.6	0.01287	0.00904	0.00670	0.00948	0.00000	0.00057	0.00145	0.00370	0.00051	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.508	0.86255	0.05562	0.189951	0.065263	0.8301	0.0353	15.5466	0.535	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5353	16.08
1166	695726.8	4146929.8	0.01265	0.00895	0.00664	0.00939	0.00000	0.00056	0.00143	0.00366	0.00049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.277	0.85396	0.05512	0.188148	0.064118	0.8187	0.0349	15.2918	0.514	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5143	15.81
1167	695756.8	4146929.9	0.01243	0.00886	0.00657	0.00929	0.00000	0.00056	0.00142	0.00362	0.00048	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	13.046	0.84537	0.05454	0.186144	0.064118	0.8129	0.0345	15.0437	0.504	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.5038	15.55
1168	695786.8	4146930.1	0.01221	0.00877	0.00651	0.00918	0.00000	0.00055	0.00140	0.00358	0.00046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.815	0.83678	0.05404	0.183940	0.062973	0.8015	0.0342	14.7885	0.483	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4828	15.27
1169	695816.8	4146930.3	0.01200	0.00869	0.00644	0.00909	0.00000	0.00054	0.00139	0.00354	0.00045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.595	0.82915	0.05346	0.182137	0.061829	0.7958	0.0338	14.5508	0.472	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4723	15.02
1170	695846.8	4146930.5	0.01180	0.00861	0.00639	0.00900	0.00000	0.00054	0.00138	0.00351	0.00043	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.385	0.82152	0.05304	0.180333	0.061829	0.7900	0.0335	14.3250	0.451	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4513	14.78
1171	695876.8	4146930.7	0.01160	0.00853	0.00633	0.00891	0.00000	0.00053	0.00136	0.00347	0.00042	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.175	0.81388	0.05255	0.178530	0.060684	0.7786	0.0331	14.0922	0.441	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4408	14.53
1172	695906.8	4146930.9	0.01140	0.00844	0.00627	0.00882	0.00000	0.00053	0.00135	0.00344	0.00040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.965	0.80530	0.05205	0.176727	0.060684	0.7729	0.0328	13.8654	0.420	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4198	14.29
1173	695936.8	4146931.0	0.01121	0.00837	0.00622	0.00873	0.00000	0.00052	0.00134	0.00340	0.00039	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.766	0.79862	0.05163	0.174923	0.059539	0.7671	0.0324	13.6498	0.409	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.4093	14.06
1174	695966.8	4146931.2	0.01103	0.00829	0.00616	0.00865	0.00000	0.00052	0.00132	0.00337	0.00038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.577	0.79099	0.05113	0.173320	0.059539	0.7557	0.0322	13.4394	0.399	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3988	13.84
1175	695996.8	4146931.4	0.01085	0.00822	0.00610	0.00856	0.00000	0.00052	0.00131	0.00334	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.388	0.78431	0.05064	0.171517	0.059539	0.7500	0.0319	13.2355	0.388	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3883	13.62
1176	696026.8	4146931.6	0.01069	0.00814	0.00605	0.00849	0.00000	0.00051	0.00130	0.00330	0.00036	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.220	0.77667	0.05022	0.170114	0.058394	0.7442	0.0315	13.0509	0.378	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3778	13.43
1177	696056.8	4146931.8	0.01052	0.00807	0.00600	0.00840	0.00000	0.00051	0.00129	0.00327	0.00035	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	11.041	0.76999	0.04981	0.168311	0.058394	0.7385	0.0312	12.8576	0.367	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3673	13.22
1178	696086.8	4146932.0	0.01036	0.00796	0.00592	0.00829	0.00000	0.00050	0.00127	0.00323	0.00034	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.873	0.75950	0.04914	0.166107	0.057249	0.7271	0.0308	12.6633	0.357	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3568	13.02
1179	696116.8	4146932.1	0.01020	0.00786	0.00585	0.00818	0.00000	0.00049	0.00126	0.00319	0.00033	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.705	0.74996	0.04856	0.163903	0.056104	0.7213	0.0304	12.4758	0.346	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3464	12.82
1180	696146.8	4146932.3	0.01006	0.00778	0.00578	0.00809	0.00000	0.00049	0.00124	0.00315	0.00032	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.559	0.74232	0.04798	0.162099	0.056104	0.7099	0.0301	12.3070	0.336	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3359	12.64
1181	696176.8	4146932.5	0.00992	0.00771	0.00573	0.00802	0.00000	0.00048	0.00123	0.00312	0.00031	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.412	0.73564	0.04757	0.160697	0.054959	0.7042	0.0298	12.1444	0.325	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3254	12.47
1182	696206.8	4146932.7	0.00978	0.00765	0.00569	0.00795	0.00000	0.00048	0.00122	0.00310	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.265	0.72992	0.04723	0.159294	0.054959	0.6984	0.0296	11.9841	0.315	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3149	12.30
1183	696236.8	4146932.9	0.00965	0.00759	0.00565	0.00789	0.00000	0.00048	0.00121	0.00307	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.128	0.72420	0.04690	0.158092	0.054959	0.6927	0.0293	11.8344	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	12.14
1184	696266.8	4146933.1	0.00953	0.00754	0.00561	0.00783	0.00000	0.00047	0.00120	0.00305	0.00029	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	10.002	0.71942	0.04657	0.156890	0.053814	0.6870	0.0291	11.6951	0.304	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.3044	12.00
1185	696296.8	4146933.2	0.00941	0.00748	0.00557	0.00776	0.00000	0.00047	0.00119	0.00302	0.00028	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.876	0.71370	0.04624	0.155487	0.053814	0.6813	0.0288	11.5557	0.294	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2939	11.85
1186	696326.8	4146933.4	0.00929	0.00741	0.00551	0.00769	0.00000	0.00047	0.00118	0.00299	0.00027	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.750	0.70702	0.04574	0.154085	0.053814	0.6755	0.0285	11.4151	0.283	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2834	11.70
1187	696356.8	4146933.6	0.00918	0.00733	0.00546	0.00761	0.00000	0.00046	0.00117	0.00296	0.00027	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.635	0.69939	0.04532	0.152482	0.052669	0.6698	0.0282	11.2829	0.283	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2834	11.57
1188	696386.8	4146933.8	0.00908	0.00725	0.00540	0.00752	0.00000	0.00046	0.00116	0.00293	0.00026	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.530	0.69175	0.04483	0.150678	0.052669	0.6641	0.0280	11.1620	0.273	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2729	11.43
1189	696416.8	4146934.0	0.00898	0.00716	0.00533	0.00743	0.00000	0.00045	0.00114	0.00289	0.00025	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.425	0.68317	0.04424	0.148875	0.051524	0.6526	0.0276	11.0331	0.262	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2624	11.30
1190	696446.8	4146934.2	0.00889	0.00708	0.00527	0.00734	0.00000	0.00044	0.00113	0.00286	0.00025	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.331	0.67553	0.04375	0.147072	0.050379	0.6469	0.0273	10.9215	0.262	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2624	11.18
1191	696476.8	4146934.3	0.00881	0.00704	0.00524	0.00730	0.00000	0.00044	0.00112	0.00284	0.00024	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.247	0.67172	0.04350	0.146270	0.050379	0.6412	0.0271	10.8268	0.252	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2519	11.08
1192	696506.8	4146934.5	0.00875	0.00704	0.00524	0.00730	0.00000	0.00044	0.00112	0.00284	0.00024	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.184	0.67172	0.04350	0.146270	0.050379	0.6412	0.0271	10.7638	0.252	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2519	11.02
1193	696536.8	4146934.7	0.00871	0.00707	0.00527	0.00733	0.00000	0.00044	0.00113	0.00285	0.00023	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.142	0.67458	0.04375	0.146871	0.050379	0.6469	0.0272	10.7313	0.241	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2414	10.97
1194	696568.8	4146934.9	0.00870	0.00714	0.00532	0.00741	0.00000	0.00045	0.00114	0.00288	0.00023	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.131	0.68126	0.04416	0.148474	0.051524	0.6526	0.0275	10.7367	0.241	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2414	10.98
1195	696598.8	4146935.1	0.00873	0.00726	0.00541	0.00754	0.00000	0.00046	0.00116	0.00293	0.00022	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.163	0.69271	0.04491	0.151079	0.052669	0.6641	0.0280	10.7960	0.231	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2309	11.03
1196	696634.7	4146935.6	0.00894	0.00767	0.00572	0.00797	0.00000	0.00048	0.00122	0.00310	0.00022	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.383	0.73183	0.04748	0.159695	0.054959	0.6984	0.0296	11.1050	0.231	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2309	11.34
1197	696664.7	4146935.1	0.00933	0.00839	0.00627	0.00874	0.00000	0.00053	0.00134	0.00340	0.00021	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	9.792	0.80053	0.05205	0.175124	0.060684	0.7671	0.0324	11.6803	0.220	0.00000	0.00000	0.000000	0.000000	0.0000	0.0000	0.2204	11.90
		Maximum	0.08713	0.00944	0.00691	0.01469	0.00000	0.00058	0.00164	0.00618	0.00641	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	91.448	0.901	0.057	0.294	0.066	0.939	0.059	**93.747**	6.728	0.000	0.000	0.000	0.000	0.000	0.000	**6.728**	**100.16**

Water Supply Assessment

D
APPENDIX

WATER SUPPLY ASSESSMENT

RBK DEVELOPMENT

DELHI COUNTY WATER DISTRICT

BRADBURY RANCH

DECEMBER 2022

DELHI COUNTY WATER DISTRICT

WATER SUPPLY ASSESSMENT

Prepared for:

RBK Development
1850 Arbor Way
Turlock, CA 95380
Contact Person: Ronald Katakis
Phone: (209) 443-4159

Consultant:

2816 Park Avenue
Merced, CA 95348
Contact: Spencer Supinger
Phone: (209) 723-2066
Fax: (559) 733-7821

December 2022

Project #220269

Table of Contents

List of Figures

List of Tables

SECTION 1 - INTRODUCTION

1.1 - General

Senate Bill 610 (Chapter 643, Statutes of 2001) and Senate Bill 221 (Chapter 642, Statutes of 2001) amended State law, effective January 1, 2002, with the intent to improve the coordination between cities and counties when making decisions on water supply availability and certain land use decisions. SB 610 and SB 221 are companion measures that seek to promote more collaborative planning between local water suppliers and cities and counties. Both statutes require detailed information regarding water availability to be provided to city and county decision-makers prior to approval of specified large development projects. Both statutes also require this detailed information to be included in the administrative record that serves as the evidentiary basis for an approval action by the city or county on such projects. Both measures recognize local control and decision-making regarding the availability of water for projects and the approval of projects.

Under SB 610, water assessments must be furnished to local governments for inclusion in any environmental documentation for certain projects (as defined in Water Code 10912[a]) subject to the California Environmental Quality Act (CEQA). Under SB 221, approval by a city or county of certain developments requires an affirmative written verification of sufficient water supply. However, not every project that is subject to the requirements of SB 610 would also require the mandatory water verification of SB 221. Conversely, not every project that is subject to the requirements of SB 221 would also require the environmental document to contain an SB 610 water assessment. As a residential development of more than 500 dwelling units, the Bradbury Ranch development falls under the scope of SB 221 and requires a written confirmation of the community's water supply. As the development is less than 3,000 connections the developer maintains responsibility for drafting this verification.

1.2 - Project Location

The Project is a proposed development for the unincorporated community of Delhi. The project lies in the northern portion of the community, surrounded by Vincent Road to the east, Highway 99 to the west, and Bradbury Road to the north. The project area encompasses approximately 288 acres of land. The project location is also shown in Figures 1-1 and 1-2 below. This Water Supply Assessment (WSA) evaluates the reliability of the community's water supply and its ability to serve the Bradbury Ranch development while maintaining service to its existing residents.

Delhi is located in the northern portion of Merced County, north of the City of Livingston and encompassing approximately 2,240 acres. The Delhi County Water District provides water for the community of Delhi through its distribution system and groundwater supply. Delhi County Water District's service boundary is shown in Figure 1-2.

1.3 - Project Description

The Delhi County Water District's existing infrastructure and the proposed infrastructure for the Bradbury Ranch development were evaluated for capability to provide for the existing and future water needs of the Bradbury Ranch Development. This WSA evaluates Delhi County Water District's existing infrastructure and capability to provide for the existing and future needs of the Delhi community and the Bradbury Ranch Development, including an analysis and identification of infrastructure improvements that would support/expand the District's capacity to serve the community and the proposed development. Any identified improvements would be required to be funded by the developer through fees or other charges. This infrastructure analysis is contained in Appendix "Infrastructure Analysis" attached. This assessment proposes that the community continues to be served with water from the Delhi County Water District, including the Bradbury Ranch Development.

The proposed project is a request for a General Plan Amendment and Master Plan, including the corresponding rezone of the parcels within the area. The proposed project land uses and resulting residential, educational, and commercial breakdown are in Table 1-1 below, quoted from the draft SEIR for Bradbury Ranch. Delhi County Water District is the water purveyor and the WSA is prepared in accordance with Water Code Section 10910-10915.

Table 1-1
Proposed Land Use and Dwelling Units

Land Use	Gross Acreage	Average Density (Units per Acre)	Dwelling Units	Bldg. Square Footage
Low Density Residential	173.2	5.1	883	
Medium Density Residential	23.0	8.1	186	
Neighborhood Commercial	10.1			136,680
Parks, Basins, Bike Paths	37.4			
School	23.8			
Fire Department	2.8			
Existing Ranchette	2.8			

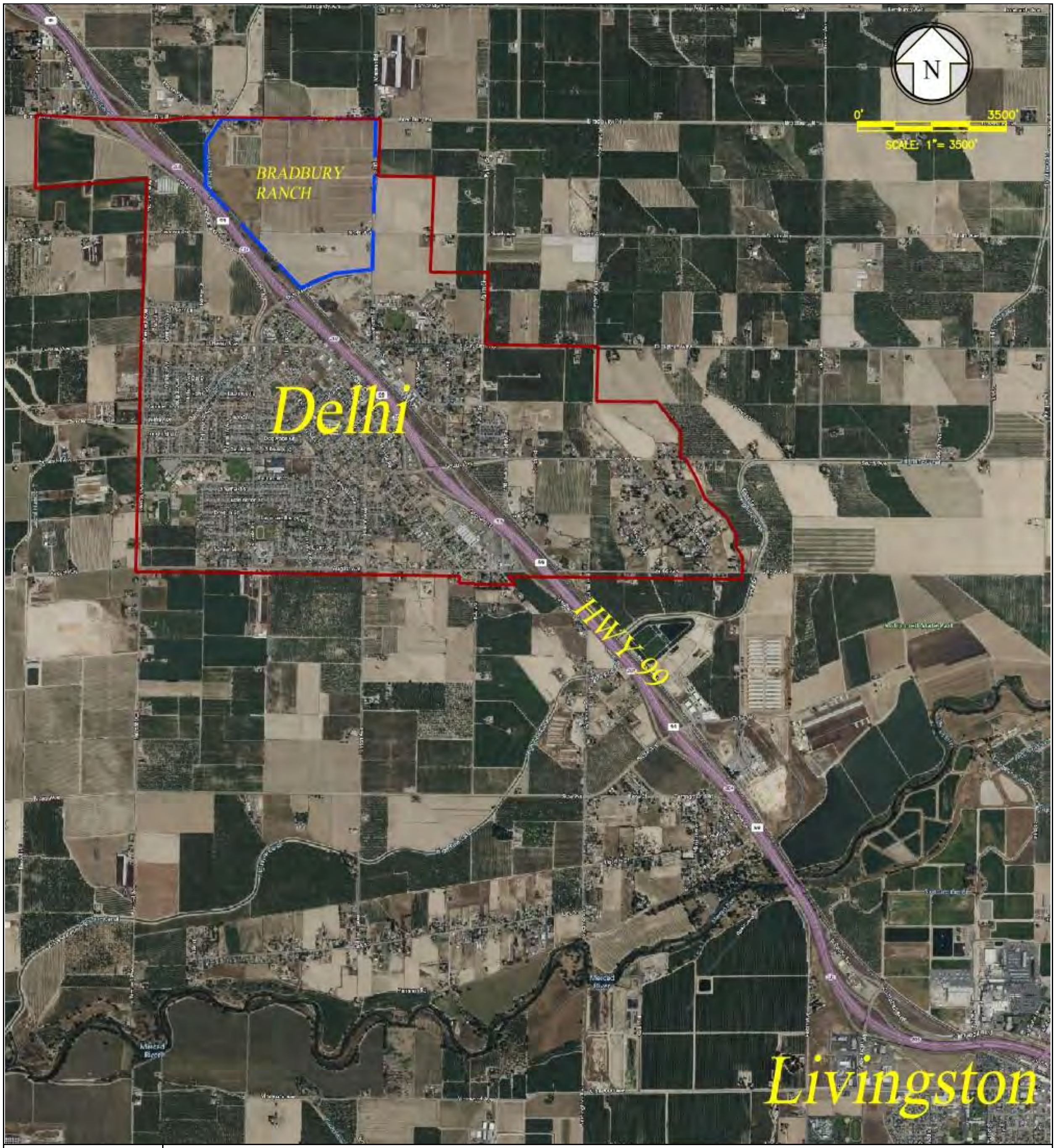


Figure 1-1
Project Location

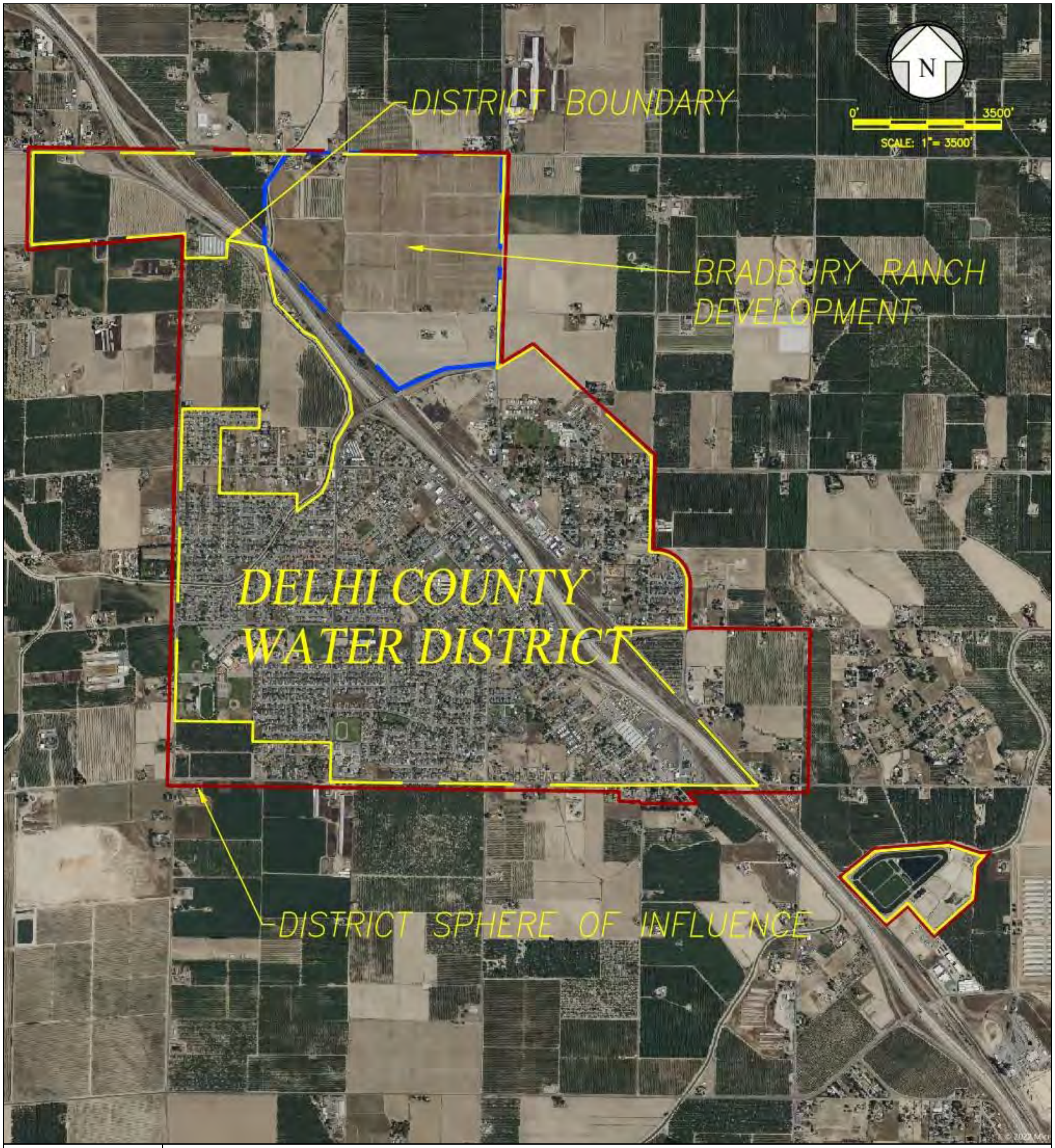


Figure 1-2
Delhi County Water District Service Boundary

1.4 - Project Timeline/Water Supply Assessment Baseline

In January of 2022, the West and East Turlock Groundwater Sustainability Agencies, which oversees the Turlock Subbasin, submitted the combined Groundwater Sustainability Plan (GSP) to the State for consideration and comment. The GSA's also adopted the GSP in January 2022, although the State has through 2024 to review the plan.

The current GSP does not require or identify any specific reductions in water usage by municipalities or urban communities. The GSP instead states that such reductions will be determined in the future, as need is determined. It may be assumed, however, that for Delhi which is entirely reliant on groundwater for its water supply, that during the 20-year implementation period of the Bradbury Ranch development the GSP and SGMA will require some level of reduction in groundwater usage. However, the existing and planned facilities are appropriate and may be relied on to supply for the Delhi community's water demand for the planned duration and development of Bradbury Ranch.

Of note, this Water Supply Assessment is prepared is "calendar timeless." Its growth projections are premised upon residential and commercial development additions to, or expansions and changes in, existing community development not upon the timing of said development.

The Water Code requires evaluation over a twenty-year period of project water usage; it implies that such usage consider the impacts of full project development on the available water supply during normal rainfall years, "dry" years, and "multiple dry" years. The fact that initiation of development may vary to some extent does not change project water supply analysis criteria.

SECTION 2 - WATER SUPPLY

Water Code Section 10910

(d)(1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.

(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:

(A) Written contracts or other proof of entitlement to an identified water supply.

(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

(C) Federal, State, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

The Delhi County Water District currently pumps and delivers groundwater to meet the demands of its service area from existing groundwater wells. The Project proposes to utilize that existing water system. The Delhi County Water District currently has no rights to or contracts for surface water, nor purchases any wholesale water from other agencies for use near the Delhi community. The following sections discuss the groundwater subbasin and water supply/water system reliability.

2.1 - Groundwater

Water Code Section 10910

(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or

> *the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has been projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition…*

2.2 - Groundwater Subbasin

The State has been divided into 10 hydrologic regions, and further divided into basins and subbasins, by the Department of Water Resources. The Turlock subbasin is a subbasin within the San Joaquin Valley Groundwater Basin of the San Joaquin River Hydrologic Region as denoted in the 2003 update to Bulletin 118 "California's Groundwater."

The Turlock subbasin is located in the San Joaquin Valley, which is surrounded by the Coast Range on the west, the San Emigdio and Tehachapi Mountains on the south, the Sierra Nevada on the east, and the Sacramento-San Joaquin Delta (Delta) and Sacramento Valley on the north. The northern portion of the San Joaquin Valley drains toward the Delta via the San Joaquin River and its tributaries, including the Fresno, Merced, Tuolumne, and Stanislaus Rivers. The southern portion of the valley is internally drained by the Kings, Kaweah, Tule and Kern Rivers that flow into the Tulare drainage basin including the beds of the former Tulare, Buena Vista, and Kern Lakes (DWR, 2003).

The Turlock subbasin is located in the northern portion of the San Joaquin Valley Groundwater Basin. The subbasin boundaries are the Tuolumne River to the north, the Merced River to the south, and the San Joaquin River to the west. The eastern boundary is approximate and based on the contact between subbasin sediment and the Sierra Nevada foothills.

The area's geohydrologic characteristics are briefly described as:

There are three principal groundwater aquifers in the Turlock Subbasin as identified in the GSP: an unconfined aquifer, a confined aquifer, and an aquifer in consolidated rocks. The unconfined water body occurs in the unconsolidated deposits above the Corcoran Clay, named the Western Upper Principal Aquifer. The confined aquifer occurs in the unconsolidated deposits below the Corcoran Clay and extends downward to the base of fresh water, called the Western Lower Principal Aquifer. The community of Delhi is located, as are its wells, west of the easterly boundary of the Corcoran Clay, therefore the community relies upon the two western aquifers as it's groundwater source.

2.3 - Groundwater Usage

The Turlock Subbasin GSP calculated the average annual groundwater pumping in the subbasin to be 410,000 acre-feet per year (AFY). 351,000 AFY were predicted for agricultural purposes, 39,000 AFY for municipal or urban use, and 20,000 AFY for domestic well or small water systems.

Agriculture is the dominant land use in the Turlock Subbasin. It is estimated to account for more than 66 percent of all land use. According to the Turlock Groundwater Sustainability Plan, the majority of water used within the Turlock Subbasin has historically been and continues to be used for agricultural purposes.

2.4 - Basin Designation

The Department of Water Resources defined the Subbasin as being a high priority subbasin despite not being in a state of critical overdraft. The DWR's deciding criteria were based on declining groundwater levels over long term, the number of public supply wells, number of production wells, irrigated acreage, and existing groundwater usage.

2.5 - Regional Groundwater Management

The Groundwater Management Act, California Water Code (CWC) Section 10753, et. seq., originally enacted as Assembly Bill (AB) 3030, was passed by the State legislature during the 1992 session and became law on January 1, 1993.

In 2002, State Senate Bills (SB) 1938 (Groundwater Management Planning Act of 2002) and SB 1672 (Integrated Regional Water Management Planning Act of 2002) were signed into law. These bills required various changes and additions to existing basin-wide groundwater management plans.

In 2022, in implementation of the State's Sustainable Groundwater Management Act, the County of Stanislaus, the Turlock Irrigation District, and other agencies are cooperating in the State-required adoption and implementation of a basin wide groundwater sustainability plan.

The Turlock Subbasin, is one of 48 basins considered high priority by the State Department of Water Resources. Consistent with the requirements of the Sustainable Groundwater Management Act (SGMA), water management and land management agencies in the Turlock Subbasin have formed two Groundwater Sustainability Agencies (GSAs): The West Turlock Groundwater Sustainability Agency and the East Turlock Groundwater Sustainability Agency. The two GSAs have collaborated in developing a Groundwater Sustainability Plan for the entire Turlock Groundwater Subbasin.

It is likely, that in implementing the Plan, each local agency will individually adopt usage restrictions as necessary and similar to those adopted during the recent drought. There is no Plan provision for, and no likelihood of, Plan-wide implementation measures.

The Delhi County Water District is a member of the West Turlock Subbasin GSA. As a member, it will be bound by the possible future implementation of the sustainability plan.

2.6 - Reliability of Groundwater Basin Supply

As a prelude to the analysis of water supply sufficiency for the implementation of the proposed Project, the sufficiency and reliability of the Basin groundwater resource must be considered. The Basin is evaluated as:

- Providing adequate groundwater storage resources.

  Based on the Turlock subbasin's annual 2021 report, the average annual groundwater usage over the past 5 years has been 414,000 acre-feet per year. The GSP estimates an annual usage of 310,700 AFY to be the sustainable yield for the subbasin. While the GSP contemplates and identifies conservation projects and recharge efforts, no specific reductions are targeted for Delhi as an urban supplier. Additionally, there are no planned restrictions on development at this time.

  The Turlock basin is also not designated as being in a state of critical overdraft by the State DWR; the basin provides some degree of recharge during normal rainfall/runoff years. Forgoing incalculable climatic change affecting water supply, the basin's groundwater resource will remain a reliable source of supply for the duration of this Assessments' projected development cycle.

- Possessing a consistent usage history of both surface water and groundwater resources which, nevertheless, will achieve document effective usage of the groundwater resources.

  The Region's consistent history of planning and implementing groundwater and surface water usage within the framework of the 2014 Sustainable Groundwater Management Act demonstrate that regional usage concern for available groundwater resources is a priority.

- Protected against continuing groundwater resource deterioration by the Region's comprehensive water resource management programs and the adopted Groundwater Sustainability Plan.

SECTION 3 - WATER SYSTEM SUFFICIENCY

Water Code Section 10910

(f) If a water supply for a proposed project includes groundwater the following additional information shall be included in the water assessment…

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonable available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records...

3.1 - Water Service Area

The Delhi County Water District service area, encompassing portions of the community of Delhi (Figure 1-2), includes 3.5 square miles. The population of the community as of the 2020 census is 10,656; the Delhi Community Plan, which includes the Bradbury Ranch Development within its boundary, projects a population of approximately 20,444 at buildout. Based on the proposed Bradbury Ranch SEIR at full buildout the development would include 1069 households, which at 3.91 persons per household (US 2020 Census for Delhi CA), would add a population of 4,180 to the Delhi community. The total population, projected at 20 years for final buildout of 2040, would be 14,836. Water service for the community is provided by the Delhi County Water District and will also be provided for the Bradbury Ranch Development.

3.2 - Current Service Area Water Demand

The service area's current water production was approximately 487.6 million gallons in 2020. This leads to an approximately 125 gallons per capita per day. Historical water usage data and system demand, and connections are contained in Appendix "Infrastructure Analysis" of this report.

3.3 - Water System Operations and Facilities

The existing Delhi County Water District system is in adequate condition to meet existing water demand, with appropriate staffing and oversight. There are four active wells, with well design capacities of 1,300, 1,100, 1,000, and 600 gallons per minute. There is also a fifth well that is currently offline due to nitrate levels above the State-required MCL. The distribution system is primarily composed of asbestos-cement and polyvinyl chloride pipe, primarily ranging in size from 4-inches to 12-inches in diameter. The system has no existing storage tanks or booster pumps.

All services are metered. These will be normal continuing replacement of oldest or deteriorating/size-deficient lines. All water production is chlorinated.

The existing DCWD system cannot provide for the existing demand and the demand from the development of the Bradbury Ranch. It was determined that in order to accommodate the Bradbury Ranch Development, two new wells (or a well and storage tank) would need construction, alongside construction of a looped system of 12” pipe encompassing

3.4 - Project Water Demands

The Bradbury Ranch water demand is projected at 150 gallons per capita per day. This number is a conservative estimate based on the current calculated usage of 125 gallons per capita per day based on the calculations in Section 3.2. The average per day demand for the Bradbury Ranch service area would 627,000 gallons per day in 2040; this would push the total demand for the Delhi community to 1,959,000 gallons per day. These projections are based on the proposed land uses detailed in the proposed Bradbury Ranch SEIR and the proposed dwelling unit numbers, detailed in Table 3-1 below. This exceeds current production capacity but would be met by the proposed infrastructure improvements in Appendix “Infrastructure Analysis”. The actual amount could be less depending on the scope and timing of water reductions implemented either by the GSP or by Delhi County Water District independently.

3.5 - Water Quality Characteristics

The community’s water supply is at present in compliance with State water quality standards, with no known contaminants or quality issues at active wells. Well 9 is currently inactive as existing nitrate levels are above state standards; the District has discussed remediation options but there are no finalized plans for bringing Well 9 back online. Nitrate levels exceeding the State water quality standards have not been detected at any of the other District’s wells and so does not appear to be endemic to the community’s groundwater supply.

3.6 - Sustainable Groundwater Plan Constraints

Sections 1.4 and 2.5 of this Assessment refer to possible impacts on groundwater usage from potential timing of development as affected by the January 2022 adoption of the GSP for the Turlock region.

The GSP delays consideration of urban-area water use regulation until the Plan implementation period, from 2025 through 2040 for the initial planned period. It may, however, be assumed that it will provide for the State regional goal (Turlock Subbasin) of

285 gallons per day per capita in 2020 or some lesser amount. The water demand projection in Section 3.4 therefore remains a “worst-case”, conservative, assumption of water demands during Plan implementation—it assumes no reduction in current per capita usage.

3.7 - Reliability of Community Water System

In evaluation of the community’s water system’s reliability, Sections 3.1 through 3.5 demonstrate its adequacy subject to engineering analysis. It will also evaluate whether any modifications in the distribution system are required to satisfy Project buildout water delivery volumes and pressures. The developers will finance any required wells and distribution system modifications needed to accommodate the addition of the Bradbury Ranch development to the Delhi water system. (The SB 610 Normal Water Year, Single Dry Water Year, Multiple Dry Years supply reliability analysis is provided in Section 4.2 of this Assessment.)

SECTION 4 - WATER SUPPLY SUFFICIENCY

4.1 - Transfer, Exchange, New Water Supply

Water Code Section 10910

(f) If a water supply for a proposed project includes groundwater the following additional information shall be included in the assessment…

(3) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the Project was addressed in the description and analysis required by paragraph (40 of subdivision (b) of Section 10631…

Delhi's water system sole water source is groundwater from the Subbasin.

The Subbasin's committed agricultural and urban development usage of available surface water and groundwater resources precludes transfer such resources to the community from other entities. The Turlock Subbasin is not adjudicated so groundwater rights do not exist for transfer. Additionally, there are no other water suppliers close enough in vicinity to Delhi for water transfer to be economically feasible. Delhi does not possess any surface water rights and would not be able to obtain any surface water even if surface water storage and treatment were economically feasible.

Because alternatives to existing groundwater supply are infeasible, water supply sufficiency for the Projects must be evaluated on the basis of the data and conclusions provided in Section 2, Water Supply Resources, and Section 3, Water System Sufficiency.

4.2 - Sufficiency Evaluation and Conclusion

Water Code Section 10910, Section 4.5

…(c)(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single, dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

The Subbasin water supply resource analysis in Section 2 of this Assessment demonstrates that the Basin resource poses no concerns regarding its adequacy.

The reliability of the community water system to distribute this resource as projected, over the period of Project implementation is determined in Section 3 of this Assessment to be sufficient.

In compliance with the direction of SB 610, with an adequate groundwater resource as the sole source of Company's water supply, and the demonstrated adequacy of the multiple-well existing and proposed Community water system the evaluated reliability of the Project water supply over its projected water demand in the next 20 years is summarized in Table 4-1.

Table 4-1
Supply Reliability

Year(s)	Water Supply Source	Normal Water Year	Single Dry Water Year	Multiple Dry Water Year			
				1	2	3	4
2020	1495	1495	1495	1495	1495	1495	1495
2025	1670	1670	1670	1670	1670	1670	1670
2030	1845	1845	1845	1845	1845	1845	1845
2035	2020	2020	2020	2020	2020	2020	2020
2040	2195	2195	2195	2195	2195	2195	2195

Note: Acre feet per year; assumes 20-year build-out of the Project

Table 4-1 shows projected water demand increases based on the existing Delhi demand (487.6 million gallons), and the projected demand from the Bradbury Ranch development (627,000 gallons). The Bradbury Ranch development demand was split up as project buildout occurs. As the Delhi demand has been consistent or even decreasing regardless of dry-year conditions, see Table 1 of the Appendix "Infrastructure Analysis" for maximum monthly usage over the past 10 years, the normal year conditions were projected as equal to the dry year conditions as a conservative estimate. The water supply source in Table 4-1 were based on available well capacity, with the consideration of the new wells to be constructed as part of the development.

In confirmation of the adequacy of the Section 3 determinations, the Community's water distribution system has historically proven reliable. Continued effective operation and maintenance of the system has been demonstrated. Delhi County Water District engineering design standards are in place that meet or exceed American Water Works Standards, ensuring that system reliability does not diminish as it is expanded. The District does maintain a Capital Improvement Project list, with regular rate and financial studies for the purposes of financial planning and maintenance of the system. Funds to maintain and expand the system to meet the continued growth in water demand are collected through water rates and development fees. The Community's adequacy of both water supply and water distribution was demonstrated during a recent five-year drought period and during the recent record-single dry year in that period.

4.3 - Lead Agency Action

Water Code Section 10911, Section 5

(g)(1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city of county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.

The Lead Agency, in concert with the approval of appropriate environmental impact analysis of the Project, can adopt this Water Supply Assessment as demonstrating adequacy of its water supply to serve the project. This WSA serves as a review of the District's ability to serve the project and not a commitment to serve the project.

REFERENCES

- California's Groundwater, Bulletin 118, Update 2020; Department of Water Resources
- Turlock Subbasin Groundwater Sustainability Plan, January 2022 Update
- Turlock Subbasin Annual Report WY 2021
- Draft SEIR Project Description – Delhi Bradbury Ranch
- County of Merced Water and Sewer Service Providers Municipal Service Review
- Delhi Community Plan
- Delhi Community Plan Draft EIR

Appendix

Infrastructure Analysis

MEMO

Date: November 03, 2022 **Project No.:** 220269

To: Leandro Maldonado

From: Spencer Supinger, PE

Subject: Delhi Water and Sewer Systems

PART 1 - EXECUTIVE SUMMARY

This memorandum will provide analysis and recommendations for improvements to the Delhi Community Water District's water and wastewater systems needed to support the development of the Bradbury Ranch project. The analysis will examine the proposed improvements within the Bradbury Ranch master plan, and their effects on the Delhi systems and community as a whole. The memorandum will be split into water and wastewater sections, examining both system's overall capacity and the collection and distribution systems respectively.

Based on the analysis in this memorandum, the developer would need to construct an additional well and/or storage to provide an additional 2,257 gpm of source capacity for peak hour demands. A minimum of 1,113 is required from a new source to meet the maximum day demand scenario and the remainder can be met by either an additional source or a storage tank. The proposed development will require 12" water main to be installed along Vincent Road and across HWY 99 to complete a loop with the existing water system.

The Delhi treatment plant has 0.8 MGD of existing capacity with 0.61 MG of current average daily flow. Bradbury Ranch was calculated to generate another 0.365 MGD of daily flow which would exceed the current capacity. The WWTP will need upgrades to increase the treatment capacity to 1.0 MGD. The 1.0 MGD capacity can be achieved by adding a structure and piping to control flow to the two exiting percolation ponds that are not currently in operation and constructing a concrete structure to allow for algae drying. The proposed development will require a new lift station within the development and 15" and 21" gravity sewer pipe from the development to the existing Lift Station #1. It was also determined that Lift Station #1 would need to be upgraded to accommodate the additional peak flow of 503 gpm generated by Bradbury Ranch. The downstream force main is already sized to accommodate the additional flow from this development.

PART 2 – WATER SYSTEM ANALYSIS

I. EXISTING WATER DEMAND CALCULATIONS

This section will provide calculations for existing water demand. Due to the drought, the District instituted several water conservation measures to help reduce the amount of water used by customers. After the drought ended, several of those limitations were lifted and the water usage has begun to increase. It should be noted, the customers have continued to conserve when compared to pre-drought usage. The calculations below consider the water usage over the last 10 years, including years before, during and after the drought. This results in a more representative sample of what the District can expect now and in the near future.

The California Waterworks Standards (CWS) outline methods for calculating Maximum Day Demand (MDD) and Peak Hour Demand (PHD) for water systems. The following calculations were completed pursuant to the methods found in Section 64554 of the CWS.

A. Annual Water Usage

Table 1 contains the annual water usage for the last 10 years.

Table 1: Historical Annual Water Usage (MG)

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
539.7	542.9	583.4	606.8	520.1	464.1	451.6	489.1	492.4	465.1	487.6

B. Maximum Day Demand

If daily water usage data is available, CWS recommends identifying the highest daily water usage over the last 10 years as the MDD. If daily water usage isn’t available, the monthly water usage data is used. The highest monthly water usage for each year since 2010 is shown in Table 2 below. Historical daily meter readings were not available.

Table 2: Historical Maximum Monthly Water Usage (MG)

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
74.8	72.4	73.5	73.3	**64.3**	51.7	56.5	64.0	63.7	57.4	58.4

The MDD is determined by multiplying the average daily demand during the maximum month by a peaking factor of at least 1.5. These calculations will use a peaking factor of 1.7 to account for the slightly larger swings that may occur in a smaller community of this population. The maximum month was found to be 74.8 MG in July 2010. However, based on the trend of reduced water usage seen in the years after 2013 this study used the 2014 high of 64.3 MG for the water demand calculations. The trend in reduced usage can likely be contributed to the drought conditions and conservation measures implemented during that time along with increased social consciousness regarding water usage.

Existing MDD = ADD * Peaking Factor = 64.3 MG / 31 days * 1.7 ≈ 2,450 gpm

C. Peak Hour Demand

The PHD is determined by multiplying the MDD by a peaking factor of at least 1.5. These calculations will use a peaking factor of 1.7 to account for the slightly larger swings that may occur in a smaller community of this population.

Existing PHD = MDD * Peaking Factor = 2,450 * 1.7 ≈ 4,165 gpm

D. Maximum Day Demand plus Fire Flow

In addition to those requirements above, local Fire Code requires a public water system of this size to be able to meet MDD plus Fire Flow (FF) of 1,500 gpm for a two-hour period with all available sources and storage.

Existing MDD + FF = 2,450 + 1,500 = 3,950 gpm

E. Water Demand per Equivalent Dwelling Unit (EDU)

Using the current number of residential, commercial and industrial customers and their respective annual water usage for 2020, the total Equivalent Dwelling Units (EDUs) can be calculated. Those results are shown in Table 3.

Table 3: Equivalent Dwelling Unit Calculation

Connection Type	Water Usage (MG)	# of Connections	Water Usage per EDU (MG)	# of EDUs
R	428.502	2,493	0.172	2,493
C/I	13.340	37	0.361	76
Landscape	2.491	1	2.491	14
Total	444.333	2,531		2,583

The demand per EDU is then found by dividing the demand by the number of EDUs. The demand per EDU for Max Day Demand and Peak Hour Demand are as follows:

Existing Maximum Daily Demand per EDU = 2,450 / 2,583 = 0.95 gpm/EDU

Existing Peak Hour Demand per EDU = 1.61 gpm/EDU

II. BRADBURY RANCH WATER DEMAND

Based on the Draft SEIR provided by RBK Development and Belgravia Land Development, the Delhi County Water District would need to provide service to 883 dwellings from Low Density Residential Development, 186 dwellings from Medium Density Residential

Development, 10.1 acres of Neighborhood Commercial Development, 3 parks, 1 elementary and 1 middle school, and a fire station. New dwelling units and each park were treated as equivalent to an existing EDU. Parks were assumed to only need water for domestic usage. The fire station was treated as equivalent to 2 EDUs. School enrollment and flow was calculated in Table 4.

Table 4: Water Demand from New School Development

School	New Students	Water Demand per Student (gpd)	Water Demand from School (gpd)
Elementary	1,000	15	15,000
Middle	500	25	12,500
		Total School Demand	**27,500 gpd or 19.1 gpm**

Table 5 shows the total water demand for the Bradbury Ranch development.

Table 5: Water Demand from Bradbury Ranch

Land Use	Acres	EDUs	gpm per EDU	gpm per Acre	Demand (gpm)
LDR	173.2	883	0.95	N/A	838.5
MDR	23	186	204	N/A	176.7
NC	10.1	N/A	N/A	7	70.7
Park	37.4	6	.95	N/A	5.7
Fire Station	2.8	2	.95	N/A	1.9
Schools	23.8	N/A	N/A	N/A	19.1
				Total Demand	**1,113 gpm**

The MDD demand generated from Bradbury Ranch is 1,113 gpm. Using the same peaking factor of 1.7 used when calculating existing demand, the Peak Hour Demand would be 1,892 gpm (1,113 gpm x 1.7).

Table 6 contains the total demand of existing demand plus the demand required to support the proposed development.

Table 6: Total Water Demand (Existing + Project)

Demand Scenario	Total Demand (gpm)	EDUs
MDD	3,563	3,750
PHD	6,057	6,376
MDD+FF	5,063	5,329

III. AVAILABLE WATER CAPACITY

The District currently has four active wells. Well 9 is currently offline due to high Nitrate levels. Table 7 contains the current capacity for each of the four existing active wells.

Table 7: Current Well Capacity

Well	Wells 5	Wells 6A	Well 7	Well 10
Current Capacity	1,000 gpm	1,100 gpm	600 gpm	1,300 gpm

The total capacity of all active wells is 4,000 gpm. It is recommended that the District set aside a reserve of 5%. This provides a factor of safety and gives the District time to evaluate upgrades to their system as the system capacity is approached. With the 5% reserve set aside, the current source capacity is 3,800 gpm.

Table 8 shows the total available flow and the equivalent EDUs that can be served with all active wells online, and also where the largest well (Well 10) is offline per the California Waterwork Standards.

Table 8: System Capacity for Various Well Combinations

Scenario	Wells 5, 6, 7 (with 5% reserve)	Wells 5, 6, 7, 10 (with 5% reserve)
Available Flow	2,565 gpm	3,800 gpm
Current Capacity	2,700 EDUs	4,000 EDUs

IV. CONCLUSIONS AND RECOMENDATIONS

Table 9 shows a summary of the different demand requirements and if they are met by the different well configurations. A “Yes” signifies the demand requirement is met for that well configuration and “No” means it does not.

A. New Well Source to Meet Maximum Day Demand (MDD)

Table 9 shows the current configuration of wells (5, 6, & 7) meets California Waterworks Standards for existing MDD with the largest source offline. However, there is not sufficient capacity to accommodate the proposed Bradbury Ranch development. The development will require additional source capacity of at least 1,113 gpm in order to meet the necessary demand. This can be accomplished by constructing a new well or new wells with at least 1,113 gpm capacity. Based on the District’s existing wells, a single well of this size is reasonable.

Table 9: Summary of Demand Scenarios and Well Configurations

			Wells 5, 6A, & 7	Wells 5, 6A, 7, & 10
		# of EDUs	2,565 gpm 2,700 EDUs	3,800 gpm 4,000 EDUs
Demand Requirement	Existing MDD*	2,450 gpm 2,583 EDUs	Yes	N/A
	Existing PHD	4,165 gpm 4,384 EDUs	N/A	No
	Existing MDD + FF	3,950 gpm 4,158 EDUs	No	No
	Projected MDD*	3,563 gpm 3,750 EDUs	No	N/A
	Projected PHD	6,057 gpm 6,376 EDUs	N/A	No
	Projected MDD + FF	5,063 gpm 5,329 EDUs	No	No

* The CWS require water systems using only groundwater to be capable of meeting MDD with the highest-capacity source offline. Well 10 is the largest well and will be considered offline for computing water availability during MDD scenarios.

B. Additional Well Source or Storage Tank to Meet Peak Hour Demand and Fire Flow (PHD) & (FF)

The CWS states that the system must also be able to maintain the PHD for four hours using all sources and available storage. The MDD + Fire Flow scenario similarly needs to be maintained for two hours using all sources and storage. The Peak Hour Demand is the more restrictive condition in this instance. As of right now, the District has no storage facilities other than the pressure tanks at each well, so it has historically relied on the sources only to meet PHD and MDD+FF conditions.

In order to meet the projected peak hour demand, the developer would need to provide 2,257 gpm of source capacity. Alternatively, the developer could meet the MDD need of 1,113 gpm of source capacity and provide for the difference (1,144 gpm for four hours) in the PHD scenario through water storage. This would require a minimum of 275,000 gallons of storage.

The proposed well sites would need to be at least 100’ x 100’ in size for a well only, and 200’ x 200’ for a combined well and tank site. Appendix A shows potential well or well and tank sites.

C. Distribution System Improvements

The Delhi County Water District's water distribution system was analyzed through the use of a water model created using the WaterCAD software by Bentley. WaterCAD allows the creation of a water model of the entire distribution system, including piping, storage facilities, and wells. The Bradbury Ranch Development was added to Delhi's existing system in the model with the calculated demands shown above and a well of at least 1,113 gpm.

California Waterworks states that for new development a minimum of 40 psi must be maintained for Maximum Day Demand scenario and 20 psi minimum for fire flow. Based on a scenario in which the new well in the Bradbury development is down, pressures under 20 psi were observed in the MDD+FF scenario. Further looping of the system relieved this deficiency. Based on the model results, the proposed development would need to connect via new 12" water main to the existing system along Vincent Road and near Well 9 through the existing casing that passes under HWY 99. The existing casing was installed a number of years ago, and the developer would be responsible for confirming location and condition of the existing casing, potentially via CCTV cameraing of the existing casing. The approximate location of this casing and crossing is shown in Appendix A of this memo. This location is based upon provided as-built plans provided by Caltrans. The casings are shown to extend past the neighboring railroad right-of-way on the northeast side and the Caltrans right-of-way to the southeast side of the crossing. If the existing casing cannot be located or is determined to be in deficient condition to provide for the crossing, the developer would be responsible for the installation of new casing for crossing the railroad and HWY 99.

A portion of the existing 4" water main in Vincent would also need to be upsized to 12" diameter. The proposed connections are detailed in Appendix A, "Water Distribution System."

PART 2 – WASTEWATER SYSTEM ANALYSIS

I. WASTEWATER FLOW ANALYSIS

This section will explore the existing wastewater flows to the District's WWTP, and project wastewater flow from the Bradbury Ranch Development.

Based on historical metered data, the existing Average Daily Flow (ADF) to the wastewater treatment plant is 0.610 million gallons per day (mgd). A summary of the District's existing connections, and their EDU equivalent is given in Table 10.

Table 10: Total Water Demand (Existing + Projected)

Type of Connection	Total Number of Connections	EDU Equivalent
Residential	2,035	2,035
Apartments	3	67
Mobile Home Parks	2	44
Care Homes	2	19
Schools	3	N/A
Parks	2	2
Markets	1	1
	Total EDUs	**2,168**

For the purposes of this analysis, an EDU equivalent was calculated for multi-family connections. It was assumed that 1 apartment unit or Mobile Home unit was equivalent to 2/3 of an EDU, and that 1 Home Care unit was equivalent to 1/3 of an EDU. School flows were calculated separately and determined to be 50,010 gpd. The flow/EDU was then calculated as:

Existing ADF = 610,000 – 50,010 = 599,990 gpd

Flow/EDU = 599,990/2,168 = 258 gpd/EDU

The existing flow per EDU was determined as 258 gallons per day per EDU. For the purposes of determining the future flows from the Bradbury Ranch development, a conservative 300 gpd per EDU number will be used for new units as a result of the development. This is consistent with a Study performed in 2004 for the District's wastewater system.

II. BRADBURY RANCH WASTEWATER FLOWS

Based on the Draft SEIR provided by RBK Development and Belgravia Land Development, the Delhi County Water District would need to provide sewer service to 883 dwellings from Low Density Residential Development, 186 dwellings from Medium Density Residential Development, 10.1 acres of Neighborhood Commercial Development, 3 parks, 1 elementary and 1 middle school, and a fire station. New dwelling units and each park were treated as equivalent to an existing EDU. The fire station was treated as equivalent to 2 EDUs. School enrollment and flow was calculated in Table 11.

Table 11: Wastewater Flow from New School Development

School	New Students	Wastewater Flow per Student (gpd)	School Total (gpd)
Elementary	1000	15	15,000
Middle	500	25	12,500
		Total Flow	**27,500 gpd**

Table 12 below shows the total average daily wastewater flow projected for the Bradbury Ranch development.

Table 12: Average Daily Wastewater Flow from Bradbury Ranch

Land Use	Acres	EDUs	gpd per EDU	gpd per Acre	Demand (gpd)
LDR	173.2	883	300	N/A	264,900
MDR	23	186	300	N/A	55,800
NC	10.1	N/A	N/A	1,500	15,150
Park	37.4	6	300	N/A	1,200
Fire Station	2.8	2	300	N/A	600
Schools	23.8	N/A	N/A	N/A	27,500
				Total Flow	**365,150 gpd**

III. AVAILABLE WWTP CAPACITY

The District's existing wastewater treatment plant has a permitted capacity of 0.8 mgd, with and existing flow of 0.61 mgd. The permit also states that it is allowed to operate at up to 1.0 mgd if additional effluent disposal capacity is provided. There are two existing percolation ponds left over from the original plant that are not in use that would satisfy this requirement if the infrastructure were installed to divert water into these ponds.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Collection System Upgrades

The determination of this study is that the proposed trunklines in the Draft SEIR for Bradbury Ranch are sufficient for the future flows to be generated by the development. The District's existing WWTP would need improvements to accommodate a new total treatment capacity of 1.0 mgd. Existing Lift Station #1 would need upgrades to accommodate the total flows generated by the new development.

The proposed sewer trunkline contained in the Draft SEIR were analyzed in a sewer model to determine if they were sufficiently sized to provide for the projected wastewater flows. The model looked at both peak flow and 3/4th full flow conditions. The peak flow from the Bradbury Ranch development was determined to be 503 gpm, by using the equation $Q_{PEAK} = 1.75(Q_{AVE})^{7/8}$.

The trunklines shown within the proposed development were found to be adequate.

Due to the depth of the existing sewer in Vincent, a new lift station would need to be installed that can handle 800 gpm which would serve the 503 gpm peak flow from the Bradbury Ranch development plus flow from other areas that would be intended to contribute to this lift station in the future. The proposed lift station site would need to be at least 100' x 100' in size, and some potential locations are shown in Appendix A of this memo.

The existing 6" trunkline in Vincent and others on route to Lift Station #1 are not large enough to accommodate these proposed flows. It is recommended that a new 15" trunkline be installed from the new lift station along Vincent to a new 21" trunkline along 4th Street, continuing to Lift Station #1. The proposed trunkline alignment is shown in Appendix A, "Sewer Collection System."

The Lift Station #1 pumps will need to be upgraded by 503 gpm to accommodate the increased flow. The downstream force main does not need to be upsized as it is already sized appropriately for this increase in flow.

B. WWTP Upgrades

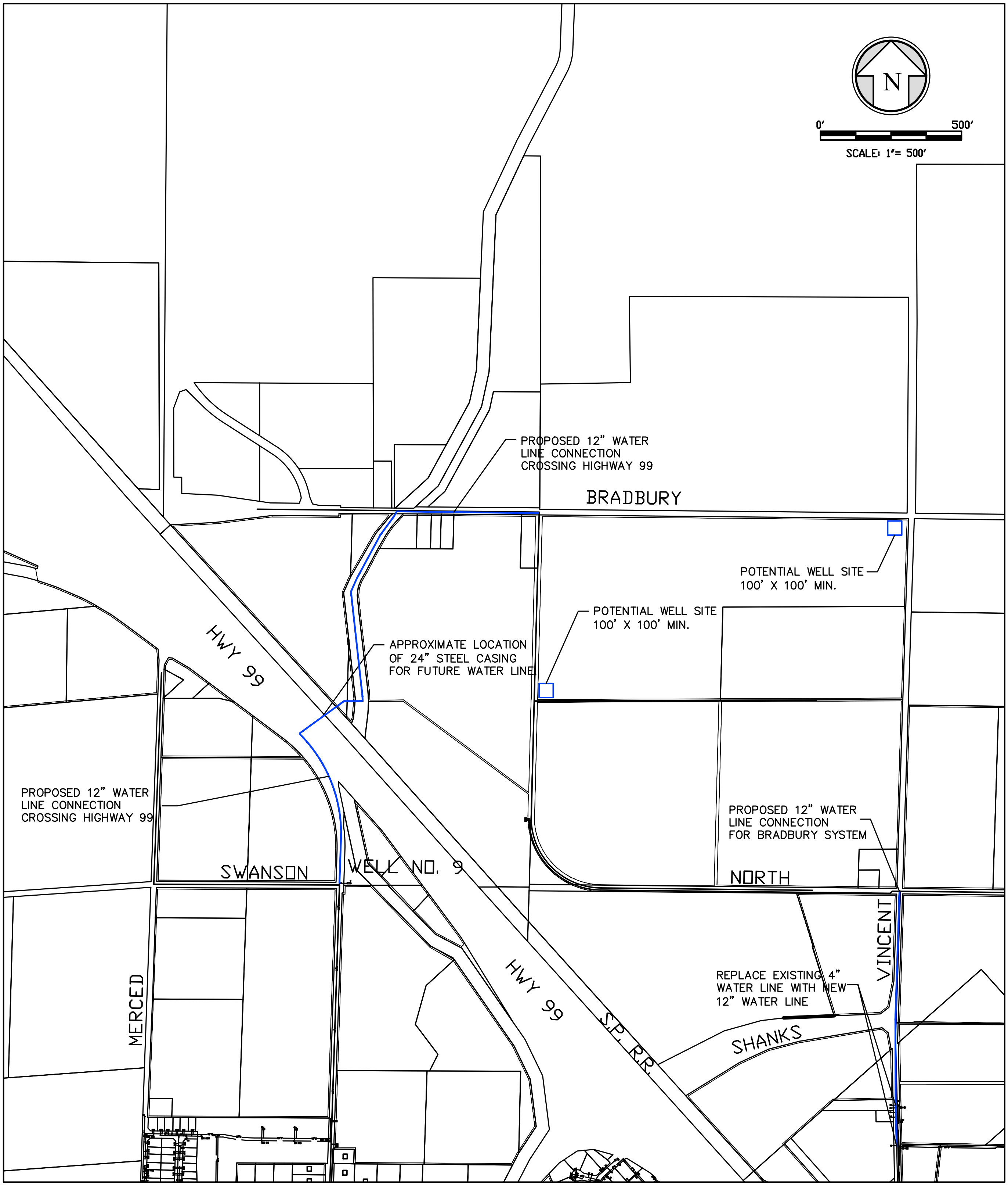
The District's existing wastewater treatment plant has a capacity of 0.8 mgd, with and existing flow of 0.61 mgd. Bradbury Ranch was determined to add 0.365 mgd of flow at the plant, making the total flow into the WWTP 0.975 mgd.

The necessary improvements to increate the capacity to 1.0 mgd include, modifying existing structures and piping to allow flow to the two existing percolation ponds, and a new concrete structure to improve algae drying. These improvements are detailed in Appendix A, "Delhi WWTP".

SP/SS

Appendix A

Exhibits



L:\PROJECTS\2022\220296\ACAD\MASTERS\XREFS\283604WS.DWG 11/3/2022 5:16 PM

PROJECT NO.: **210296**
DRAWN BY: **SP**
QA/QC BY: **SAS**
SCALE: **As Shown**
SHEET NO.:
1 OF 1

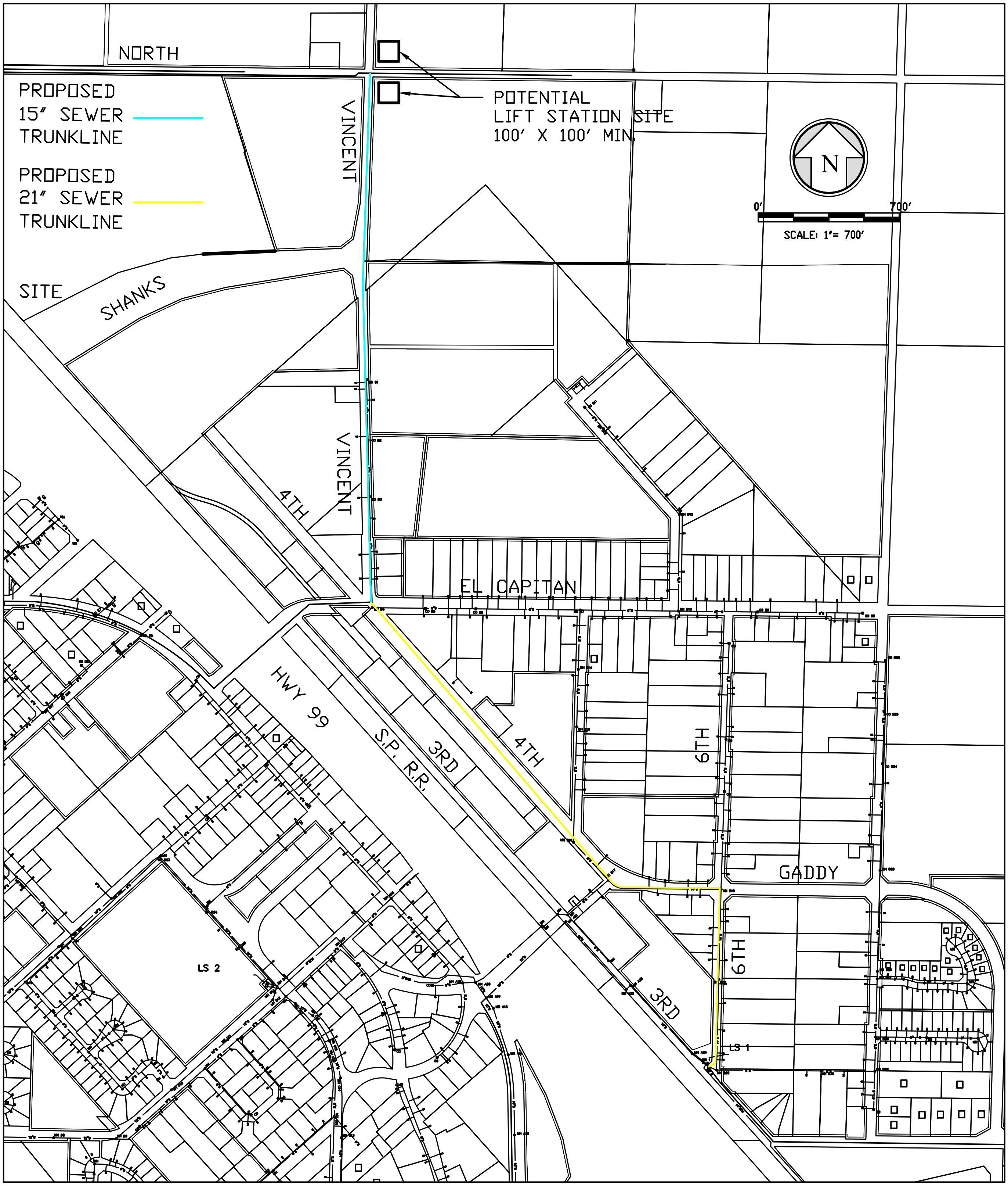
Bradbury Ranch

Water Distribution System
Highway 99 Crossing

QK

2816 PARK AVENUE
MERCED, CA 95348

TEL: (209) 723-2066
WWW.QKINC.COM



L:\PROJECTS\2022\220296\ACAD\MASTERS\XREFS\283604WS.DWG 11/3/2022 5:01 PM

PROJECT NO.: **210296**
DRAWN BY: **SP**
QA/QC BY: **SAS**
SCALE: **As Shown**
SHEET NO.:
1 OF 1

Bradbury Ranch

Sewer Collection System
Trunkline from Bradbury to LS 1

QK

2816 PARK AVENUE
MERCED, CA 95348

TEL: (209) 723-2066
WWW.QKINC.COM

L:\PROJECTS\2022\220296\ACAD\MASTERS\XREFS\220296-WWTP EXHIBIT.DWG 10/12/2022 11:01 AM

PROJECT NO.: **220296**
DRAWN BY: **SP**
QA/QC BY: **SAS**
SCALE: **AS SHOWN**
SHEET NO.:
1 OF 1

Delhi WWTP

Bradbury Ranch Development
Improvements to 1 MG Capacity

QK
901 EAST MAIN STREET
VISALIA, CA 93292
TEL: (559) 733-0440
WWW.QKINC.COM

Noise Report and Preliminary Noise Mitigation Analysis

E

APPENDIX

ACOUSTICAL ANALYSIS

BRADBURY RANCH
MERCED COUNTY / DELHI, CALIFORNIA

WJVA Report No. 22-18

PREPARED FOR

EMC PLANNING
301 LIGHTHOUSE AVENUE, SUITE C
MONTEREY, CA 93940

PREPARED BY

WJV ACOUSTICS, INC.
VISALIA, CALIFORNIA

SEPTEMBER 29, 2022

1. INTRODUCTION

Project Description:

The project applicants, RBK Development and Belgravia Land and Development, has submitted an application (PD 18-001) to Merced County for the Bradbury Master Plan planned development (hereinafter referred to as the “proposed project” or “project”) for review and consideration. The Bradbury master plan boundary is within the broader Delhi Community Plan (hereinafter “community plan”) boundary. The County certified an EIR for the community plan in 2006. The current project application has been submitted solely to request changes to land use and development capacity within the Bradbury master plan area. No approvals for individual development projects within the master plan boundary are being requested at this time. Applications for individual projects would be submitted after the proposed master plan is approved by the County.

Several entitlements are being requested by the applicant as deemed required by the County. A general plan amendment is required to approve changes to the land use designations in the community plan being requested for the project site. A zoning amendment is required to establish a planned development district for the site. Lastly, a master plan approval is required as a basis to implement the planned development zoning as codified in Chapter 18.20.020, Planned Development Zone Approval Process, of the Merced County Zoning Code. Characteristics of the proposed project are discussed below in the context of these required approvals.

Figure 1, Proposed Bradbury Master Plan Area Land Use Plan, illustrates the type and arrangement of proposed land uses and the planned circulation network. The information is conceptual as is permitted by the zoning code requirements for submitting a master plan as part of a planned development application.

Environmental Noise Assessment:

This environmental noise assessment has been prepared to determine if significant noise impacts will be produced by the project and to describe mitigation measures for noise if significant impacts are determined. The environmental noise assessment, prepared by WJV Acoustics, Inc. (WJVA), is based upon the project Land Use Plan provided by the applicant (Figure 1), traffic data provided by KD Anderson & Associates, railroad data provided by the U.S. Department of Transportation Federal Railroad Administration (FRA), and a project site visit on June 7-8, 2022. Revisions to the Land Use Plan, project traffic information or other project-related information available to WJVA at the time the analysis was prepared may require a reevaluation of the findings and/or recommendations of the report.

Appendix A provides definitions of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise. Appendix B provides examples of sound levels for reference.

2. THRESHOLDS OF SIGNIFICANCE

The CEQA Guidelines apply the following questions for the assessment of significant noise impacts for a project:

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

c. For a project located within the vicinity of a private airstrip or 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?

a. Noise Level Standards

Merced County

General Plan

The Merced County Health and Safety Element of the General Plan[1] (adopted December 10, 2013) establishes noise level criteria for both transportation and non-transportation (stationary) noise sources. For transportation noise sources, the General Plan establishes noise level criteria in terms of the Day-Night Average Level (L_{dn}/DNL) metric. The L_{dn} is the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.).

Goal HS-7

Protect residents, employees, and visitors from the harmful and annoying effects of exposure to excessive noise.

Policy HS-7.1: **Noise Standards for New Land Uses (RDR)**

Require new development projects to meet the standards shown in Tables HS-1 and HS- 2, at the property line of the proposed use, through either project design or other noise mitigation techniques.

Table HS-1 (provided below as Table I) of the Merced County General Plan provides the maximum allowable exterior and interior noise exposure levels for various land use types. For residential land uses, the noise level standards typically apply to outdoor activity areas. Outdoor activity areas generally include backyards of single-family residences and individual patios or decks and outdoor common use areas of multi-family residential developments. The intent of the exterior noise level requirement is to provide an acceptable noise environment for outdoor activities and recreation.

Table I also provides interior noise level standards. For residential land uses, and interior noise level standard 45 dB L_{dn} is applied. The intent of the interior noise level standard is to provide an acceptable noise environment for indoor communication and sleep.

TABLE I

MERCED COUNTY GENERAL PLAN NOISE LEVEL STANDARDS TRANSPORTATION NOISE SOURCES

New Land Use	Sensitive Outdoor Area[1] -L_{dn}	Sensitive Interior Area[2] - L_{dn}	Notes
All Residential	65	45	3
Transient Lodging	65	45	3,4
Hospitals & Nursing Homes	65	45	3,4,5
Theaters & Auditoriums	--	35	4
Churches, Meeting Halls	65	40	4
Schools, Libraries, etc.	65	40	4
Office Buildings	65	45	4
Commercial Buildings	--	50	4
Playgrounds, Parks, etc.	70	--	--
Industry	65	50	4

1. Sensitive Outdoor Areas include primary outdoor activity areas associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied.

2. Sensitive Interior Areas includes any interior area associated with any given land use at which noise sensitivity exists and the location at which the County's interior noise level standards are applied. Examples of sensitive interior spaces include, but are not limited to, all habitable rooms of residential and transient lodging facilities, hospital rooms, classrooms, library interiors, offices, worship spaces, theaters. Interior noise level standards are applied within noise-sensitive areas of the various land uses with windows and doors in the closed positions.

3. Railroad warning horn usage shall not be included in the computation of Ldn.

4. Only the interior noise level standard shall apply if there are no sensitive exterior spaces proposed for these uses.

5. Since hospitals are often noise-generating uses, the exterior noise level standards are applicable only to clearly identified areas designated for outdoor relaxation by either hospital staff or patients.

Source: Merced County General Plan

Table HS-2 (provided below as Table II) of the Merced County General Plan provides the maximum allowable exterior and interior noise level standards for non-transportation (stationary) noise sources. Daytime is considered 7:00 a.m. to 10:00 p.m., and nighttime is considered 10:00 p.m. to 7:00 a.m.

TABLE II

MERCED COUNTY GENERAL PLAN NOISE LEVEL STANDARDS
NON-TRANSPORTATION NOISE SOURCES
MEDIAN (L_{50}) / MAXIMUM (L_{MAX})[1]

Outdoor Area[2]			Interior[3]	Notes
Receiving Land Use	Daytime	Nighttime	Day or Night	
All Residential	55 / 75	50 / 70	35 / 55	
Transient Lodging	55 / 75	---	35 / 55	4
Hospitals & Nursing Homes	55 / 75	---	35 / 55	5,6
Theaters & Auditoriums	---	---	30 / 50	6
Churches, Meeting Halls	55 / 75	---	35 / 60	6
Schools, Libraries, etc.	60 / 75	---	35 / 60	6
Office Buildings	55 / 75	---	45 / 65	6
Commercial Buildings	55 / 75	---	45 / 65	6
Playgrounds, Parks, etc.	65 / 75	---	---	6
Industry	60 / 80	---	50 / 70	6

1. These standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards in this table, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.

2. Sensitive Outdoor Areas include primary outdoor activity areas associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied.

3. Sensitive Interior Areas includes any interior area associated with any given land use at which noise sensitivity exists and the location at which the County's interior noise level standards are applied. Examples of sensitive interior spaces include, but are not limited to, all habitable rooms of residential and transient lodging facilities, hospital rooms, classrooms, library interiors, offices, worship spaces, theaters. Interior noise level standards are applied within noise-sensitive areas of the various land uses with windows and doors in the closed positions.

4. Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.

5. Since hospitals are often noise-generating uses, the exterior noise level standards are applicable only to clearly identified areas designated for outdoor relaxation by either hospital staff or patients.

6. The outdoor activity areas of these uses (if any) are not typically used during nighttime hours.

7. Where median (L50) noise level data is not available for a particular noise source, average (Leq) values may be substituted for the standards of this table provided the noise source operates for at least 30 minutes. If the source operates less than 30 minutes the maximum noise level standards shown shall apply.

Source: Merced County General Plan

Policy HS-7.2: Acoustical and Groundborne Vibration Analysis Requirements (RDR)

Require development project applicants to prepare an acoustical analysis as part of the environmental review process when noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels shown in Tables HS-1 and HS-2. Require an analysis of groundborne vibration for proposed residential and other sensitive projects (including but not limited to hospitals and schools) located within 1,000 feet of a rail line with at least 30 operations per day or an existing industrial groundborne vibration source. The acoustical and groundborne vibration analyses shall:

a) Be the responsibility of the applicant;

b) Be prepared by qualified persons experienced in the fields of environmental noise and groundborne vibration assessment and architectural acoustics;

c) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions;

d) Estimate projected future (20 year) noise levels relative to the standards shown in Tables HS-1 and HS-2 at the property line of the proposed use, and, as applicable, estimate project future groundborne vibration levels using a maximum vibration standard of 70 VdB;

e) Recommend appropriate mitigation to achieve compliance with the adopted policies and standards in this element, including setbacks from groundborne vibration sources causing adverse levels of vibration; and

f) Estimate interior and exterior noise, and groundborne vibration exposure after the prescribed mitigation measures have been implemented at the property line.

Policy HS-7.3: Existing Rural Sources (RDR)
Discourage new noise sensitive land uses in rural areas with authorized existing noise generating land uses.

Policy HS-7.4: New Noise or Groundborne Vibration Generating Uses (RDR)
Require new commercial and industrial uses to minimize encroachment on incompatible noise or groundborne vibration sensitive land uses. Also consider the potential for encroachment by residential and other noise or groundborne vibration sensitive land uses on adjacent lands that could significantly impact the viability of the commercial or industrial areas.

Policy HS-7.5: Noise Generating Activities (RDR)
Limit noise generating activities, such as construction, to hours of normal business operation.

Policy HS-7.6: Multi-Family Residential Noise Analysis (RDR)
Require noise analyses be prepared for proposed multi-family, town homes, mixed-use, condominiums, or other residential projects where floor ceiling assemblies or partywalls shall be common to different owners/occupants to assure compliance with the State of California Noise Insulation Standards.

Policy HS-7.7: Noise or Vibration Impacted Residential Area Monitoring (RDR)
Consider any existing residential area “noise or vibration impacted” if the exposure to exterior noise exceeds the standards shown in Table HS-2 or if groundborne vibration levels exceed 70VdB. Identify and evaluate potential noise or groundborne vibration impacted areas and identify possible means to correct the identified noise/land use incompatibilities.

Policy HS-7.8: Project Design (RDR)
Require land use projects to comply with adopted noise and vibration standards through proper site and building design, such as building orientation, setbacks, natural barriers (e.g., earthen berms, vegetation), and building construction practices. Only consider the use of soundwalls after all design-related noise mitigation measures have been evaluated or integrated into the project or found infeasible.

Policy HS-7.9: Transportation Project Construction/Improvements (RDR)
Require transportation project proponents to prepare all acoustical analysis for all roadway and railway construction projects in accordance with Policy HS-7.2; additionally, rail projects shall require the preparation of a groundborne vibration analysis in accordance with Policy HS-7.2. Consider noise mitigation measures to reduce traffic and/or rail noise levels to comply with Table HS-1 standards if pre-project noise levels already exceed the noise standards of Table HS-1 and the increase is significant. The County defines a significant increase as follows:

Pre-Project Noise Environment (Ldn)	Significant Increase
Less than 60 dB	5+ dB
60 - 65 dB	3+ dB
Greater than 65 dB	1.5+ dB

Policy HS-7.10: Aircraft Noise (RDR)
Prohibit new noise-sensitive development within the projected future 60 dB Ldn noise contours of any public or private airports.

Policy HS-7.11: Train Whistle Noise (IGC)
Support improvements to at-grade crossings in urban areas in order to eliminate the need for train whistle blasts near or within communities.

Policy HS-7.12: New Project Noise Mitigation Requirements (RDR)
Require new projects to include appropriate noise mitigation measures to reduce noise levels in compliance with the Table HS-2 standards within sensitive areas. If a project includes the creation of new non-transportation noise sources, require the noise generation of those sources to be mitigated so they do not exceed the interior and exterior noise level standards of Table HS-2 at existing noise-sensitive areas in the project vicinity. However, if a noise-generating use is proposed adjacent to lands zoned for residential uses, then the noise generating use shall be responsible for mitigating its noise generation to a state of compliance with the standards shown in Table HS-2 at the property line of the generating use in anticipation of the future residential development.

Policy HS-7.13: Noise Exemptions (RDR)
Support the exemption of the following noise sources from the standards in this element:

a) Emergency warning devices and equipment operated in conjunction with emergency situations, such as sirens and generators which are activated during power outages. The routine testing of such warning devices and equipment shall also be exempt provided such testing occurs during daytime hours.

b) Activities at schools, parks, or playgrounds, provided such activities occur during daytime hours.

c) Activities associated with County-permitted temporary events and festivals.

Policy HS-7.14: Transportation Noise Mitigation Program (MPSP/SO)
Adopt a countywide transportation noise mitigation program to reduce transportation noise levels at existing sensitive land uses.

Policy HS-7.15: New Project Groundborne Vibration Mitigation Requirements (RDR)
For residential projects within 1,000 feet of a rail line with at least 30 operations per day, or an existing industrial or commercial groundborne vibration source, require new residential projects to include appropriate groundborne vibration mitigation measures to reduce groundborne vibration levels to less than 70 VdB within structures. However, if a groundborne vibration-generating use is proposed adjacent to lands zoned for residential uses, then the groundborne vibration-generating use shall be responsible for mitigating its groundborne vibration generation to a state of compliance with the 70 VdB standard at the property line of the generating use in anticipation of the future residential development.

Code of Ordinances

The Merced County Code of Ordinances[2] provides additional noise level standards applicable to the project. Section 10.30.060 (sound level limitations) of the Merced County Code of Ordinances states the following:

No person shall cause, suffer, allow, or permit the operation of any sound source on private property in such a manner as to create a sound level that results in any of the following, when measured at or within the real property line of the receiving property:

1. Exceeds the background sound level by at least ten (10) dBA during daytime hours (seven a.m. to ten p.m.) and by at least five dBA during nighttime hours (ten p.m. to seven a.m.).

2. Exceeds sixty-five (65) dBA L_{dn} on residential real property or seventy (70) dBA L_{dn} on nonresidential real property; or

3. Exceeds seventy-five (75) dBA Lmax on residential real property or eighty (80) dBA Lmax on nonresidential real property.

State of California

There are no state noise standards that are applicable to the project.

Federal Noise Standards

There are no federal noise standards that are applicable to the project.

b. Construction Noise and Vibration

Section 10.60.030 (B5) of the Merced County Ordinance Code (Noise Source Exemptions) states that noise associated with construction activities would be exempt from the noise standards provided above, provided that all construction in or adjacent to urban areas shall be limited to the daytime hours between seven a.m. and six p.m., and all construction equipment shall be properly muffled and maintained.

There are no Merced County Vibration level standards. Some guidance is provided by the Caltrans Transportation and Construction Vibration Guidance Manual[3]. The Manual provides guidance for determining annoyance potential criteria and damage potential threshold criteria. These criteria are provided below in Table III and Table IV, and are presented in terms of peak particle velocity (PPV) in inches per second (in/sec).

TABLE III

GUIDELINE VIBRATION ANNOYANCE POTENTIAL CRITERIA

Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.1
Severe	2.0	0.4

Source: Caltrans

TABLE IV

GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile, historic buildings, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Caltrans

3. SETTING

The proposed Bradbury Ranch Community Plan project is located within the community of Delhi, an unincorporated community located in Merced County, California. The project site is generally bound by the State Route 99 (SR 99) and the Union Pacific Railroad line (UPR) to the west, Bradbury Road to the north, Vincent Road to the east and Shanks Road to the south. The land is currently used for agricultural production and related agricultural facilities, irrigation ditches, unimproved roadways as well as a few rural-residential land uses within. The project site is generally surrounded by agricultural and rural residential land uses on all sides. The closest off-site sensitive receptors are residential land uses located along Bradbury Road and Vincent Road.

a. Background Noise Level Measurements

Existing noise levels in the project vicinity are dominated by traffic noise along SR 99 and other local roadways, noise associated with UPR train operations and noise associated with various agricultural activities as well as occasional small aircraft overflights. Measurements of existing ambient noise levels in the project vicinity were conducted between June 7, 2022 and June 8, 2022. Long-term (24-hour) ambient noise level measurements were conducted at one (1) location (site LT-1) Ambient noise levels were measured for a period of 24 continuous hours at site LT-1. Short-term (15-minute) ambient noise level measurements were conducted at an additional four (4) sites, ST-1 through ST-4. The locations of the ambient noise monitoring sites are provided as Figure 2.

Long-term ambient noise monitoring site LT-1 was located within the project site, at a setback distance of approximately 400 feet from the UPR line and approximately 650 feet from the centerline of SR 99. Site LT-1 was located in area of the project site shown as 'Low Density Residential' on the Land Use Plan (Figure 1). The overall noise environment at site LT-1 was dominated by vehicle traffic on SR 99 as well as UPR train operations and noise associated with agricultural activities in the project vicinity.

Measured hourly energy average noise levels (L_{eq}) at site LT-1 ranged from a low of 58.9 dB between 8:00 a.m. and 9:00 a.m. to a high of 68.0 dBA between 5:00 a.m. and 6:00 a.m. Hourly maximum (L_{max}) noise levels at site LT-1 ranged from 65.3 to 85.0 dBA. Residual noise levels at the monitoring site, as defined by the L_{90}, ranged from 54.8 to 65.5 dBA. The L_{90} is a statistical descriptor that defines the noise level exceeded 90% of the time during each hour of the sample period. The L_{90} is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft and other local noise sources. The measured L_{dn} value at site LT-1 during the 24-hour measurement period was 70.9 dB L_{dn}. Figure 3 graphically depicts hourly variations in ambient noise levels at site LT-1 and provides a photograph of the noise measurement site.

Table V summarizes short-term noise measurement results. The noise measurement data included energy average (L_{eq}) maximum (L_{max}) as well as five individual statistical parameters. Observations were made of the dominant noise sources affecting the measurements. The statistical parameters describe the percent of time a noise level was exceeded during the measurement period. For instance, the L_{90} describes the noise level exceeded 90 percent of the time during the measurement period, and is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft and other local noise sources.

Short-term noise measurements were conducted for 15-minute periods at each of the four sites. Two measurements were conducted at each of the four short-term ambient noise monitoring sites, to document morning and afternoon noise levels. Site ST-1 was located in close proximity to the UPR line, within the southern portion of the project site. Site ST-2 was located near the southeast portion of the project site, at a setback distance of approximately 350 feet from Vincent Road. Site ST-3 was located along the eastern project site boundary, along Vincent Road. Site ST-4 was located along the northern project site boundary, along Bradbury Road. The overall noise measurement data indicate that noise in the project vicinity is highly influenced by vehicular traffic and noise associated with agricultural activities.

TABLE V

SUMMARY OF SHORT-TERM NOISE MEASUREMENT DATA
BRADBURY RANCH, DELHI
JUNE 7 & 8, 2022

Site	Time	A-Weighted Decibels, dBA							Sources
		L_{eq}	L_{max}	L_2	L_8	L_{25}	L_{50}	L_{90}	
ST-1	9:20 a.m.	59.4	62.0	61.9	61.3	60.3	59.3	57.2	TR, AG, AC
ST-1	3:30 p.m.	60.8	64.4	62.1	61.9	61.2	60.0	58.7	TR, AG
ST-2	9:45 a.m.	48.3	54.8	53.7	52.0	48.0	47.2	44.5	TR, AG, D
ST-2	3:50 p.m.	51.4	63.8	56.2	54.4	52.0	48.3	45.1	TR, AG, D
ST-3	10:05 a.m.	69.9	87.2	80.8	74.2	59.4	46.9	43.4	TR
ST-3	4:15 p.m.	66.5	84.1	78.2	72.0	58.7	45.5	42.8	TR
ST-4	10:25 a.m.	59.9	75.2	72.3	62.5	47.8	44.8	43.2	TR
ST-4	4:40 p.m.	60.1	76.8	74.1	63.0	52.7	46.0	44.1	TR

TR: Traffic AC: Aircraft AG: Agricultural Activities V: Voices B: Birds D: Barking Dogs

Source: WJV Acoustics, Inc.

4. NOISE IMPACTS TO OFF-SITE SENSITIVE RECEPTORS, AND MITIGATION MEASURES

a. Project Traffic Noise Impacts on Existing Noise-Sensitive Land Uses Outside Project Site (Less Than Significant)

WJVA utilized the FHWA Traffic Noise Model[4] to quantify expected project-related increases in traffic noise exposure at representative noise-sensitive receptor locations in the project vicinity. Traffic noise exposure levels for Existing, Existing Plus Project, 2045 and 2045 Plus Project traffic conditions were calculated based upon the FHWA Model and traffic volumes provided by KD Anderson & Associates, Inc. In order to estimate future (2045) traffic volumes, WJVA applied a 1% annual rate of increase in traffic along analyzed roadways. The rate of increase is commensurate with the anticipated population growth rate within Merced County. The overall percentages of trucks and the day/night distribution of traffic used for modeling was estimated based upon previous studies WJVA has conducted along similar roadways. The Noise modeling assumptions used to calculate project traffic noise are provided as Appendix C.

Project-related significant impacts would occur if an increase in traffic noise associated with the project would result in noise levels exceeding the County's applicable noise level standards at the location(s) of sensitive receptors. Additionally, as described in Policy HS-7.9 of the Merced County General Plan, a significant impact is also considered to occur if project-related increases in traffic noise levels results in an increase as follows:

- 5 dB increase where existing noise levels are below 60 dB L_{dn}.
- 3 dB increase where existing noise levels are between 60 to 65 dB L_{dn}.
- 1.5 dB increase where existing noise levels exceed 65 dB L_{dn}.

This analysis of project-related traffic noise focuses on residential land uses, as they represent the most restrictive noise level criteria by land use type provided in the General Plan. The County's exterior noise level standard for residential land uses is 65 dB L_{dn}. Traffic noise was modeled at eight (8) receptor locations. The eight modeled receptors are located at roadway setback distances representative of the sensitive receptors (residences) along each analyzed roadway segment. The receptor locations are described below and provided graphically on Figure 4.

- SR-1: Approximately 130 feet from the centerline of Bradbury Road
- SR-2: Approximately 110 feet from the centerline of Bradbury Road
- SR-3: Approximately 220 feet from the centerline of Bradbury Road
- SR-4: Approximately 115 feet from the centerline of Vincent Road
- SR-5: Approximately 80 feet from the centerline of Letteau Road
- SR-6: Approximately 175 feet from the centerline of Shanks Road
- SR-7: Approximately 125 feet from the centerline of Letteau Road
- SR-8: Approximately 140 feet from the centerline of El Capitan Way

Table VI provides a comparison of traffic noise levels at the eight modeled receptor locations for Existing, Existing Plus Project, 2045 and 2045 plus project traffic conditions. Noise levels described in Table VI do not take into account any localized acoustic shielding that may result from intervening topography, existing buildings or existing sound walls, and should be considered a worst-case assessment of traffic noise exposure levels. As described in Table VI, project-related traffic is not expected to result in noise levels at any sensitive receptors to exceed the County's noise level standard or result in an increase resulting in a significant impact at any sensitive receptor locations. Therefore, project-related increases in traffic noise exposure are considered to be less than significant.

TABLE VI

PROJECT-RELATED INCREASES IN TRAFFIC NOISE, dB, L_{dn}
BRADBURY RANCH, DELHI, CALIFORNIA

Modeled Receptor	Existing	Existing Plus Project	2045	2045 Plus Project	Change	Significant Impact?
R-1	58	58	59	59	0	No
R-2	56	60	57	60	+4	No
R-3	47	47	48	48	0	No
R-4	56	59	57	61	+4	No
R-5	53	54	54	55	+1	No
R-6	58	58	59	59	0	No
R-7	52	52	53	53	0	No
R-8	54	55	55	56	+1	No

Source: WJV Acoustics, Inc.
KD Anderson & Associates

b. Proposed Impacts From Operational On-Site Sources (No Impact)

The project would include land uses identified as Neighborhood Commercial. A wide variety of noise sources can be associated with commercial land use designations. The noise levels produced by such sources can also be highly variable and could potentially impact existing off-site and proposed on-site sensitive receptors. There are existing residential land uses located approximately 700 feet southeast from the Neighborhood Commercial parcel. From the perspective of the County's noise standards, noise sources not associated with transportation sources are considered stationary noise sources. Typical examples of stationary noise sources typically associated with commercial land uses include (but are not limited to):

- Fans and blowers
- HVAC units
- Truck deliveries

- Loading Docks
- Compactors

Potential Impact:
Noise levels from new stationary noise sources cannot be predicted with any certainty at this time since specific uses have not yet been proposed and the locations of stationary noise sources relative to the locations of noise sensitive uses are not known. However, under some circumstances there is a potential for such uses exceed the County's noise standards for stationary noise sources at the locations of sensitive receptors.

Mitigation Measures:
Noise levels from new stationary noise sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing characteristics of the sources and the path of transmission between noise sources and sensitive receptors. Options for noise mitigation include the use of building setbacks, the construction of sound walls and the use of noise source equipment enclosures.

When specific uses within the study area are proposed that could result in a noise-related conflict between a commercial or other stationary noise source and existing or proposed noise-sensitive receptor, an acoustical analysis should be required that quantifies project-related noise levels and recommends appropriate mitigation measures to achieve compliance with the County's noise standards. The acoustical analysis should be the responsibility of the project applicant and should be completed prior to issuance of a building permit.

c. Noise from Construction (No Impact)

Construction noise is typically not considered to be a significant impact if construction is limited to the daytime hours and construction equipment is adequately maintained and muffled. Section 10.60.030 (B5) of the Merced County Ordinance Code (Noise Source Exemptions) states that noise associated with construction activities would be exempt from the noise standards provided that all construction in or adjacent to urban areas shall be limited to the daytime hours between seven a.m. and six p.m., and all construction equipment shall be properly muffled and maintained.

Construction noise would occur at various locations within and near the project site through the buildout period and at locations where off-site infrastructure improvements may be required. Existing sensitive receptors could be located as close as 150 feet from construction activities (existing residential land uses south of Bradbury Road, adjacent to the project site). Table VII provides typical construction-related noise levels at distances of 100 feet, 200 feet, and 300 feet.

TABLE VII

TYPICAL CONSTRUCTION EQUIPMENT MAXIMUM NOISE LEVELS, dBA

Type of Equipment	100 Ft.	200 Ft.	300 Ft.
Concrete Saw	84	78	74
Crane	75	69	65
Excavator	75	69	65
Front End Loader	73	67	63
Jackhammer	83	77	73
Paver	71	65	61
Pneumatic Tools	79	73	69
Dozer	76	70	66
Rollers	74	68	64
Trucks	80	72	70
Pumps	74	68	64
Scrapers	81	75	71
Portable Generators	74	68	64
Backhoe	80	74	70
Grader	80	74	70

Source: FHWA

Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman, 1987

d. Vibration Impacts (Less Than Significant)

The dominant sources of man-made vibration are sonic booms, blasting, pile driving, pavement breaking, demolition, diesel locomotives, and rail-car coupling. Vibration from construction activities could be detected at the closest sensitive land uses, especially during movements by heavy equipment or loaded trucks and during some paving activities. Typical vibration levels at distances of 100 feet and 300 feet are summarized by Table VIII. These levels would not be expected to exceed any significant threshold levels for annoyance or damage, as provided above in Table II and Table III.

TABLE VIII

TYPICAL VIBRATION LEVELS DURING CONSTRUCTION

	PPV (in/sec)	
Equipment	**@ 100´**	**@ 300´**
Bulldozer (Large)	0.011	0.006
Bulldozer (Small)	0.0004	0.00019
Loaded Truck	0.01	0.005
Jackhammer	0.005	0.002
Vibratory Roller	.03	0.013
Caisson Drilling	.01	0.006

Source: *Caltrans*

After full project build out, it is not expected that ongoing operational activities will result in any vibration impacts at nearby sensitive uses. Activities involved in trash bin collection could result in minor on-site vibrations as the bin is placed back onto the ground. Such vibrations would not be expected to be felt at the closest off-site sensitive uses. Mitigation is therefore not required.

5. NOISE IMPACTS TO PROPOSED ON-SITE SENSITIVE RECEPTORS, AND MITIGATION MEASURES

a. Transportation Noise Impacts To Proposed On-Site Receptors (Less Than Significant With Mitigation)

The County of Merced General Plan states "*Require new development projects to meet the standards shown in Tables HS-1 and HS- 2, at the property line of the proposed use, through either project design or other noise mitigation techniques.*" Table HS-1 and HS-2 of the Merced County General Plan are provided above as Table I and Table II, respectively.

The proposed project includes sensitive receptors (residential land uses, school) that could be impacted by traffic and railroad noise exposure adjacent to arterial roadways, highways, and railroad lines. Such arterial roadways and highways include Bradbury Road, Vincent Road, Shanks Road and State Route 99 (SR 99). Additionally, the Union Pacific Railroad line borders the project site.

Traffic Noise:

WJVA used the above-described FHWA traffic noise model and traffic noise modeling assumptions to determine the distances from the center of the roadways to the 65 dB L_{dn} noise exposure contours, for arterial roadways bordering the project site. Table IX provides the distances from the center of the arterial roadways adjacent to the project site to the 65 dB L_{dn} noise exposure contour. Table IX provides the contour distances for Existing Plus Project and 2045 Plus Project traffic conditions. It should be noted, noise exposure (and contour distance) for the project area bordering SR 99 and UP railroad line will be discussed below.

TABLE IX

DISTANCES TO TRAFFIC NOISE CONTOURS
BRADBURY RANCH, DELHI, CALIFORNIA
EXISTING PLUS PROJECT TRAFFIC CONDITIONS

Roadway Segment (Description)	Distance (feet) to 65 dB L_{dn}	
	Existing Plus Project	2045 Plus Project
W. Bradbury Road (SR 99 to Vincent Road)	47	51
Vincent Road (Bradbury Road to North Road)	41	45
Vincent Road (North Road to Shanks Road)	59	63
Shanks Road (SR 99 to Vincent Road)	60	64

Source: WJV Acoustics, Inc.
KD Anderson & Associates

Potential Impact:

A noise impact would occur if the outdoor activity areas of proposed sensitive receptors are located within the 65 dB L_{dn} traffic noise contours. Based upon the conceptual Land Use Plan

(Figure 1), residential land uses are proposed adjacent to Bradbury Road, Vincent Road and Shanks Road and a school land use is proposed at the corner of W. Bradbury Road and Vincent Road. If the outdoor activity areas of these land uses are located along these roadways within the 65 dB L_{dn} contour (as described in Table IX), an impact would be expected to occur.

It should be noted, based upon proposed road widening and lane configurations (including proposed bike lanes), it is not anticipated that proposed residential and school land uses along W. Bradbury Road would result in any significant impacts. Additionally, due to grade separation between Shanks Road and the portions of the southern project site (adjacent to proposed medium density residential land uses), portions of the project site would likely fall beyond the setback distances provided in Table IX. However, potential impacts should be further assessed once specific lot layout details are known.

Mitigation Measures:
Noise levels from transportation noise sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing characteristics of the sources and the path of transmission between noise sources and sensitive receptors. Options for noise mitigation include the use of building setbacks, residential construction/backyard lot layout design location and orientation and the construction of sound walls. The following roadway specific information and mitigation options are provided:

- Based upon proposed roadway widening/configurations, sensitive land uses proposed along W. Bradbury Road are not anticipated within the 65 dB L_{dn} noise contour.

- Ensure outdoor activity areas of proposed residential and school land uses along Vincent Road and Shanks Road are located at setback distances beyond those described in Table IX.

- Locate outdoor activity areas of proposed residential and school land uses along Vincent Road and Shanks Road behind residential and school construction, such that the construction provides acoustical shielding to the outdoor activity areas (i.e., construct homes such that they face the roadway and the residential construction provides acoustic shielding to the backyard areas, for the first row of homes facing these roadways).

Trian/SR 99 Traffic Noise:
The project site is bordered to the west by California State Route 99 (SR 99) as well as the Union Pacific Railroad line. These two noise sources result in combined elevated transportation noise exposure levels along the western portion of the project site. WJVA calculated the combined transportation noise exposure level within the project site.

Train Noise:
Noise levels from a total of four (4) train movements were measured within the project site on June 7, 2022, at a setback distance of approximately 125 feet from the railroad track. The four

train movements produced an average sound exposure level (SEL) of 97.5 dB. The SEL is a measure of the total energy of a noise event, including consideration of event duration. The SEL is not actually heard, but is a derived value used for the calculation of energy-based noise exposure metrics such as the L_{dn}.

Railroad noise exposure may be quantified in terms of the L_{dn} using the following formula:

$L_{dn} = SEL + 10 \log Neq - 49.4$

where,

SEL is the average SEL for a train pass-by, Neq is the equivalent number of pass-bys in a typical 24-hour period determined by adding 10 times the number of nighttime movements (10 p.m.-7 a.m.) to the actual number of daytime movements (7 a.m.-10 p.m.). 49.4 is a time constant equal to 10 times the log of the number of seconds in a day.

According to data provided by the U.S. Department of Transportation Federal Railroad Administration (FRA), approximately 14 train operations occur per day along the Union Pacific railroad line, adjacent to the project site. Train operations can occur at any time throughout the day and night. For the purpose of this analysis, it was assumed that the 14 daily train operations are evenly distributed throughout the 24-hour day. Using the above-described formula, railroad operations data and project site train operations noise measurement results, the railroad noise exposure level was calculated to be 67.3 dB L_{dn}, at a setback distance of 100 feet from the railroad line (approximate setback distance of closest proposed residential land uses).

SR 99 Noise:

State Route 99 (SR 99) represents a significant source of noise at proposed residential land uses within the western portion of the project site. According to the proposed Conceptual Land Use Plan (Figure 1), areas denoted as “Low Density Residential” are located as close as 250 feet from the centerline of SR 99. WJVA used the above-described FHWA traffic noise model and traffic data provided by Caltrans to model existing SR 99 traffic noise exposure within the project site. For future (2045) traffic conditions, WJVA applied an annual growth rate of 1.8%, calculated based upon a comparison of SR 99 traffic volumes between 2013 and 2020, in the project vicinity. At a setback distance of 250 feet from the centerline of SR 99, traffic noise exposure for existing and 2045 traffic conditions would be expected to be approximately 72.5 dB L_{dn} and 74.0 dB L_{dn}, respectively.

Combined Transportation Noise Exposure:

As described above, the western portion of the project site is exposed to both train noise (Union Pacific Railroad) and vehicle traffic noise (SR 99). Table X provides the combined transportation noise exposure levels, at various setback distances within the project site. **Please note, all setback distances described below in Table X are relative to the Union Pacific Railroad line.**

TABLE X

COMBINED UNION PACIFIC RAILROAD AND STATE ROUTE 99 NOISE EXPOSURE BRADBURY RANCH, DELHI, CALIFORNIA

Distance (Feet) From Union Pacific Railroad	dB L_{dn}	
	Existing	2045
100	73	74
150	72	73
200	71	72
250	70	71

Source: WJV Acoustics, Inc.

- **The setback distance for existing conditions, from the Union Pacific Railroad line to the 65 dB L_{dn} transportation (train and traffic noise combined) noise contour is approximately 665 feet.**

- **The setback distance for 2045 conditions, from the Union Pacific Railroad line to the 65 dB L_{dn} transportation (train and traffic noise combined) noise contour is approximately 905 feet.**

Potential Impact:
A noise impact would occur if the outdoor activity areas of proposed residential land uses are located within the 65 dB L_{dn} transportation noise contour. Based upon the conceptual Land Use Plan (Figure 1), residential land uses (low density residential and medium density residential) are proposed within the existing 65 dB L_{dn} transportation noise contour, and an impact would be expected to occur.

Mitigation Measures:
Noise levels from transportation noise sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing characteristics of the sources and the path of transmission between noise sources and sensitive receptors. Options for noise mitigation include the use of building setbacks, residential construction/outdoor activity area layout design location and orientation and the construction of sound walls.

b. Noise Impacts from Operational On-Site Sources (Less Than Significant With Mitigation)

Commercial Uses

The project would include land uses identified as Neighborhood Commercial designation. A wide variety of noise sources can be associated with commercial land use designations. The noise levels produced by such sources can also be highly variable and could potentially impact proposed on-site sensitive receptors. From the perspective of the County's noise standards, noise sources not associated with transportation sources are considered stationary noise sources. Typical examples of stationary noise sources typically associated with commercial land uses include (but are not limited to):

- Fans and blowers
- HVAC units
- Truck deliveries
- Loading Docks
- Compactors

Potential Impact:

Noise levels from new stationary noise sources cannot be predicted with any certainty at this time since specific uses have not yet been proposed and the locations of stationary noise sources relative to the locations of new noise sensitive uses are not known. However, under some circumstances there is a potential for such uses exceed the County's noise standards for stationary noise sources at the locations of new proposed sensitive receptors.

Mitigation Measures:

Noise levels from new stationary noise sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing characteristics of the sources and the path of transmission between noise sources and sensitive receptors. Options for noise mitigation include the use of building setbacks, the construction of sound walls and the use of noise source equipment enclosures.

When specific uses within the study area are proposed (and their locations are defined) that could result in a noise-related conflict between a commercial or other stationary noise source and project proposed sensitive receptors, an acoustical analysis should be required that quantifies project-related noise levels and recommends appropriate mitigation measures to achieve compliance with the County's noise standards. The acoustical analysis should be the responsibility of the project applicant.

School Uses

The project area would include a new school site, located at the corner of Bradbury Road and Vincent, along the northeastern portion of the project area. Sources of operational noise associated with school land uses typically include mechanical equipment (trash compactors, HVAC, etc.), vehicle and bus movements and noise associated with general school activities (children at play, sports activities, etc.). Policy HS-7.13 of the Merced County General Plan provides an exemption of noise sources associated with school uses. The Policy states the following in regards to the exemption of school related activities: *"Activities at schools, parks, or playgrounds, provided such activities occur during daytime hours."*

Fire Department Station

The project area would include a new fire department station, to be located along Bradbury Road along the northern portion of the project area. Noise sources associated with fire department stations typically include emergency warning sirens and vehicle movements. Policy HS-7.13 of the Merced County General Plan provides an exemption of noise sources associated with fire station uses. The Policy states the following in regards to the exemption of fire station related activities: *"Emergency warning devices and equipment operated in conjunction with emergency situations, such as sirens and generators which are activated during power outages. The routine testing of such warning devices and equipment shall also be exempt provided such testing occurs during daytime hours."*

c. Vibration Impacts At Proposed Sensitive Land Uses (Less Than Significant)

Policy HS-7.2 of the Merced County General Plan states that an analysis of groundborne vibration is required for proposed residential and other sensitive projects (including but not limited to hospitals and schools) located within 1,000 feet of a rail line with at least 30 operations per day or an existing industrial groundborne vibration source. The project would include residential land uses within 1,000 feet of a rail line (Union Pacific). However, according to data provided by the U.S. Department of Transpiration Federal Railroad Administration (FRA), approximately 14 daily operations occur per day along the Union Pacific railroad line adjacent to the project site. Therefore, a significant vibration impact is not considered to occur within the project site and the proposed sensitive land uses.

d. Noise Impacts from Nearby Airports or Airstrips (No Impact)

The Project site is not located within two miles of a public airport or private airstrip. The Turlock Municipal Airport is located approximately six (6) miles northeast of the project site.

6. IMPACT SUMMARY

This impact summary addresses only the noise impacts determined to be “potentially significant” and summarizes the mitigation measures that would be required to reduce noise levels to a “less than significant” level or states that the impact may be significant an unavoidable. Potential impacts and correlating mitigation measures are described in detail above, and summarized below.

Potential Impact: A noise impact would occur if new proposed sensitive receptors (residential land uses) are located within the 65 dB L_{dn} traffic noise contours. Based upon the conceptual Land Use Plan (Figure 1) and the distances to the 65 dB L_{dn} contour (Table IX), noise impacts could occur along Bradbury Road, Vincent Road and Shanks Road, depending on the locations of residential outdoor activity areas. Additionally, noise impacts would be expected to occur at proposed sensitive land uses (residential) within the setback distance from the Union Pacific Railroad line to the 65 dB L_{dn} transportation (UPR train noise and SR 99 traffic noise combined) noise contour, approximately 850 feet from the UPR railroad line. **This impact is considered less than significant with mitigation.**

Mitigation: Options for noise mitigation include the use of building setbacks, residential construction/backyard lot layout design location and orientation and the construction of sound walls. The following roadway specific information and mitigation options are provided:

- Based upon proposed roadway widening/configurations, sensitive land uses proposed along W. Bradbury Road are not anticipated within the 65 dB L_{dn} noise contour.

- Ensure outdoor activity areas of proposed residential and school land uses along Vincent Road and Shanks Road are located at setback distances beyond those described in Table IX.

- Locate outdoor activity areas of proposed residential and school land uses along Vincent Road and Shanks Road behind residential and school construction, such that the construction provides acoustical shielding to the outdoor activity areas (i.e., construct homes such that they face the roadway and the residential construction provides acoustic shielding to the backyard areas, for the first row of homes facing these roadways).

- Construct a sound wall or berm/sound wall combination as required (height to be calculated after specific setback distances of residential construction and outdoor activity areas are known) along project SR 99/UPRR frontage.

Potential Impact: A noise impact could occur if construction activities do not incorporate appropriate mitigation measures and best management practices. Noise levels associated with construction activities may be effectively mitigated by incorporating noise mitigation measures and appropriate best management practices. The following mitigation measures and best management practices should be applied during periods of project construction. **This impact is considered less than significant with mitigation.**

- Per the Section 10.60.030 (B5) of the Merced County Ordinance Code, construction activities should not occur outside the hours of 7:00 a.m. to 6:00 p.m.

- All construction equipment shall be properly maintained and muffled as to minimize noise generation at the source.

- Noise-producing equipment shall not be operating, running, or idling while not in immediate use by a construction contractor.

- All noise-producing construction equipment shall be located and operated, to the extent possible, at the greatest possible distance from any noise-sensitive land uses.

- Locate construction staging areas, to the extent possible, at the greatest possible distances from any noise-sensitive land uses.

- Signs shall be posted at the construction site and near adjacent sensitive receptors displaying hours of construction activities and providing a contact phone number of a designated noise disturbance coordinator.

Potential Impact: Noise levels from new stationary noise sources associated with proposed Neighborhood Commercial land uses within the project site could potentially impact new proposed sensitive receptors (residential land uses). **This impact is considered less than significant with mitigation.**

Mitigation: Noise levels from new stationary noise sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing characteristics of the sources and the path of transmission between noise sources and sensitive receptors. Options for noise mitigation include the use of building setbacks, the construction of sound walls and the use of noise source equipment enclosures.

7. SOURCES CONSULTED

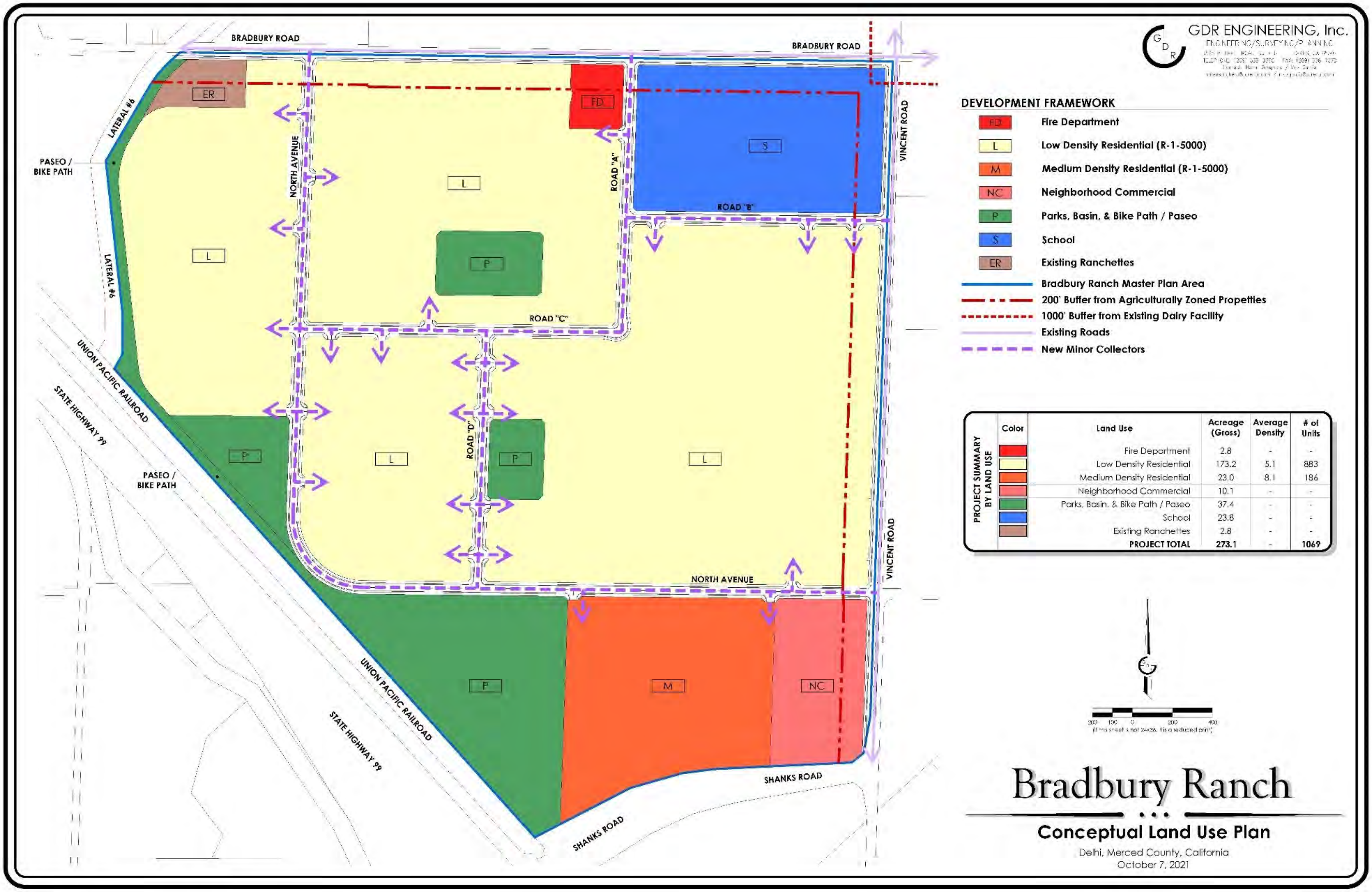
1. 2030 Merced County General Plan, December 10, 2013.

2. Merced County Code of Ordinances, 2008

3. California Department of Transportation, *Transportation and Construction Vibration Guidance Manual,* September 2013.

4. Federal Highway Administration, *Traffic Noise Model, Version 2.5,* April 14, 2004

FIGURE 1: PROJECT LAND USE PLAN



PROJECT SUMMARY BY LAND USE

Color	Land Use	Acreage (Gross)	Average Density	# of Units
🟥	Fire Department	2.8	-	-
🟨	Low Density Residential	173.2	5.1	883
🟧	Medium Density Residential	23.0	8.1	186
🟥	Neighborhood Commercial	10.1	-	-
🟩	Parks, Basin, & Bike Path / Paseo	37.4	-	-
🟦	School	23.8	-	-
🟫	Existing Ranchettes	2.8	-	-
	PROJECT TOTAL	**273.1**	-	**1069**

FIGURE 2: PROJECT VICINITY AND AMBIENT NOISE MONITORING SITES

FIGURE 3: HOURLY NOISE LEVELS AT SITE LT-1

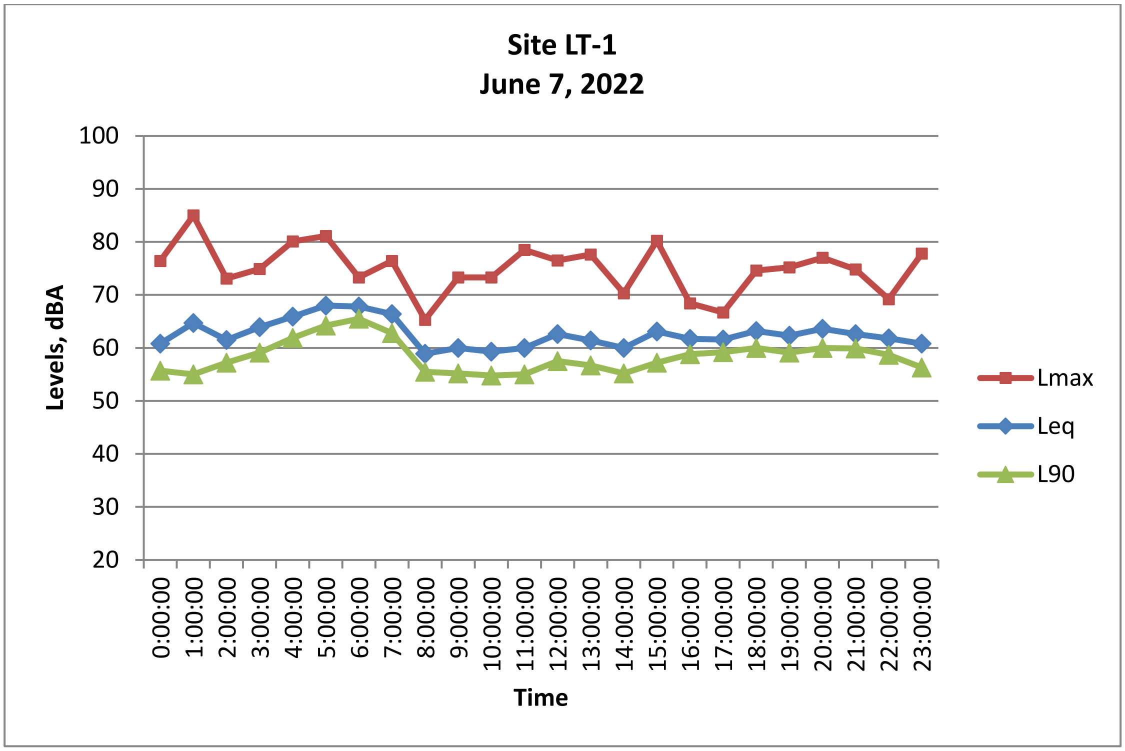


FIGURE 4: MODELED TRAFFIC NOISE RECEPTOR LOCATIONS

APPENDIX A-1

ACOUSTICAL TERMINOLOGY

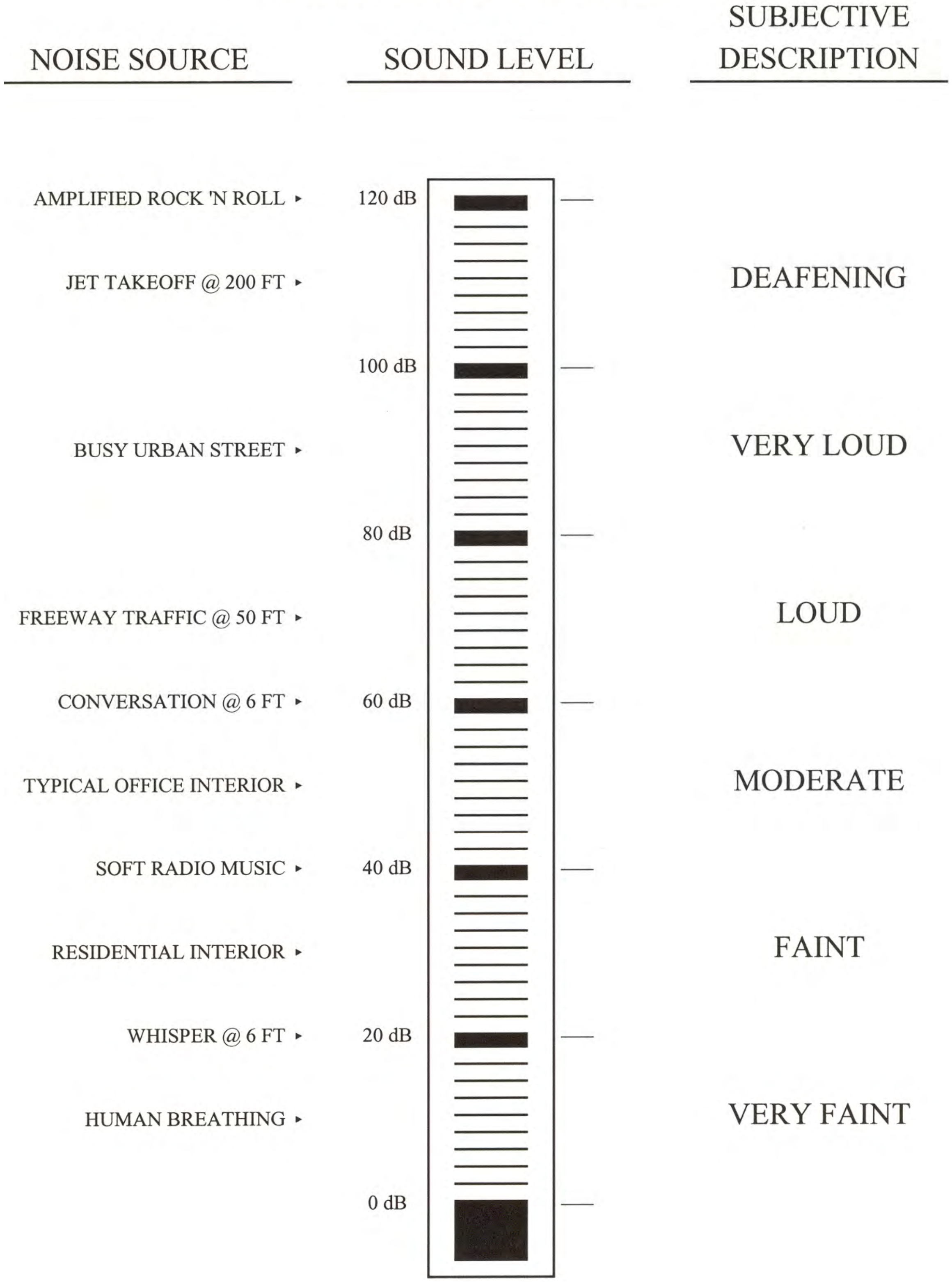
AMBIENT NOISE LEVEL:	The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
CNEL:	Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.
DECIBEL, dB:	A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
DNL/L_{dn}:	Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.
L_{eq}:	Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.
NOTE:	The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the average noise exposure for a shorter time period, typically one hour.
L_{max}:	The maximum noise level recorded during a noise event.
L_n:	The sound level exceeded "n" percent of the time during a sample interval (L_{90}, L_{50}, L_{10}, etc.). For example, L_{10} equals the level exceeded 10 percent of the time.

A-2

ACOUSTICAL TERMINOLOGY

NOISE EXPOSURE CONTOURS:	Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.
NOISE LEVEL REDUCTION (NLR):	The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of "noise level reduction" combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.
SEL or SENEL:	Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.
SOUND LEVEL:	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.
SOUND TRANSMISSION CLASS (STC):	The single-number rating of sound transmission loss for a construction element (window, door, etc.) over a frequency range where speech intelligibility largely occurs.

APPENDIX B
EXAMPLES OF SOUND LEVELS



APPENDIX C

TRAFFIC NOISE MODELING CALCULATIONS

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
June 20, 2022

Project #: 22-18 Bradbury Ranch
Description: Existing
Ldn/Cnel: Ldn
Site Type: Soft

Contour Levels (dB)	60	65	70	75				

Segment	**Roadway Name**	**Segment Description**	**ADT**	**%Day**	**%Evening**	**%Night**	**%Med**	**%Heavy**	**Speed**	**Distance**	**Offset**
1	Bradbury Road	Griffith Road to SR 99 ramps R-1	6778	90		10	2	2	40	130	
2	Bradbury Road	SR 99 SB ramps to SR 99 NB ramps	5222	90		10	2	2	40	100	
3	Bradbury Road	SR 99 NB ramps to Vincent Rd. R-2	3598	90		10	2	2	40	110	
4	Bradbury Road	Vincent Road to Palm Street R-3	1229	90		10	2	2	40	220	
5	Vincent Road	Bradbury Road to North Av.	3451	90		10	2	2	40	100	
6	Vincent Road	North Avenue to Shanks Rd. R-4	3451	90		10	2	2	40	115	
7	Letteau Road	Flower Street to Shanks Rd. R-5	2946	90		10	2	2	25	80	
8	Shanks Road	Letteau Road to SR 99 ramps R-6	9769	90		10	2	2	40	175	
9	Shanks Road	SR 99 NB ramps to Vincent Rd.	4846	90		10	2	2	40	100	
10	Letteau Road	Shanks Road El Capitan Way R-7	4111	90		10	2	2	25	125	
11	El Capitan Way	Letteau Road Vincent Rd	3358	90		10	2	2	35	100	
12	El Capitan Way	Vincent Road to Palm Street R-8	4284	90		10	2	2	35	140	
13	SR 99	project frontage	72400	85		15	3.7	14.6	65	250	

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
June 20, 2022

Project #:	22-18 Bradbury Ranch
Description:	Existing + Project
Ldn/Cnel:	Ldn
Site Type:	Soft

Contour Levels (dB)	60	65	70	75					

Segment	Roadway Name	Segment Description	ADT	%Day	%Evening	%Night	%Med	%Heavy	Speed	Distance	Offset
1	Bradbury Road	Griffith Road to SR 99 ramps R-1	7238	90		10	2	2	40	130	
2	Bradbury Road	SR 99 SB ramps to SR 99 NB ramps	7742	90		10	2	2	40	100	
3	Bradbury Road	SR 99 NB ramps to Vincent Rd. R-2	7786	90		10	2	2	40	110	
4	Bradbury Road	Vincent Road to Palm Street R-3	1329	90		10	2	2	40	220	
5	Vincent Road	Bradbury Road to North Av.	6301	90		10	2	2	40	100	
6	Vincent Road	North Avenue to Shanks Rd. R-4	10851	90		10	2	2	40	115	
7	Letteau Road	Flower Street to Shanks Rd. R-5	3786	90		10	2	2	25	80	
8	Shanks Road	Letteau Road to SR 99 ramps R-6	12109	90		10	2	2	40	175	
9	Shanks Road	SR 99 NB ramps to Vincent Rd.	10966	90		10	2	2	40	100	
10	Letteau Road	Shanks Road El Capitan Way R-7	4111	90		10	2	2	25	125	
11	El Capitan Way	Letteau Road Vincent Rd	5038	90		10	2	2	35	100	
12	El Capitan Way	Vincent Road to Palm Street R-8	5374	90		10	2	2	35	140	

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
July 15, 2022

Project #: 22-18 Bradbury Ranch
Description: 2045
Ldn/Cnel: Ldn
Site Type: Soft

Contour Levels (dB)	60	65	70	75				

Segment	Roadway Name	Segment Description	ADT	%Day	%Evening	%Night	%Med	%Heavy	Speed	Distance	Offset
1	Bradbury Road	Griffith Road to SR 99 ramps R-1	8521	90		10	2	2	40	130	
2	Bradbury Road	SR 99 SB ramps to SR 99 NB ramps	6565	90		10	2	2	40	100	
3	Bradbury Road	SR 99 NB ramps to Vincent Rd. R-2	4253	90		10	2	2	40	110	
4	Bradbury Road	Vincent Road to Palm Street R-3	1545	90		10	2	2	40	220	
5	Vincent Road	Bradbury Road to North Av.	4338	90		10	2	2	40	100	
6	Vincent Road	North Avenue to Shanks Rd. R-4	4338	90		10	2	2	40	115	
7	Letteau Road	Flower Street to Shanks Rd. R-5	3704	90		10	2	2	25	80	
8	Shanks Road	Letteau Road to SR 99 ramps R-6	12281	90		10	2	2	40	175	
9	Shanks Road	SR 99 NB ramps to Vincent Rd.	6092	90		10	2	2	40	100	
10	Letteau Road	Shanks Road El Capitan Way R-7	5168	90		10	2	2	25	125	
11	El Capitan Way	Letteau Road Vincent Rd	4222	90		10	2	2	35	100	
12	El Capitan Way	Vincent Road to Palm Street R-8	5386	90		10	2	2	35	140	
13	SR 99	project frontage	109128	85		15	3.7	14.6	65	250	

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
July 15, 2022

Project #: 22-18 Bradbury Ranch
Description: 2045 + Project
Ldn/Cnel: Ldn
Site Type: Soft

Contour Levels (dB)	60	65	70	75					

Segment	**Roadway Name**	**Segment Description**	**ADT**	**%Day**	**%Evening**	**%Night**	**%Med**	**%Heavy**	**Speed**	**Distance**	**Offset**
1	Bradbury Road	Griffith Road to SR 99 ramps R-1	8981	90		10	2	2	40	130	
2	Bradbury Road	SR 99 SB ramps to SR 99 NB ramps	8885	90		10	2	2	40	100	
3	Bradbury Road	SR 99 NB ramps to Vincent Rd. R-2	8693	90		10	2	2	40	110	
4	Bradbury Road	Vincent Road to Palm Street R-3	1645	90		10	2	2	40	220	
5	Vincent Road	Bradbury Road to North Av.	7188	90		10	2	2	40	100	
6	Vincent Road	North Avenue to Shanks Rd. R-4	11788	90		10	2	2	40	115	
7	Letteau Road	Flower Street to Shanks Rd. R-5	4544	90		10	2	2	25	80	
8	Shanks Road	Letteau Road to SR 99 ramps R-6	14621	90		10	2	2	40	175	
9	Shanks Road	SR 99 NB ramps to Vincent Rd.	12212	90		10	2	2	40	100	
10	Letteau Road	Shanks Road El Capitan Way R-7	5168	90		10	2	2	25	125	
11	El Capitan Way	Letteau Road Vincent Rd	5902	90		10	2	2	35	100	
12	El Capitan Way	Vincent Road to Palm Street R-8	6476	90		10	2	2	35	140	
13	SR 99	project frontage	109128	85		15	3.7	14.6	65	250	

wjv acoustics

September 20, 2022

Mr. Ron Katakis
RBK DEVELOPMENT, INC.
1850 Arbor Street
Turlock, California 95380

RE: BRADBURY RANCH, PRELMINARY ANALYSIS OF NOISE MITIGATION MEASURES AND OPTIONS, DELHI, CALIFORNIA

Dear Mr. Katakis:

As requested, WJV Acoustics, Inc. (WJVA) has reviewed project site noise exposure levels previously determined by WJVA and project site conceptual land use plans to determine noise exposure levels at proposed noise-sensitive land uses and various setback distances from the respective noise sources. Additionally, WJVA has prepared an initial analysis of various mitigation measures and options that may be implemented into project design to comply with applicable Merced County noise level standards. Such mitigation measures may include the incorporation of sound walls of various heights, reconfiguration of project site land use layout design and changes in setback distances or a combination of such measures. The findings of this preliminary mitigation analysis are provided below.

APPLICABLE NOISE STANDARDS

A detailed description of the applicable Merced County noise level standards is provided in the original acoustical analysis prepared for the project. These standards are summarized below in Table I, for both exterior and interior locations. For new residential land uses, an exterior noise level standard of 65 dB L_{dn} and an interior noise level standard 45 dB L_{dn} is applied. The exterior noise level standard applies to "*Outdoor Activity Areas*", and the General Plan states "*Sensitive Outdoor Areas include primary outdoor activity areas associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied*." Generally speaking, outdoor activity areas are considered to be individual backyards of single-family residential land uses and outdoor common use areas (pool areas, BBQ/Picnic Areas, children's play areas, etc.) as well as individual balconies and patios of multi-family residential land uses. Furthermore, the

General Plan also states "*Only the interior noise level standard shall apply if there are no sensitive exterior spaces proposed for these uses.*"

TABLE I

MERCED COUNTY GENERAL PLAN NOISE LEVEL STANDARDS TRANSPORTATION NOISE SOURCES

New Land Use	Sensitive Outdoor Area[1] -L_{dn}	Sensitive Interior Area[2] - L_{dn}	Notes
All Residential	65	45	3
Transient Lodging	65	45	3,4
Hospitals & Nursing Homes	65	45	3,4,5
Theaters & Auditoriums	--	35	4
Churches, Meeting Halls	65	40	4
Schools, Libraries, etc.	65	40	4
Office Buildings	65	45	4
Commercial Buildings	--	50	4
Playgrounds, Parks, etc.	70	--	--
Industry	65	50	4

1. Sensitive Outdoor Areas include primary outdoor activity areas associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied.

2. Sensitive Interior Areas includes any interior area associated with any given land use at which noise sensitivity exists and the location at which the County's interior noise level standards are applied. Examples of sensitive interior spaces include, but are not limited to, all habitable rooms of residential and transient lodging facilities, hospital rooms, classrooms, library interiors, offices, worship spaces, theaters. Interior noise level standards are applied within noise-sensitive areas of the various land uses with windows and doors in the closed positions.

3. Railroad warning horn usage shall not be included in the computation of Ldn.

4. Only the interior noise level standard shall apply if there are no sensitive exterior spaces proposed for these uses.

5. Since hospitals are often noise-generating uses, the exterior noise level standards are applicable only to clearly identified areas designated for outdoor relaxation by either hospital staff or patients.

Source: Merced County General Plan

PROJECT-SITE NOISE EXPOSURE LEVELS

The project site is bordered to the west by California State Route 99 (SR 99) as well as the Union Pacific Railroad line (UPRR). These two noise sources result in combined elevated transportation noise exposure levels along the western portion of the project site. WJVA calculated the combined transportation noise exposure level within the project site. The detailed analysis of both Train and SR 99 traffic noise levels is provided in the original environmental noise assessment previously prepared for the project, and is summarized below.

Train Noise:

According to data provided by the U.S. Department of Transportation Federal Railroad Administration (FRA), approximately 14 train operations occur per day along the Union Pacific railroad line, adjacent to the project site. Train operations can occur at any time throughout the day and night. For the purpose of this analysis, it was assumed that the 14 daily train operations are evenly distributed throughout the 24-hour day. Using the above-described formula, railroad operations data and project site train operations noise measurement results, the railroad noise exposure level was calculated to be 67.3 dB L_{dn}, at a setback distance of 100 feet from the railroad line (approximate setback distance of closest proposed residential land uses).

SR 99 Noise:

State Route 99 (SR 99) represents a significant source of noise at proposed residential land uses within the western portion of the project site. According to the proposed Conceptual Land Use Plan (Figure 1), areas denoted as “Low Density Residential” are located as close as 250 feet from the centerline of SR 99. At a setback distance of 250 feet from the centerline of SR 99, traffic noise exposure for existing and 2045 traffic conditions would be expected to be approximately 72.5 dB L_{dn} and 74.0 dB L_{dn}, respectively. This analysis applies the worst-case future (2045) traffic noise exposure level of 74.0 dB L_{dn}.

Combined Transportation Noise Exposure:

As described above, the western portion of the project site is exposed to both train noise (Union Pacific Railroad) and vehicle traffic noise (SR 99). Table II provides the combined transportation noise exposure levels, at various setback distances within the project site. **Please note, all setback distances described below in Table II are relative to the Union Pacific Railroad line.**

TABLE II

COMBINED UNION PACIFIC RAILROAD AND STATE ROUTE 99 NOISE EXPOSURE
BRADBURY RANCH, DELHI, CALIFORNIA

Distance (Feet) From Union Pacific Railroad	dB L_{dn}	
	Existing	2045
100	73	74
150	72	73
200	71	72
250	70	71

Source: WJV Acoustics, Inc.

Reference to Table II indicates that project site noise exposure levels would exceed the Merced County exterior noise level standard of 65 dB L_{dn} by up to approximately 10 dB within the closest proposed residential areas to the transportation noise sources (Union Pacific Railroad and State Route 99), and mitigation measures are therefore required.

MITIGATION MEASURES AND OPTIONS

Combined exterior noise levels within the closest proposed residential land use areas to the transportation noise sources (UPRR line and SR 99) could be as high as 74-75 dB L_{dn}, depending on final project layout and design. Such noise exposure levels would likely result in both exterior and interior mitigation requirements.

Exterior Noise Mitigation

Exterior noise levels within the project's proposed residential land use areas would be expected to exceed the Merced County exterior noise level standard of 65 dB L_{dn}. At the time this analysis was prepared, specific details in regards to the precise locations of residential buildings, setback distances, construction details, grading elevations and locations of potential outdoor activity areas (where the exterior standards are to be applied) were not known. As such mitigation measures are analyzed and discussed in general terms, based upon general assumptions regarding project site elevation grading in relation to the elevations of the railroad and highway.

Noise levels associated with the nearby transportation noise sources (railroad and vehicle traffic) can be mitigated by the incorporation of sound walls, increased setback distances from the sources, by project design features (such as placement of outdoor activity areas in relation to proposed residential buildings) or a combination of these implementations.

WJVA analyzed the effectiveness of various wall heights in combination with various setback distances from the two transportation noise sources. A sound wall insertion loss program based on the FHWA Model was utilized to calculate various heights of a noise barrier along the UPRR and SR 99 corridor. The model calculates the insertion loss (noise reduction) of a wall (or berm/wall combination) of given height based on the effective height of the noise source, height of the receiver, distance from the receiver to the wall, and distance from the noise source to the wall. It was assumed for the sound wall calculations that the effective railroad source height is 8 feet above the railroad tracks. The standard assumptions used in the sound wall calculations for SR 99 vehicle traffic are effective source heights of 8, 2 and 0 feet above the roadway for heavy trucks, medium trucks and automobiles, respectively. The standard height of a residential receiver is 5 feet above the finished floor elevation.

Based upon the above-described assumptions and FHWA noise model, overall (combined train and vehicle traffic) noise levels resulting from various wall heights at various setback distances was calculated. The effectiveness of a sound wall is dependent on its geographic relation between the noise source and receiver. A sound wall is generally most effective when located either as close to the source or as close to the receiver as feasibly possible. Additionally, the finished grading elevations of the receiver as well as the sound wall alignment are also important factors when calculating the insertion loss of any given sound wall. As described above, many of these factors were not known at the time this preliminary analysis was prepared. Therefore, the following assumptions were applied for the purpose of calculating insertion loss and resulting project-site noise exposure.

- Sound Wall alignment to be located at a setback distance of fifty (50) feet from the centerline of the Union Pacific Railroad Line.

- Elevation of base of sound wall: 116’

- Elevation of residential receiver: 120’ (115’ project site grade elevation plus 5’ receiver height)

- Elevation of State Route 99: 120’

- Elevation of UPRR: 120’

These assumptions should be considered preliminary and generalized in nature. In reality, the elevations of all of these inputs vary slightly across the overall project frontage. Additionally, the final grading of the project site was not known at the time this analysis was prepared. This analysis is intended as an initial feasibility assessment in regards to potential mitigation options, and would require a more detailed analysis once grading plans and construction details are known.

Table III summarizes the findings of a preliminary sound wall analysis based upon combined project site SR 99 traffic noise exposure and Union Pacific Railroad train noise exposure levels. A detailed description of the project site noise exposure analysis is provided in the original environmental noise assessment prepared for the project. Table III provides anticipated noise exposure levels based upon various setback distances from the UPRR line (range between 100- and 300-foot setback distances, provided in 50-foot increments) and various sound wall heights (ranging from 8’ to 15’ above the assumed project site graded elevation, provided in 1-foot increments). All setback distances provided in Table III are relative to the UPRR line.

TABLE III

SOUND WALL AND SETBACK ANALYSIS SUMMARY
BRADBURY RANCH, DELHI, CALIFORNIA

Setback Distance from UPRR Tracks	Combined Noise Exposure By Wall Height (feet), dB L_{dn}							
	8’	9’	10’	11’	12’	13’	14’	15’
100	68	67	67	66	65	65	**64**	63
150	67	66	65	65	**64**	63	63	62
200	66	65	**64**	64	63	62	62	61
250	66	65	**64**	63	62	61	61	60
300	65	**64**	63	63	62	61	61	60

Source: WJV Acoustics, Inc.

Reference to Table III indicates that project compliance could be met with varying sound wall heights and setback distances from the transportation noise sources. For each incremental setback distance (relative to the UPRR line), the minimum required sound wall height is provided in **bold**.

In addition to the assumptions provided above, the results of the sound wall analysis also assume no additional acoustic shielding is provided by the residential building construction. Additional mitigation measures and options could be incorporated into project design that could potentially reduce the wall height requirements summarized in Table III. Such measured and options would include:

- Placement of outdoor activity areas along east side of residential construction.

- Omit individual balconies and patios of multi-family residential units facing west, at first row of units closest to the transportation noise sources.

Interior Noise Mitigation

The applicable interior noise level standard is 45 dB L_{dn}. The interior noise exposure is determined by subtracting the outdoor-to-indoor noise level reduction (NLR) performance that will be provided by the building construction from the assumed exterior noise exposure for the site. The NLR and resulting interior exposure for a specified interior space is calculated based upon three primary inputs: a generalized exterior sound level spectrum, the composite sound transmission loss (TL) of the exterior building assembly, and the sound absorption within the space.

Generally speaking, it may be assumed that residential construction methods complying with current building code requirements will reduce exterior noise levels by up to 25 dB if windows and doors are closed (requiring that it be possible for windows and doors to remain closed for sound insulation means that air conditioning or mechanical ventilation will be required). The worst-case exterior noise exposure levels could be as high as 74-75 dB L_{dn}, pending final project layout and design. This means that residential construction may need to provide up to 30 dB NLR. Therefore, it will be necessary to conduct a review and analysis of interior noise levels once project-specific layout and construction details are available.

It should be noted, incorporating construction details required to provide 30 dB of outdoor-to-indoor noise level reduction (NLR) can be achieved by various methods. Such methods would include the following:

- Incorporating higher STC rated windows within facades that face toward the transportation noise sources

- Eliminating or minimizing the size of windows within facades that face toward the transportation noise sources.

- Inclusion of appropriate insulation within exterior wall assemblies.

- Inclusion of acoustic baffles

CONCLUSIONS

The project site is exposed to transportation noise sources (vehicle traffic and railroad operations) that result in combined project site noise exposure levels that would be expected to exceed the Merced County 65 dB L_{dn} exterior noise level standard. While a precise analysis of project site exterior and interior noise exposure cannot be provided until further details regarding the locations of proposed residential buildings, the orientation of proposed residential buildings and the locations and setback distances of associated outdoor activity areas are determined. Once such details are known, a detailed assessment of both exterior and interior noise level mitigation measures should be conducted.

This preliminary analysis is intended to demonstrate that the project could comply with both exterior and interior noise level requirements by incorporating an appropriately sized sound wall, which will be dependent on the locations of any proposed outdoor activity areas, at which the exterior noise level standard will apply. However, this analysis demonstrates that with the incorporation of reasonable mitigation measures, compliance with both exterior and interior noise level standards can be achieved.

The conclusions and recommendations of this preliminary mitigation assessment are based upon the best information known to WJV Acoustics, Inc. (WJVA) at the time the analysis was prepared concerning the proposed project site, traffic volumes, vehicle speeds and railroad operations. Any significant changes to these factors may require revisions to the findings of this report. Additionally, any significant future changes in motor vehicle technology, noise regulations or other factors beyond WJVA's control may result in long-term noise results different from those described by this analysis.

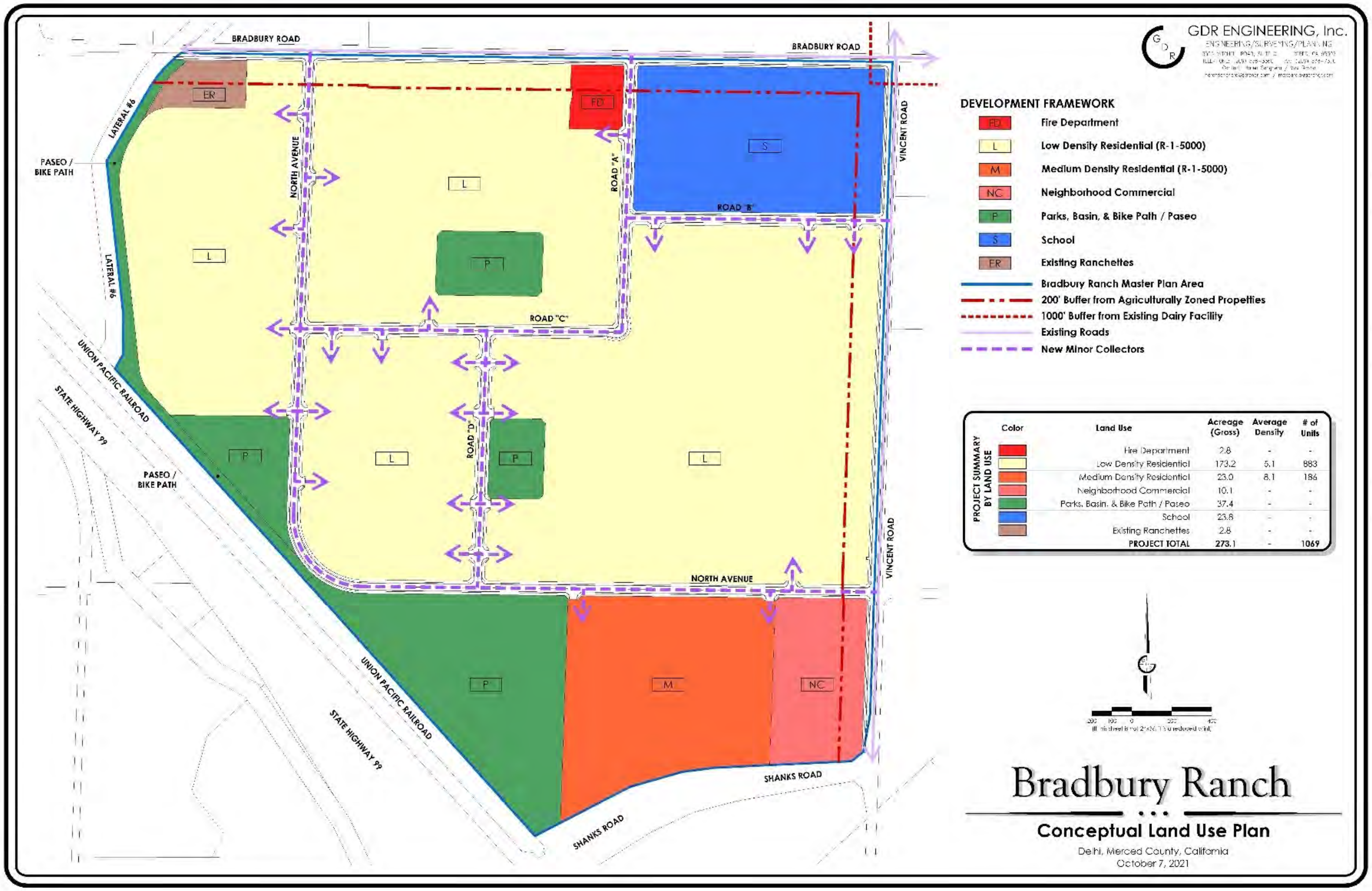
Please contact me at 559-627-4923 or walter@wjvacoustics.com if there are questions or additional information is required. Thank you.

Sincerely,

WJV ACOUSTICS, INC.

Walter J. Van Groningen
President

FIGURE 1: PROJECT LAND USE PLAN



Color	Land Use	Acreage (Gross)	Average Density	# of Units
🟥	Fire Department	2.8	-	-
🟨	Low Density Residential	173.2	5.1	883
🟧	Medium Density Residential	23.0	8.1	186
🟥	Neighborhood Commercial	10.1	-	-
🟩	Parks, Basin, & Bike Path / Paseo	37.4	-	-
🟦	School	23.8	-	-
🟫	Existing Ranchettes	2.8	-	-
	PROJECT TOTAL	**273.1**	-	**1069**

Bradbury Ranch

Conceptual Land Use Plan

Delhi, Merced County, California
October 7, 2021

Transportation Analysis

F

APPENDIX

TRANSPORTATION IMPACT ANALYSIS

FOR

BRADBURY RANCH MASTER PLAN IN THE DELHI COMMUNITY PLAN AREA

Merced County, CA

Prepared For:

EMC Planning Group, Inc.
301 Lighthouse Avenue, Suite C
Monterey, CA 93940

Prepared By:

KD Anderson & Associates, Inc.
3853 Taylor Road, Suite G
Loomis, CA 95650
(916) 660-1555

February 14, 2023

2925-39

Bradbury Ranch MP - Delhi.rpt

TRAFFIC IMPACT ANALYSIS FOR
BRADBURY RANCH MASTER PLAN
IN THE DELHI COMMUNITY PLAN AREA

TABLE OF CONTENTS

TRAFFIC IMPACT ANALYSIS FOR BRADBURY RANCH MASTER PLAN IN THE DELHI COMMUNITY PLAN AREA

INTRODUCTION

Study Purpose

The purpose of this analysis is to identify potential transportation impacts under the requirements of the California Environmental Quality Act (CEQA) as well as traffic operational effects as they relate to the introduction of project traffic on state highways. The analysis includes an evaluation of the current setting based on existing traffic operations and facilities for alternative transportation modes. The status of facilities serving all transportation modes (i.e., motor vehicles, pedestrians, bicycles and transit) have been described. Project effects at buildout have been identified based on anticipated automobile trip generation / distribution that reflects implementation of the proposed circulation system.

CEQA impacts relating to Vehicle Miles Traveled (VMT) with development of the project area has been discussed within the context of screening criteria presented in Governors' Office of Planning and Research (OPR) CEQA guidance and methods for analysis of VMT impact analysis contained in adopted Merced County EIR's.

A Local Transportation Analysis (LTA) intended to describe the traffic operational effects of the project was also prepared to identify any circulation / roadway improvements needed to reduce project effects to a level of insignificance within the context of the Merced County General Plan. A traffic operations analysis was also conducted to identify the project's effects on state highway safety and to identify applicable mitigation measures.

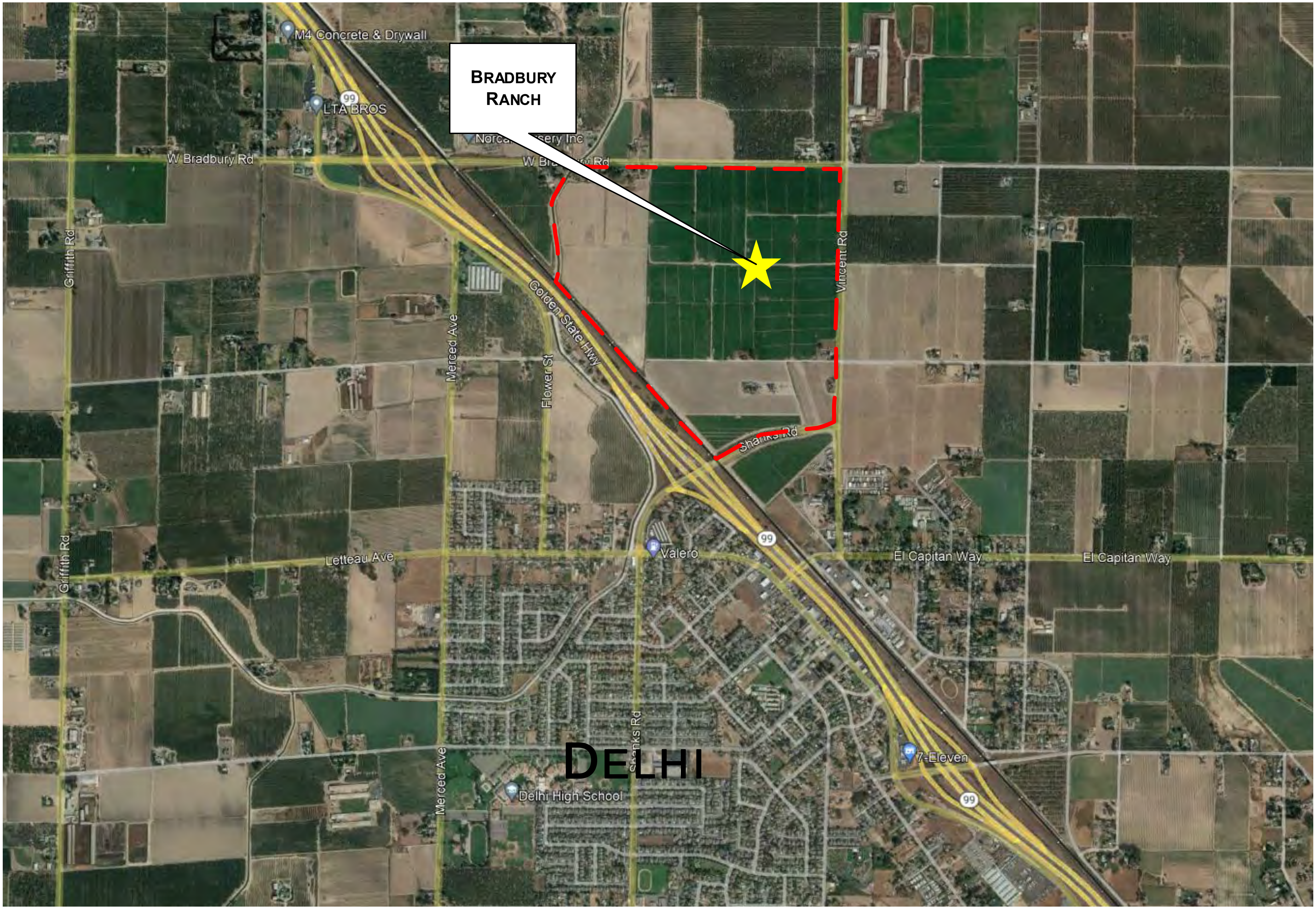
Project Description

This analysis addresses the combined effects of future residential and non-residential development that is anticipated in the Bradbury Ranch Master Plan area within the Delhi Community Plan area, as shown in Figure 1. The proposed land use plan is Figure 2.

The proposed Bradbury Ranch Master Plan amendment would alter the mix of land uses assumed for the site in the Delhi Community Plan. As shown in Table 1, 200 additional residences would be allowed but roughly 457,380 sf of commercial buildings would be eliminated.

TABLE 1
COMMUNITY PLAN/PROPOSED MASTER PLAN DEVELOPMENT CAPACITY COMPARISON

Land Use	Community Plan Development Capacity – Bradbury Master Plan	Proposed Bradbury Ranch Master Plan Development Capacity	Change (Master Plan vs Community Plan)
Residential			
Low Density Residential			
Acres	105	173.2	+68.2 Acres
Dwelling Units	590	883	+203 DU's
Medium Density Residential			
Acres	41	23	-18 Acres
Dwelling Units	270	186	-93 DU's
Non-Residential			
Neighborhood Commercial			
Acres	10	10.1	+0.1 Acres
Building Square Feet	136,680	136,680	No Change
Business Park			
Acres	50	0	-50 Acres
Building Square Feet	457,380	0	-457,380 SF
Public Facilities			
Schools			
Acres	30	23.8	-6.2 Acres
School Types	Elementary School Middle school	Elementary School Middle School	No Change No Change
Parks/Detentions/Paths			
Acres	25	37.4	+12.4 Acres
Park Types	Two Neighborhood Parks One Community Park Class I Bike Path	Two Neighborhood Parks One Community Park Class I Bike Path	No Change No Change No Change
Fire Station			
Acres	0	2.8	+2.8 Acres
Totals			
Acres	261	273.1	+12.1 Acres
Dwelling Units	869	1,069	+200 DU's
Bon Residential	594,060	136,680	-457,380 SF

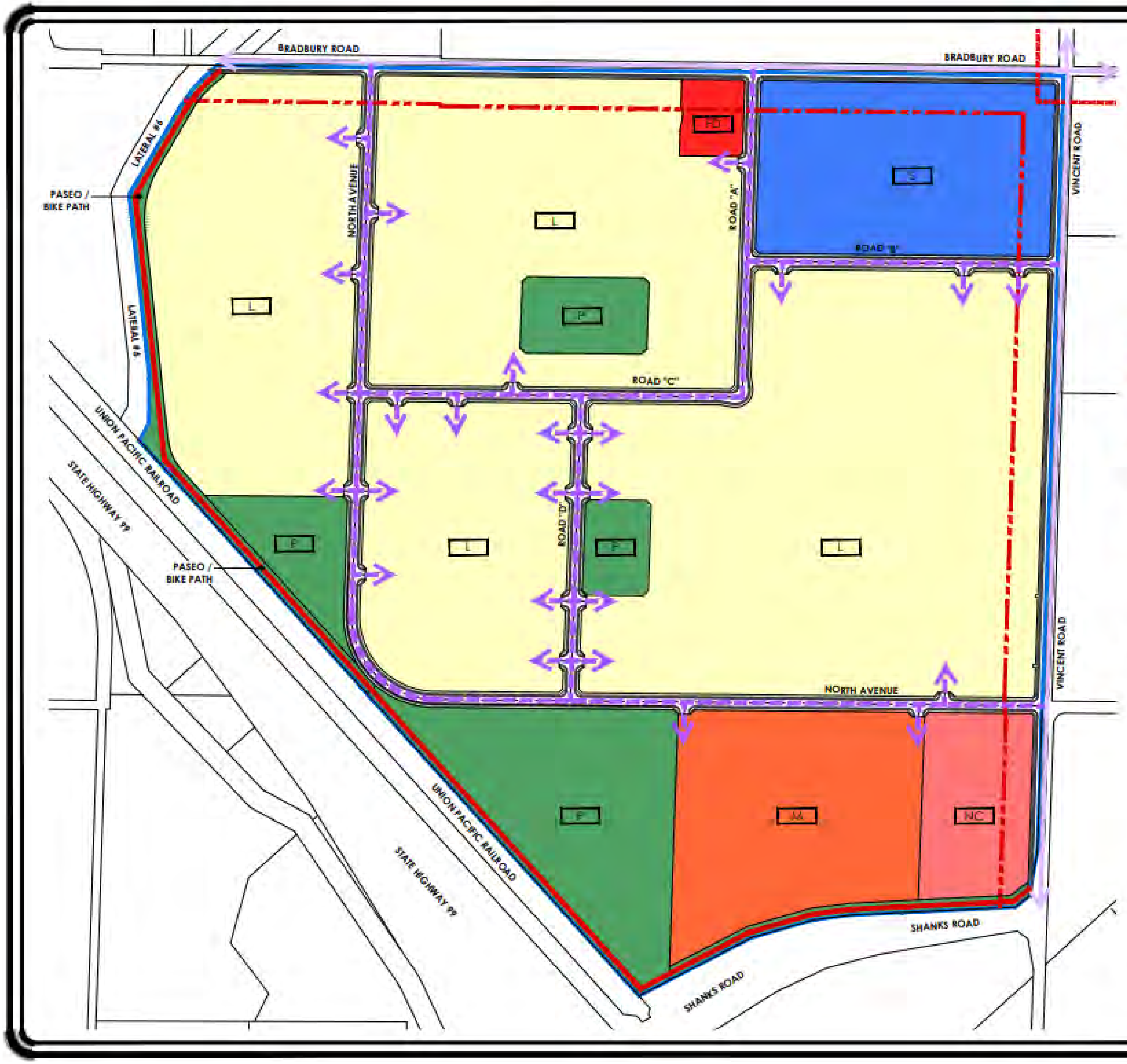


VICINITY MAP

KD Anderson & Associates, Inc.
Transportation Engineers

5785-03 RA 7/5/2022

figure 1



GDR ENGINEERING, Inc.
ENGINEERING/SURVEYING/PLANNING

DEVELOPMENT FRAMEWORK

FD	**Fire Department**
L	**Low Density Residential (R-1-5000)**
M	**Medium Density Residential (R-3)**
NC	**Neighborhood Commercial**
P	**Parks, Basin, & Bike Path / Paseo**
S	**School**
▬	**Bradbury Ranch Master Plan Area**
─ · ─	**200' Buffer from Agriculturally Zoned Propetties**
▬▬	**1000' Buffer from Existing Dairy Facility**
▬	**Existing Roads**
▬ ▬	**New Minor Collectors**
▬	**Class I Bike Pathways - Paseo**

PROJECT SUMMARY BY LAND USE

Color	Land Use	Acreage (Gross)	Average Density	# of Units
🟥	Fire Department	2.8	-	-
🟨	Low Density Residential	176.0	5.1	883
🟧	Medium Density Residential	21.7	8.1	176
🟥	Neighborhood Commercial	9.5	-	-
🟩	Parks, Basin, & Bike Path / Paseo	39.3	-	-
🟦	School	23.8	-	-
	PROJECT TOTAL	**273.1**	-	**1059**

Bradbury Ranch

Conceptual Land Use Plan

Delhi, Merced County, California
March 17, 2022

KD Anderson & Associates, Inc.
Transportation Engineers

5785-03 RA 7/5/2022

BRADBURY RANCH SITE PLAN

figure 2

EXISTING TRANSPORTATION SETTING

Existing Street System

The community of Delhi is located in Northern Merced County. State Route 99 (SR 99) bisects the community and provides regional access to Merced to the south and Turlock to the north for Delhi residents. Within the Delhi area, freeway interchanges are provided on SR 99 at four locations: Bradbury Road, Shanks Road, South Avenue, and Bloss Avenue/Collier Road. These major roads link Delhi with the freeway and extend out in rural areas of Merced County beyond this community.

The text that follows describes these facilities, as well as other roads in the area of the project.

State Route 99 (SR 99). SR 99 is the major regional north-south route through Merced County. This four-lane controlled access freeway bisects Delhi. The California Department of Transportation (Caltrans) provides a record of the daily traffic volumes on its facilities. Caltrans reported that in 2020 State Route 99 carried an *Average Annual Daily Traffic (AADT)* volume of 68,000 vehicles per day on SR 99 south of Collier Road with daily traffic volumes rising to 73,000 AADT north of Collier Road and 74,500 AADT north of Shanks Road. Trucks comprise 24% of the daily traffic on SR 99 through Delhi.

The community is served by these east-west roads.

Bradbury Road. Bradbury Road is a two-lane facility that provides east-west circulation in the north portion of the Delhi Community. Bradbury Road originates to the west at Crows Landing Road and extends to the east to SR 99 in Delhi before continuing to Ballico Avenue. The Delhi Community Plan designates Bradbury Road as an Arterial (i.e., 137 foot ROW, 4 lanes). New traffic counts made for this study in 2022 indicated that Bradbury Road carried 6,778 ADT west of SR 99 and 5,185 on the SR 99 overcrossing, 2,755 ADT east of SR 99 and 1,240 ADT east of Vincent Road.

North Avenue. North Avenue is a two-lane roadway that provides east-west circulation in the portion of Delhi east of SR 99. Today North Avenue extends from Vincent Road in the west to Ballico Avenue in the east. North Avenue is designated a Minor Collector street west of Vincent Road in the Community Plan (i.e., 68 foot ROW and two lanes). While daily traffic counts are unavailable, based on interpolation of peak hour data North Avenue east of Vincent Road is estimated to carry less than 100 ADT.

Letteau Avenue. Letteau Avenue provides east-west access within the western portion of Delhi. Letteau Avenue begins at Griffith Avenue west of Delhi and extends to SR 99 where it curves to the south and runs parallel to SR 99 and is named Stephens Street. Letteau Avenue is designated a Minor Collector in the Delhi Community Plan. Traffic counts conducted in 2016 indicated that Letteau Avenue carried 2,605 ADT in the area west of its intersection with Shanks Road and 3,568 ADT in the area east of the intersection.

El Capitan Way. El Capitan Way is a two-lane street that originates at an intersection on Stephens Street and extends east across SR 99 through the eastern portion of Delhi before terminating at Ballico Avenue. El Capitan Way is designated a Minor Collector street in the Community Plan. New daily traffic counts made in 2016 indicated that El Capitan Way carried 3,444 AADT across SR 99 and 3,749 ADT east of its intersection with Vincent Road.

Delhi is served by these north-south streets.

Shanks Road. Shanks Road is a two-lane street that begins on August Avenue and extends to the north through its interchange on SR 99 before continuing to the east and terminating at Vincent Road. Shanks Road is designated a Major Collector street in the Community Plan. New traffic counts conducted in October 2016 indicated that Shanks Road carried 9,546 ADT between Letteau Avenue and SR 99 and 4,336 ADT east of SR 99.

Vincent Road. Vincent Road is a two-lane north-south street that lies east of SR 99. Vincent Road begins at the intersection of 4th Street and El Capitan Way and extends north beyond Delhi before terminating at Monte Verde Avenue in Turlock. The Delhi Community Plan designates Vincent Road as a Major Collector street (i.e., the daily volume on Vincent Road south of Bradbury Road is 4,251 ADT).

4th Street. 4th Street is a two-lane north-south street that extends from the Vincent Road / El Capitan Way intersection to South Avenue. 4th Street is designated a Minor Collector street in the Community Plan.

The ramps on the SR 99 interchanges provide access to development in the Bradbury Ranch Master Plan. However, Caltrans has not published annual daily traffic volumes for these locations.

- SR 99 SB off ramps to Bradbury Road
- SR 99 SB on ramp from Bradbury Road
- SR 99 NB off ramp to Bradbury Road
- SR 99 NB on ramp from Bradbury Road
- SR 99 SB off ramp to Shanks Road
- SR 99 SB on ramp from Shanks Road
- SR 99 NB off ramp to Shanks Road
- SR 99 NB on ramp from Shanks Road

Study Area Intersections

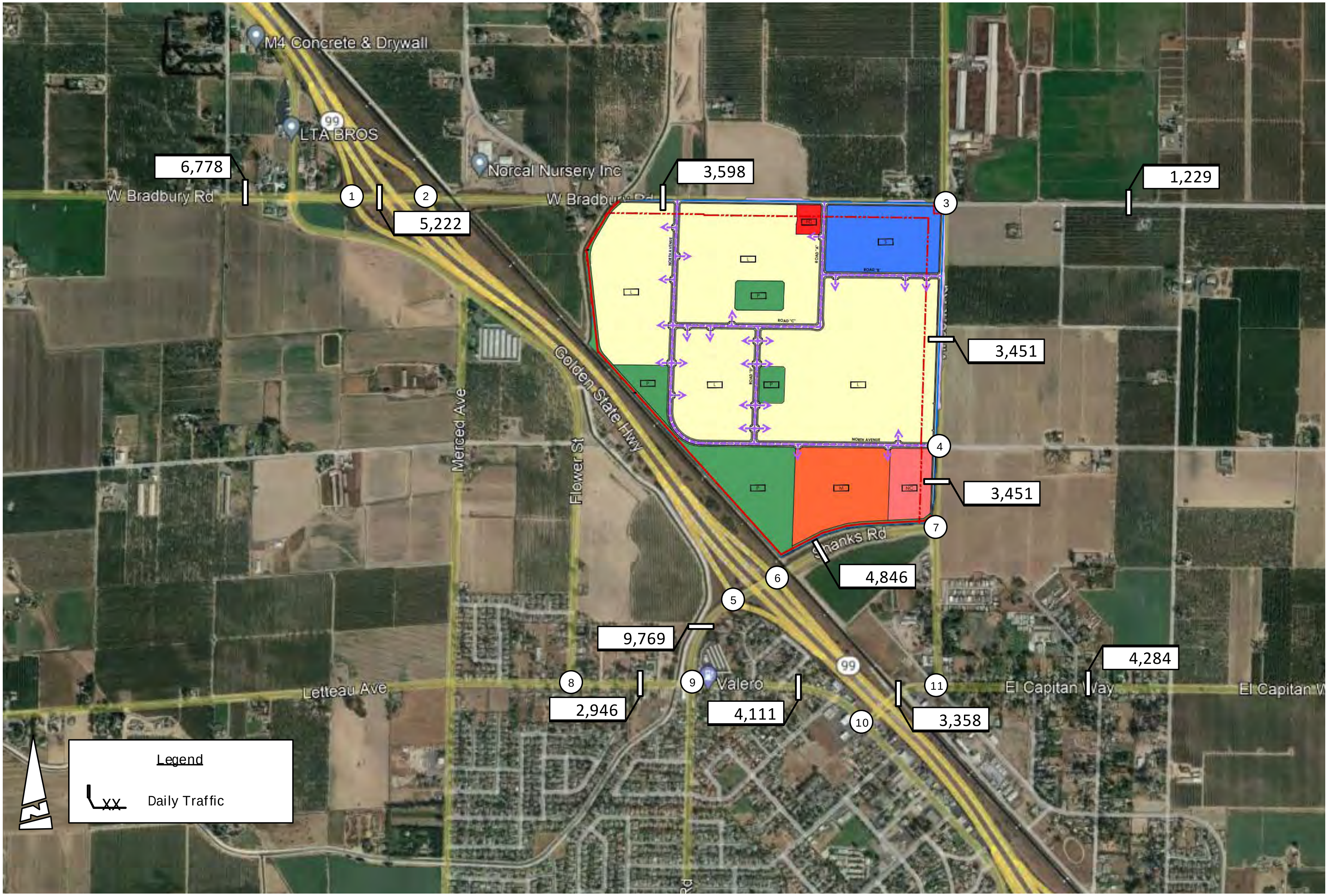
Eleven (11) existing intersections were identified for evaluation in this analysis based on their proximity to anticipated development and location on key transportation corridors.

1. Bradbury Road / SR 99 SB ramps
2. Bradbury Road / SR 99 NB ramps
3. Bradbury Road / Vincent Road

4. North Avenue / Vincent Road
5. Shanks Road / Letteau Avenue
6. Shanks Road / SR 99 SB ramps
7. Shanks Road / SR 99 NB ramps
8. Shanks Road / Vincent Road
9. Letteau Avenue / Flower Street
10. Letteau Avenue / El Capitan Way / Stephens Street
11. El Capitan Way / Vincent Road

Existing Traffic Volumes

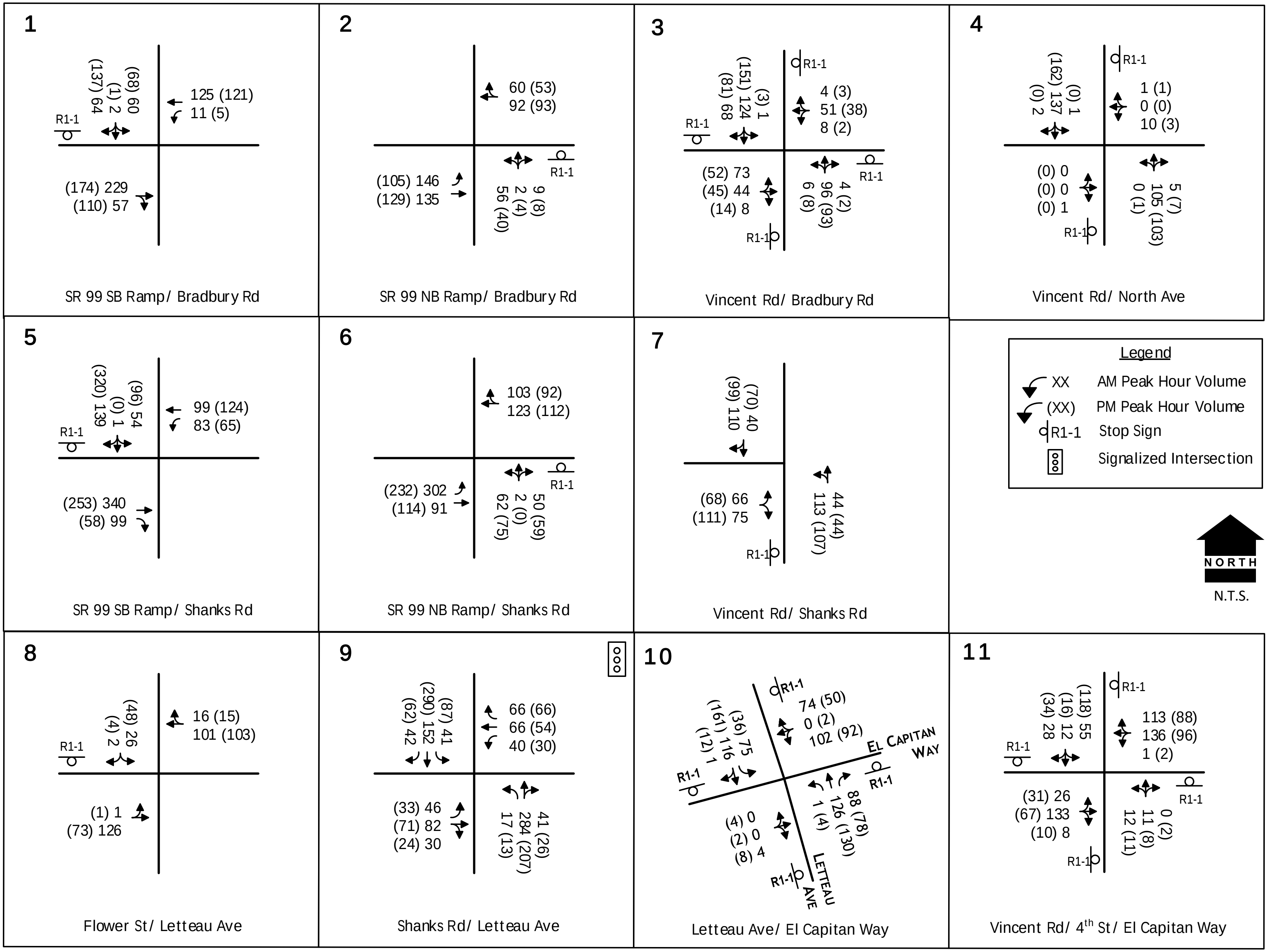
To quantify existing traffic conditions, new peak hour turning movement counts and daily 24 hr roadway segment counts were completed in May 2022. Study area intersections are located in Figure 3 and daily traffic volumes are presented in that figure as well. Intersection turning movement counts were conducted on May 4, 2022 during the 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. peak commute periods in order to isolate the one-hour peak during each period. These intersection turning movement counts, as well as current intersection traffic controls and lane geometries are presented in Figure 4. 24-hr traffic volume counts were also conducted on roadway segments on May 4, 2022.



KD Anderson & Associates, Inc.
Transportation Engineers
5785-03 RA 7/5/2022

EXISTING AVERAGE DAILY TRAFFIC VOLUMES AND STUDY LOCATIONS

figure 3



EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers

5785-03 RA 7/5/2022

figure 4

Transit Service

Current Service. Merced County Transit ("The Bus") currently provides transit services to Delhi. The *Turlock Commuter* route runs between Turlock, Delhi, Livingston and Merced. This bus route follows SR 99 from Turlock to the Shanks Road interchange and stops at the Veterans Memorial building in Delhi. https://www.mercedthebus.com/201/T---Turlock-Commuter Service is provided on this route between 6:36 a.m. and 8:10 p.m. on weekdays and from 9:45 a.m.to 5:59 p.m. on Saturday and Sunday.

Bikeway/Pedestrian Facilities

Pedestrians. Pedestrian facilities within the Delhi community are limited. Discontinuous sections of sidewalk exist within the older portion of the community, but sidewalks have been constructed within the newer portions of the community as development proceeds. The existing pedestrian facilities in the area of Bradbury Ranch Master Plan have been identified.

In the Bradbury Master Plan area, a pedestrian path exists on the north side of Shanks Road between Vincent Road and SR 99 and on both sides of Shanks Road from Letteau Avenue to SR 99. There are no pedestrian facilities on Vincent Road or on Bradbury Road. Crosswalks are marked across the on and off ramps at the SR 99 / Shanks Road intersections. Crosswalks are also striped across all four legs of the Shanks Road / Letteau Avenue intersection.

The Delhi Community Plan presents typical roadway sections that include sidewalks or Class I path on all future streets.

Bicycles. Bikeway facilities are also limited within the Delhi area. Class II bike lanes are provided on Schendel Avenue west of Merced Avenue adjacent to the Delhi Middle School and Delhi High School. This section of bike lanes is part of an overall system that links these existing bike lanes on Schendel Avenue to Stephens Street, on Stephens Street between Schendel Avenue and El Capitan Way, and on El Capitan Way to Sycamore Street.

The *Merced County Regional Bicycle Transportation Plan (MCAG 2008)* indicates that Class II Bike lanes are planned for:

- Shanks Road from Schendel Road to Palm Street
- Bradbury Road from Early Dawn Road to Vincent Road
- Vincent Road from Bradbury Road to El Capitan Way
- El Capitan Way from Letteau Avenue to Cortez Avenue

Class I Bike path is planned along the westerly extension of North Avenue from Vincent Road to a point near the UPRR and then northwesterly to TID Lateral 6.

The Delhi Community Plan suggests similar bicycle facilities with one exception. The community plan suggests a Class I bike path along Bradbury Road from Lateral 6 to Vincent Road, rather than a Class II lane.

Policies / Standards / Measures of Significance

The text which follows summarizes the circulation policies which govern the study area.

State of California -SB 743. SB 743 modified CEQA direction and requires local agencies to move from a Level of Service (LOS) based analysis to evaluation of impacts based on Vehicle Miles Traveled (VMT). General guidance as to methods for calculating VMT and significance criteria are contained in the Office of Planning & Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* (California Governor's Office of Planning and Research 2018). However, while SB 743 eliminates LOS as a CEQA criteria, this measure can still be considered in terms of General Plan consistency.

California Department of Transportation. In its ***Vehicle Miles Traveled-Focused Transportation Impact Study Guideline (2020)***, Caltrans establishes operational objectives for highway performance based on VMT and safety rather than Level of Service while addressing impacts to alternative transportation modes.

Caltrans policy regarding applicable traffic controls is based on ***Traffic Operations Policy Directive 13-02.*** This directive requires that Caltrans consider the relative merits of alternative traffic controls when it becomes necessary to stop traffic on state highways. Roundabouts are the default intersection control, but all-way stops and traffic signals are to be considered. The policy directive requires preparation of an *Intersection Control Evaluation (ICE)* to determine the preferred traffic control.

A ***Caltrans Encroachment Permit*** is required for improvements made to the state highway by private parties or local agencies, and the design of these improvements is subject to Caltrans approval.

Regional - Merced County Association of Governments (MCAG). The ***2022 Regional Transportation Plan and Sustainable Communities Strategy (RTP/STS)*** for Merced County is a federally mandated, long-range transportation plan for the six incorporated cities and the unincorporated county. The RTP/STS specifies the policies, projects, and programs necessary over a 20-plus year period to maintain, manage, and improve the region's transportation systems. It establishes goals and objectives for the future system. It identifies the actions necessary to achieve these goals and describes a funding strategy and options for implementing the actions. The RTP/STS is updated every 3 years. The present 2018 update concerns the period from 2018 to 2040. MCAG is currently undergoing the 2022 RTP, and this document is out for public review.

To coordinate local planning efforts with other regional, state, and federal agencies, and to monitor and respond to policies that will affect the development and implementation of the RTP, MCAG prioritizes transportation projects in a Regional Transportation Improvement Program for federal and state funding. The process is based on each project for need, feasibility, and adherence to federal transportation policies.

The RTP's Regional Road network includes SR 99 through the study area. No Tier I projects (i.e., projects that have a funding source) in the immediate project area are included Appendix K of the Year 2022 RTP/STS.

Local - Merced County General Plan. Merced County has adopted minimum standards for the quality of traffic flow and thresholds to define the significance of traffic impacts.

Level of Service at Intersections. The quality of traffic flow through intersections is described in terms of operating Level of Service (LOS). *Level of Service* is a qualitative measure of traffic operating conditions using letter grades "A" through "F", corresponding to progressively worsening operating conditions. Table 2 presents the characteristics associated with each LOS grade.

TABLE 2
LEVEL OF SERVICE DEFINITIONS

Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a single-signal cycle. Delay ≤ 10.0 sec	Little or no delay. Delay ≤ 10.0 sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. Delay > 10.0 sec and ≤ 20.0 sec	Short traffic delays. Delay > 10 sec/veh and ≤ 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. Delay > 20.0 sec and ≤ 35.0 sec	Average traffic delays. Delay > 15 sec/veh and ≤ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestions of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35.0 sec and ≤ 55.0 sec	Long traffic delays. Delay > 25 sec/veh and ≤ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach (es). Delay > 55.0 sec and ≤ 80.0 sec	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and ≤ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. Delay > 80.0 sec	Intersection blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.

Sources: Highway Capacity Manual, 6th Transportation Research Board (TRB) Special Report 209.

Methodology. Levels of Service were calculated for this study using the methodology contained in the Transportation Research Board's *Highway Capacity Manual, 6th Edition (HCM)*. At signalized intersections, roundabout intersections and intersections controlled by stop signs on all approaches, the overall LOS for intersections is based on the average length of delays for all motorists at the intersections. Table 2 presents the ranges of average vehicle delay associated with each Level of Service for signalized intersections.

Different methodology is employed for assessing Level of Service at un-signalized intersections where some approaches are not controlled. At stop-sign-controlled un-signalized intersections (side street stop or one-way stop T intersections), the average delay and LOS can be determined for each individual movement that must yield the right of way. Impact analysis is based on the length of the average delay for the individual movements where motorists experience the longest delay, which is typically a left turn made from the stop-sign-controlled approach to the intersection. It should be noted that overall intersection average LOS at unsignalized intersections is better, often much better, than LOS on the worst single movement.

General Plan Policies. The Circulation Element of the Merced County General Plan outlines goals and policies that coordinate the transportation and circulation system with planned land uses. The General Plan has the following level of service policy relevant to this study:

Policy CIR-1.5: County Level of Service Standards (RDR)

Implement a Countywide roadway system that achieves the following level-of-service (LOS) standards during peak traffic periods:

a) For roadways located within rural areas: LOS "C" or better.
b) For roadways located outside Urban Communities that serve as connectors between Urban Communities: LOS of "D" or better.
c) For roadways located within Urban Communities: LOS of "D" or better.

Based on this guidance the minimum standard on all study area intersections is LOS D.

Policy CIR-1.6: Level of Service "E" Exception (RDR)

Allow a level of service "E" or worse only on a minor component of the circulation system (such as a left turn movement from a local roadway) if the major component of the circulation system (such as a through movement on a collector or arterial roadway) would be significantly compromised in the process of improving the level of service of the minor component.

Policy CIR-1.22: Complete Streets (RDR)

Require new urban streets within Urban Communities to be designed and constructed to not only accommodate automobile, truck, and bus traffic, but to also serve all users, including pedestrians, bicyclists, and transit passengers of all ages and abilities. This includes:

- *Creating multi-modal street connections in order to establish a comprehensive, integrated, and connected transportation network;*
- *Minimizing curb cuts along non-local streets;*
- *Consider planting street trees adjacent to curbs and between the street and sidewalk to provide a buffer between the pedestrian and the automobile, where appropriate;*
- *Constructing sidewalks on both sides of streets, where feasible;*
- *Coordinating with other agencies and cities to ensure connections are made between jurisdictions; and,*
- *Incorporating traffic calming devices such as roundabouts, bulb-outs at intersections, and traffic tables.*

Policy CIR-1.23: At-Grade Railroad Crossing Guidelines (RDR/IGC/JP)

Work with California Public Utilities Commission (CPUC) and the affected railroads to monitor the effects of development, and implement necessary and applicable design improvements at railroad crossings.

CEQA Impact Assessment Criteria

Per the CEQA Guidelines, a project may have a significant transportation impact on the environment if it would:

a. Conflict with a program, plan, ordinance, or policy, (except Level of Service) addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
b. Substantially increase hazards to vehicle safety due to geometric design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
c. Result in inadequate emergency access or access to nearby uses.
d. Result in Vehicle Miles Traveled (VMT) which exceeds an applicable threshold of significance, except as provided in CEQA Guidelines Section 15064.3 subdivision (b).

Existing Operating Level of Service

Intersection Level of Service. Current a.m. and p.m. peak hour levels of service were calculated at existing study intersections (Refer to Appendix for calculation worksheets) under "Existing" conditions, and the results are presented in Table 3.

As shown, traffic conditions in the study area are very good due to relatively low traffic volumes through the community. All of the study intersections are projected to operate at worst-case LOS “C” or better conditions. In addition, none of the study intersections currently meet peak hour warrants for signalization.

TABLE 3 EXISTING INTERSECTION LEVELS OF SERVICE						
		AM Peak Hour		**PM Peak Hour**		**Warrants Met?**
Intersection	**Control**	**Delay**	**LOS**	**Delay**	**LOS**	
1. Bradbury Rd & SR 99 SB Ramps SB approach	SB Stop	12.3	B	11.9	B	No
2. Bradbury Rd & SR 99 NB Ramps NB approach	NB Stop	16.9	C	13.4	B	No
3. Bradbury Rd & Vincent Rd	All-Way Stop	8.9	A	8.9	A	No
4. North Ave / Vincent Rd EB approach WB approach	Signal	9.1 10.5	A B	-- 10.1	-- B	n.a.
5. Shanks Rd & SR 99 SB Ramps SB approach	SB Stop	13.3	B	17.1	C	No
6. Shanks Rd & SR 99 NB Ramps NB approach	NB Stop	21.9	C	19.1	C	No
7. Shanks Rd / Vincent Rd EB approach	EB Stop	11.5	B	11.5	B	No
8. Letteau Ave / Flower St SB approach	SB Stop	10.5	B	9.8	A	No
9. Shanks Rd / Letteau Ave	Signal	13.8	B	12.9	B	No
10. Letteau Ave / El Capitan Way	AWS	10.7	B	9.7	A	No
11. El Capitan Way / Vincent Rd	AWS	10.0	A	8.8	A	No
LOS = Level of Service At unsignalized intersections, the worst case is presented in seconds per vehicle						

Roadway Segment Level of Service. The Level of Service on study area roadway segments can be determined based on daily traffic volume using applicable thresholds adopted by local agencies. The Delhi Community Plan did not employ roadway Level of Service based on daily volume as a significance criteria, but segment LOS can be a useful guide for determining when roadway segments warrant widening. The Merced County General Plan Update EIR provides information for County roads and state highways, and the thresholds that are most applicable to the existing configurations of streets in the Delhi Community Plan area are noted in Table 4. As shown a distinction has been drawn between conditions on rural roads such as Bradbury Road and Vincent Road and existing streets within the developed Delhi area (i.e., Suburban Arterials).

TABLE 4 ROADWAY SEGMENT LEVEL OF SERVICE THRESHOLDS									
					Maximum Daily Volume at Level of Service				
Road	**Area**	**Facility**	**Flow**	**Median**	**A**	**B**	**C**	**D**	**E**
Bradbury Rd Vincent Rd	Rural	2 lanes Non-Freeway	Isolated Stops	undivided	-	1,900	8,800	10,700	12,100
Shanks Rd Letteau Ave	Suburban	2 lanes Arterial	Interrupted	undivided	-	2,200	11,000	13,900	14,900
Source: Merced County GPU EIR									

Table 5 compares current traffic volumes with the traffic counts completed for this analysis. As shown, study area streets carry daily volumes that are indicative of LOS B or LOS C conditions.

TABLE 5 CURRENT ROADWAY SEGMENT LEVEL OF SERVICE				
			Existing Conditions	
Road	**Location**	**Maximum Volume at Adopted Minimum LOS D Standard**	**Daily Volume (2022)**	**Level of Service**
Bradbury Road	Griffith Rd to SR 99	10,700	6,778	C
	SR 99 SB to SR 99 NB	10,700	5,222	C
	SR 99 NB to Vincent Rd	10,700	3,598	C
	East of Vincent Rd	10,700	1,229	B
Letteau Avenue	Merced Ave to Shanks Rd	13,900	2,946	C
	Shanks Rd to El Capitan Way	13,900	4,111	C
Shanks Road	Letteau Ave to SR 99	13,900	9,769	C
	SR 99 to Vincent Rd	13,900	4,846	C
El Capitan Way	Letteau Ave to Vincent Rd	13,900	3,358	C
	East of Vincent Rd	13,900	4,284	C
Vincent Road	Bradbury Rd to Shanks Rd	10,700	3,451	C

Delhi Bridge & Major Thoroughfare Area of Benefit

The Delhi Bridge & Major Throughfare Area of Benefit (B&MT) was established in 1993 and last updated in 2008. The B&MT fee program includes the following improvements:

- Stephens Street / Letteau Avenue Intersection: Re-channelize and Signalize intersection
- Vincent Road / El Capitan Way Intersection: Re-channelize and Signalize intersection
- Shanks Road / SR 99 SB ramps Intersection: Signalize intersection
- Shanks Road / SR 99 NB ramps Intersection: Signalize intersection

BRADBURY RANCH MASTER PLAN TRAVEL CHARCTERISTICS

Trip Generation

Trip Generation Rates. Daily and weekday peak hour trip generation rates for this analysis were taken from information presented in the Institute of Transportation Engineers (ITE) publication *Trip Generation Manual, 11th Edition*. Table 6 presents the trip generation rates utilized in this study.

Trip Generation Forecasts. Table 6 also presents the trip generation forecasts made for individual elements of the Master Plan under the original Community Plan land use designations and as currently proposed. As indicated, site development under the Community Plan was expected to generate 28,305 daily trips, with 2,689 trips in the a.m. peak hour and 2,652 trips in the p.m. peak hour. The change in land use now proposed (i.e., eliminating BP and adding residential) results in fewer trips, with the daily total dropping to 25,394 trips, with 2,309 a.m. peak hour trips and 2,417 p.m. peak hour trips.

While the trip generation forecasts under both community plan and proposed designations appear substantial, they are much less than the total trip generation associated with anticipated residential and non-residential uses permitted under the entire Delhi Community Plan area. The Community Plan Update DEIR[1] estimated that at build out all of the commercial and residential uses in the Community Plan could generate 8,050 new trips in the a.m. peak hour and 10,157 new trips in the p.m. peak hour.

Because the proposed project generates fewer trips than were anticipated for the site in the Delhi Community Plan EIR, a long term cumulative traffic operational analysis was not required.

VMT Service Population. Evaluation of VMT impacts necessitates identification of the project's Service Population. This is the sum of residential population and employment and is noted below.

• Population:	4,104
• Retail employment	391
• Schools	143
Service Population	4,638

---

[1] Draft Environmental Impact Report for the Delhi Community Plan, Adrienne Graham and Associates, June 2005.

TABLE 6
BRADBURY MASTER PLAN TRIP GENERATION RATES AND FORECASTS

ITE Code	**Description**	**unit**	**Trips per unit**						
			Daily	**AM Peak Hour**			**PM Peak Hour**		
				In	**Out**	**Total**	**In**	**Out**	**Total**
Trip Generation Rates									
210	Single Family Residential - Detached	dwelling	9.43	26%	74%	0.70	63%	37%	0.94
220	Multiple Family - Attached	dwelling	6.74	24%	76%	0.40	63%	37%	0.51
820	Neighborhood Retail (140 ksf)	ksf	86.74	62%	38%	3.53	48%	52%	8.49
770	Business Park	ksf	12.44	85%	15%	1.35	26%	74%	1.22
411	Parks	acres	0.78	59%	41%	0.02	55%	45%	0.11
575	Fire & Rescue Station	ksf	4.80	-	-	-	29%	71%	0.48
520	Public Elementary School	student	2.27	54%	46%	0.74	46%	54%	0.16
522	Public Jr Hi / Middle School	student	2.10	54%	46%	0.67	48%	52%	0.15
Delhi Community Plan – Master Plan									
210	Single Family Residential	590 du	5,564	107	306	413	349	206	555
220	Multiple Family Residential	279 du	1,880	27	85	112	90	52	142
820	Neighborhood Retail	136.68 ksf	11,855	299	183	482	557	603	1,160
770	Business Park	457.38 ksf	5,690	525	92	617	145	413	558
411	Parks	25 acre	20	0	0	0	2	1	3
520	Elementary School	850 students	1,930	340	289	629	63	73	136
522	Middle School	650 students	1,365	235	201	436	47	51	98
	Gross Total		**28,304**	**1,533**	**1,156**	**2,689**	**1,253**	**1,399**	**2,652**
Bradbury Ranch Master Plan Amendment									
575	Fire Department	30.0 ksf	144	11	3	14	3	11	14
210	Single Family Residential	1,069 du	10,081	194	554	748	633	372	1,005
820	Neighborhood Retail	136.68 ksf	11,855	299	183	482	557	603	1,160
411	Parks	37.4 acres	19	0	0	0	2	2	4
520	Elementary School	850 students	1,930	340	289	629	63	73	136
522	Middle School	650 students	1,365	235	201	436	47	51	98
Existing	Existing Ranchettes	2.8 acres	0	0	0	0	0	0	0
	Gross Total		**25,394**	**1,079**	**1,230**	**2,309**	**1,305**	**1,112**	**2,417**

Trip Distribution and Assignment

Approach. Having identified the extent of automobile traffic associated with the anticipated land uses, it was next necessary to identify the local and regional distribution of Master Plan area trips and to assign these trips to the local street system and to SR 99. Distribution assumptions account for the share of trips that may remain within the Bradbury Ranch Master Plan Area itself (i.e., trips between residential areas, schools and retail area) and trips made within the overall Delhi community (i.e., local trips) versus the share that would leave Delhi (external trips to Turlock, Atwater, Merced, etc).

Previous traffic studies in Delhi, including the Delhi Community Plan EIR and 2017 analysis of potential 20-year residential development had considered four data sources to identify trip distribution assumptions:

- MCAG regional travel demand forecasting model results
- Typical trip purposes and Delhi demographics
- Traffic counts at SR 99 ramps versus total existing households in Delhi
- Market areas for retail projects

Internal / External Trips Conclusions. Based on this information internal / external assumptions noted in Table 7 have been made for the residences, retail trips and school trips in the Bradbury Ranch Master Plan area.

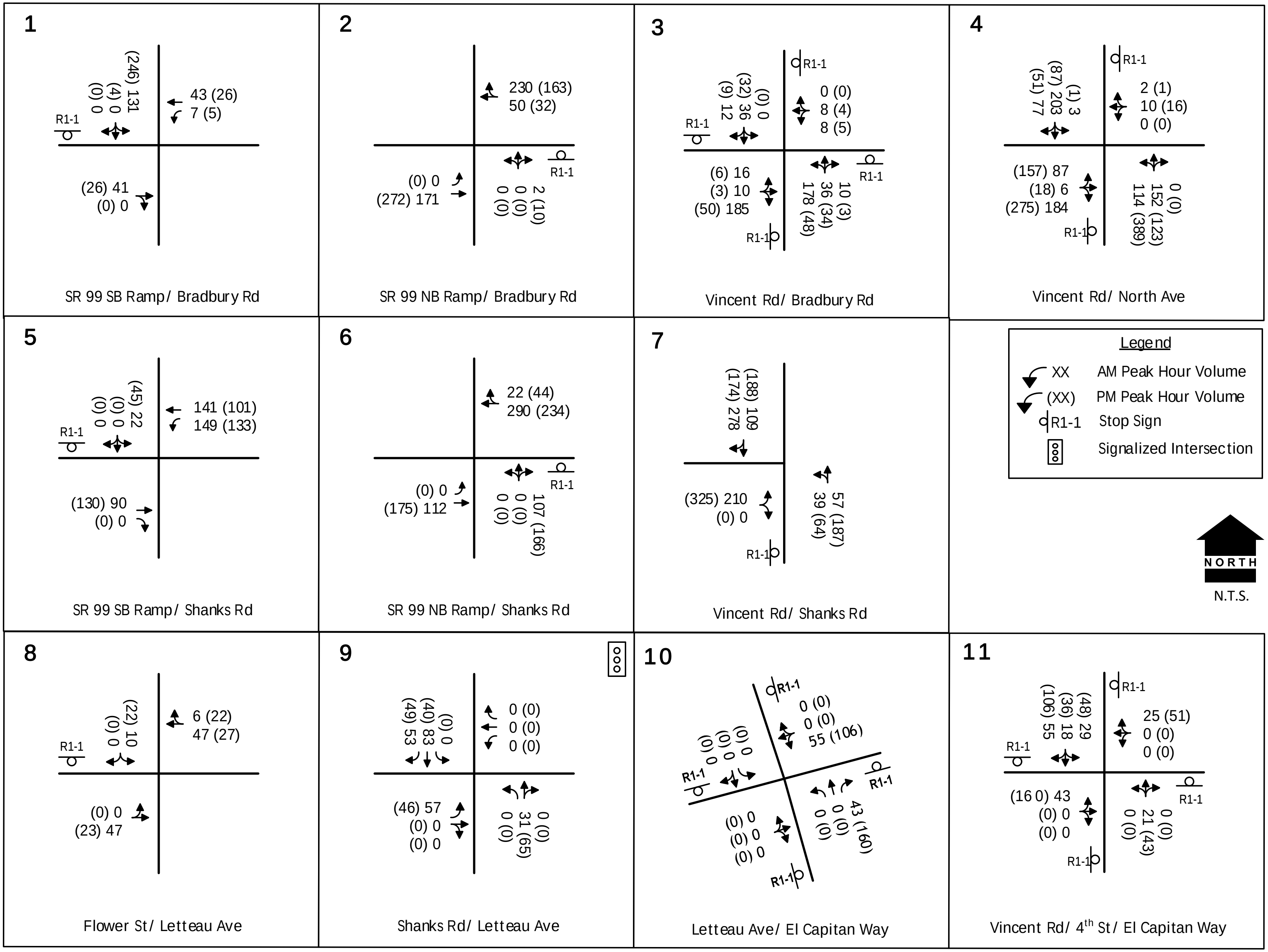
TABLE 7
INTERNAL / EXTERNAL TRIP DISTRIBUTION ASSUMPTIONS

Direction	Route	Residential			Retail			Schools	
		Daily	AM	PM	Daily	AM	PM	AM	PM
External		***57%***	***55%***	***57%***	***38%***	***40%***	***38%***	***39%***	***35%***
North	SR 99	32%	29%	32%	12%	12%	12%	13%	12%
	Vincent Rd	2%	2%	2%	5%	2%	5%	6%	5%
West	Bradbury Rd west of SR 99	1%	1%	1%	3%	3%	3%	3%	3%
	Other roads beyond Delhi	2%	3%	2%	1%	3%	1%	4%	0%
East	Bradbury Rd east of Vincent Rd	1%	1%	1%	3%	4%	3%	3%	3%
	North Ave	0%	0%	0%	0%	0%	0%	1%	1%
	Other roads beyond Delhi	2%	3%	2%	0%	3%	1%	0%	0%
South	SR 99	16%	15%	16%	12%	12%	12%	8%	10%
	Other roads beyond Delhi	1%	1%	1%	1%	1%	1%	1%	1%
Internal - Bradbury Ranch MP		***12%***	***30%***	***12%***	***12%***	***12%***	***12%***	***45%***	***49%***
Local - Delhi Community		***31%***	***15%***	***31%***	***16%***	***14%***	***16%***	***16%***	***16%***
Retail – Pass-By Trips					***34%***	***34%***	***34%***		

Project Trip Assignment. The trips associated with residential development were typically assigned to the local area street system based on the least time path between origin and destination. Figure 5 identifies this assignment of "project only" trips.

The trip assignment assumes that access will be permitted to individual properties within the Bradbury Ranch Maser Plan area in a manner that is consistent with Delhi Community Plan and Merced County General Plan policies. While final decisions about access will be made by Merced County when development projects proceed, this traffic operational analysis assumes:

- Right Turn Only access on Shanks Road to commercial parcel between SR 99 NB ramps and Vincent Road
- Right Turn Only access on Vincent Road between Shanks Road and North Avenue to commercial parcel
- Full access to Bradbury Road at the North Avenue and Road A intersections



PROJECT ONLY TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers

5785-03 RA 7/5/2022

figure 5

PROJECT CEQA TRANSPORTATION IMPACTS

Vehicle Miles Traveled (VMT) Impact

SB 743 requires the Governor's Office of Planning and Research (OPR) to identify new metrics for identifying and mitigating transportation impacts within CEQA. For land use projects, OPR identified Vehicle Miles Traveled (VMT) per capita, VMT per employee, and net VMT as new metrics for transportation analysis. The CEQA Guidelines state that lead agencies, such as Merced County, may establish "thresholds of significance" to assist with the determination of significant impacts of a project. The CEQA Guidelines generally state that projects that decrease VMT can be assumed to have a less than significant transportation impact. The CEQA Guidelines do not provide any specific criteria on how to determine what level of project VMT would be considered a significant impact.

The extent to which VMT analysis is applicable to this project has been considered from several perspectives is discussed in the materials which follow.

Methods and Significance Criteria. The OPR *Technical Advisory* provides general direction regarding the methods to be employed and significance criteria to evaluate VMT impacts, absent policies adopted by local agencies. The directive addresses several aspects of VMT impact analysis, and is organized as follows:

- ***Screening Criteria***: Screening criteria are intended to quickly identify when a project should be expected to cause a less-than-significant VMT impact without conducting a detailed study.
- ***Significance Thresholds***: Significance thresholds define what constitutes an acceptable level of VMT effect and what could be considered a significant level of VMT effect requiring mitigation.
- ***Analysis Methodology***: These are the potential procedures and tools for producing VMT forecasts to use in the VMT impact assessment.
- ***Mitigation***: Projects that are found to have a significant VMT impact based on the adopted significance thresholds are required to implement mitigation measures to reduce impacts to a less than significant level (or to the extent feasible).

Screening Criteria. Screening criteria can be used to quickly identify whether sufficient evidence exists to presume a project will have a less than significant VMT impact without conducting a detailed study. However, each project should be evaluated against the evidence supporting that screening criteria to determine if it applies. Under OPR guidance projects meeting at least one of the criteria below can be presumed to have a less than significant VMT impact, absent substantial evidence that the project will lead to a significant impact.

- ***Small Projects:*** Defined as a project that generates 110 or fewer average daily vehicle trips.
- ***Affordable Housing:*** Defined as a project consisting of deed-restricted affordable housing.
- ***Local Serving Retail***: Defined as retail uses of 50,000 square feet or less can be presumed to have a less than significant impact.

- ***Projects in Low VMT-Generating Area:*** Defined as a residential or office project that is in a VMT efficient area based on an available VMT Estimation Tool. The project must be consistent in size and land use type (i.e., density, mix of uses, transit accessibility, etc.) as the surrounding built environment.
- ***Proximity to High Quality Transit.*** The directive notes that employment and residential development located within ½ mile of a high-quality transit corridor offering 15 minute headways can be presumed to have a less than significant impact.

VMT Screenline Evaluation. The extent to which the proposed project's VMT impacts can he presumed to be less than significant has been determined based on review of the OPR directive's screening criteria and general guidance.

The OPR ***Small Project*** criteria is not applicable to this project. At buildout development within the Bradbury Ranch Master Plan is projected to result in more than 25,000 daily automobile trips. As the 110 ADT threshold for automobiles is exceeded, the project's VMT impacts cannot be presumed be less than significant.

Local-Serving Retail Development is assessed by a criterion that notes that local serving retail uses can reduce travel by offering customers more choices in closer proximity than current destinations. Local serving retail uses of 50,000 square feet or less can be presumed to have a less than significant impact. OPR guidance notes:

By adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact. Regional-serving retail development, on the other hand, which can lead to substitution of longer trips for shorter ones, may tend to have a significant impact. Where such development decreases VMT, lead agencies should consider the impact to be less-than-significant.

The OPR guidance also states that cities and counties often have their own definitions of local-serving and regional-serving retail and that lead agencies may refer to those local definitions. Per the Delhi Community Plan descriptions of land use designations which follow, the portion of the Bradbury Ranch Master Plan designated Neighborhood Commercial is clearly intended to support local-serving retail development:

The Neighborhood Commercial (NC) designation is intended for neighborhood retail and service uses such as a supermarket, pharmacy, bakery, dry cleaner, barber / beauty shop, video store, restaurant, business and professional offices, and other uses that generally serve nearby residential areas and carry products or offer services used by households on a regular basis.

The local-serving retail intent of the Neighborhood Commercial designation is further reinforced when compared to the General Commercial land use designation description in the Delhi Community Plan, which reads:

The General Commercial (GC) designation is intended for community-wide and regional retail services. Along with providing services to the consumer, retail uses are a major source of sales tax revenue that support public services and infrastructure. General Commercial areas allow for *retail and service such as restaurants, durable goods, specialty shops, food and drug stores and similar uses that serve a community-wide or regional market.*

The General Commercial land use designation is clearly intended to support regional retail uses. This is further demonstrated by the fact that the largest areas designated General Commercial use are located solely at U.S Highway 99 interchanges in Delhi to ensure they are regionally accessible as possible.

In this context, the OPR guidance that local-serving retail uses are generally considered to be 50,000 square feet or less is not considered applicable, and the proposed Neighborhood Commercial use within the project site is presumed to reduce VMT and have less-than-significant VMT impacts. Therefore, its contribution to overall project VMT requires no further analysis.

Like the Neighborhood Commercial uses within the project site, the public schools included in the project will serve local Delhi residents, including the more than 3,500 new residents that would reside within the project site. These schools would typically reduce travel distance between homes and schools, and so they are analogous to "locally serving non-residential uses". As a result, the schools could have the effect of reducing total VMT, and their VMT impacts may be presumed to be less than significant. Therefore, their contribution to overall project VMT requires no further analysis.

Merced County has not established ***Low VMT-generating areas*** nor is ***High Quality Transit*** (i.e., routes with headway of 15 minutes or less***)*** available in this area of Merced County.

VMT Analysis

This analysis quantifies the effects of the Bradbury Ranch Master Plan Amendment on regional Vehicle Miles Traveled (VMT) by estimating and comparing total VMT for the project's residential uses. These estimates for project specific and regional VMT were developed within the context of the direction contained in the California Governor's Office of Planning and Research (OPR)' December 2018 publication, *Technical Advisory on Evaluating Transportation Impacts in CEQA*.

Methods / Assumptions

Merced County Association of Governments Year 2035 Travel Demand Forecasting Model. A "tour-based" approach was taken. The MCAG Year 2035 regional travel demand forecasting model was employed to assist in development of regional traffic volume forecasts for this analysis and is the best available tool for estimating the VMT associated with various land uses in Merced County, and the model was the basis for the VMT analysis prepared for the Winton Community Plan Update EIR. The model's inventory of land uses includes both residential and non-resident uses within an area that covers Merced County and extends north and west into Stanislaus County beyond Turlock and west to Patterson. As a result, model produced VMT estimates include travel in Winton and in the balance of Merced County as well as travel in areas outside of the Merced County boundary. These forecasts respond to OPR direction to avoid limiting VMT estimates based on jurisdictional boundaries.

Approach. Consistent with OPR guidelines, this VMT analysis considers the VMT characteristics of the uses in the Bradbury Ranch Master Plan that cannot be screened out from further analysis. As described above, the proposed neighborhood commercial and school uses can be screened out from further analysis. Consequently, the proposed residential uses are the primary remaining land use for which VMT impacts must be evaluated. The MCAG model, which includes Merced County and portions of Stanislaus County, has limited utility for isolating out VMT/capita for residential uses. Consequently, previous VMT analyses for County projects have addressed both the total daily regional VMT from the model and the daily VMT for land use projects per a "service population" (VMT/SP)[2]. For this analysis, the service population is the combination of the estimated population and number of employees in the region (e.g., the area covered by the MCAG model)[3]. Total VMT is then divided by the service population in that area. Countywide service population was based on the existing and projected number of households multiplied by 3.2 persons per household[4]. The number of regional employees was calculated based on the existing and future square footage for non-residential multiplied by occupancy factors from the Merced County General Plan. The results are shown in Table 8. OPR guidance recommends analyzing the VMT for each land use separately[5]. In this case, the primary use is residential, and its VMT has been identified.

VMT Estimates and Comparisons

Table 8 presents total VMT estimates for the existing regional condition and for development with the proposed Bradbury Ranch Master Plan. Estimates were made of travel generated within the total model area.

As noted in Table 8, residential development under the proposed Master Plan would generate 47,363 VMT. While the service population commonly consists of both population and jobs, it can also be composed of either of these factors. For the proposed project, the service population is equivalent to the projected project population of 4,104. This yields a rate of 11.54 VMT per service population for the proposed project. Relative to the existing regional service population based average VMT of 14.07 shown in Table 8, the proposed project could reduce the regional VMT by about 4.3%.

---

[2] Winton Community Plan Update DEIR, Merced County, 2020.

[3] The population estimate is based on the number of households shown in the model, multiplied by a persons per household (pph) factor. Merced County's pph is 3.36. Stanislaus County, a portion of which is included in the model, has a pph of approximately 2.9. This analysis uses a weighted average of 3.2, reflecting that Merced makes up more than half of the land uses in the model. The number of jobs is taken directly from the model.

[4] Merced County, *Merced County Housing Element Update*, July 12, 2016, Table 5-11, page 5-23.

[5] Governor's Office of Planning and Research, *Technical Advisory on Evaluating Transportation Impacts in CEQA*, December 2018, page 6.

TABLE 8
BRADBURY RANCH MASTER PLAN VMT

Parameter	Regional Total With No Site Development	Bradbury Ranch Master Plan	
		Residential Alone	Percent Reduction from Regional Average
Regional VMT			
Vehicle Miles Traveled (VMT[1])	9,336,315	47,363	17.98%
Service Population[2]	663,576	4,104	
VMT Per Service Population	14.07	11.54	

Notes: [1]Source: MCAG Year 2035 travel demand forecasting model as modified.
[2]MCAG 2018 Regional Transportation Plan/Sustainable Communities Strategy Draft Program EIR, May 2018. StanCOG Regional Transportation Plan, Appendix J, May 2018.

It should be noted that the regional VMT modeling does not take into account those elements of the proposed project that could reduce vehicle trips, such as extending Class 1 bike paths and Class II bike lanes throughout the Bradbury Ranch Master Plan and adding sidewalks. The provision of additional sidewalks and bike facilities would facilitate traveling by means other than a vehicle, particularly between home and schools and retail areas. A reduction in the number of trips would reduce per capita VMT.

Impacts to Other Transportation Modes

Pedestrian Facilities. Development within the Bradbury Ranch Master Plan area will result in pedestrian activity within the plan area and between the project area and the balance of Delhi. New sidewalks or Class I paths will be provided on all Master Plan area streets, and at full buildout there will be a complete path of travel between the plan area and the balance of Delhi. However, as development incrementally proceeds, there could be gaps in the route between new development areas and to existing pedestrian facilities on Skanks Road. This issue could be particularly important when planned schools and the retail area are developed.

Assessment. The planned sidewalk and Class I path system within the Bradbury Ranch Master Plan provides accessible and safe pedestrian connections between homes and adjacent streets and planned frontage improvements include separated or curbside sidewalks. On site improvements will be designed to be consistent with "uniformly applied" regulations and policies (e.g., development standards/specifications from Merced County Department of Public Works) that are designed to promote circulation safety. The project does not physically disrupt an existing pedestrian facility nor interfere with implementation of a planned pedestrian facility. The project's impact to pedestrian facilities is not significant.

Bicycle Facilities. The project could generate bicyclists traveling between on-site uses or travel to destinations within the balance of the community. At full buildout adequate bicycle facilities will be provided along collector and arterial streets within the plan area, as required by the Community Plan. However, as development incrementally proceeds, there could be gaps in the routes for bicyclists between new development areas and to the balance of Delhi. This issue could be particularly important when planned schools and the retail area are developed.

Assessment. The planned Class I path and Class II bike lane system within the Bradbury Ranch Master Plan provides accessible and safe bicycle routes between homes and adjacent streets and planned frontage improvements include bike lanes. On site improvements will be designed to be consistent with "uniformly applied" regulations and policies (e.g., development standards/specifications from Merced County Department of Public Works) that are designed to promote circulation safety. The project does not physically disrupt an existing bicycle facility nor interfere with implementation of a planned bicycle facility. The project's impact to bicycle facilities is not significant.

Public Transit. Some plan area residents and employees of retails businesses could elect to use public transit service if it was convenient to the site. Today the Turlock Commuter passes through the SR 99 / Shanks Road interchange, but the closest regular transit stop is at VFW Hall at Stephens Street / Acacia Street at least 7/10 miles from the Shanks Road / Vincent Road intersection. This distance could be beyond normal expectations for regular transit use, but with the development of project uses it is possible that Merced County Transit could elect to modify the route to provide service in closer proximity, particularly if the retail uses are developed. The Delhi Community Plan suggest that transit stops should be constructed at key locations as development proceeds in order to support transit, but the community plan does not identify specific locations.

Assessment. As no fixed route transit service runs along Bradbury Road or Vincent Road in the area of the project today nor is planned in the future, the project does not physically disrupt an existing transit service or facility nor interfere with implementation of a planned transit service or facility. The project's traffic contribution to streets near the VFW Hall would be too slight to result in increased travel time for busses that adversely effect on-time performance. The project's impact to transit service and facilities is not significant.

Safety Impacts to Caltrans Facilities

Considerations. While Level of Service analysis is no longer a CEQA consideration, a project's impacts to safety on Caltrans facilities remains a significance criterion under CEQA. Under current practice, safety impacts on state facilities are typically considered within the context of queuing on off-ramps and in turn lanes at intersections on state highways, truck turning requirements and the need for alternative traffic control devices. Queuing that spills over from a turn lane or extends down an off-ramp to the mainline freeway could represent significant safety issues. Intersections where truck paths leave the pavement or encroach into opposing lanes are a safety issue. Operation of an intersection with inappropriate traffic control devices would also represent a potential safety issue.

Evaluation. The Local Traffic Operational Analysis indicated that the project could add automobile traffic through the SR 99 / Bradbury Road and SR 99 / Shanks Road interchanges. As a result, the project could incrementally increase the length of peak period queues on the off ramps and in the turn lanes on cross streets.

Overall, the project's impact to safety on state facilities is significant.

Potential mitigations are addressed in the traffic operational analysis and include traffic control improvements at ramp intersections and at key intersections that influence the flow of traffic on the interchange. Because the project is a masterplan, development within the area should contribute to the cost of these improvements by paying adopted traffic mitigation fees.

PROJECT TRAFFIC OPERATIONAL EFFECTS

Intersection and roadway Levels of Service, as well as queueing and peak hour traffic signal warrants, were recalculated under Existing plus Project conditions, and the results are noted below. Figure 6 presents Existing plus Project daily traffic volumes, while Figure 7 presents similar information for peak hour traffic.

Plus Project Intersection Levels of Service / Improvements

As shown in Table 9, the addition of trips caused by build out of the Bradbury Ranch Master Plan will result in 6 intersections operating with peak hour Levels of Service that no longer satisfy the General Plan's minimum LOS D standard.

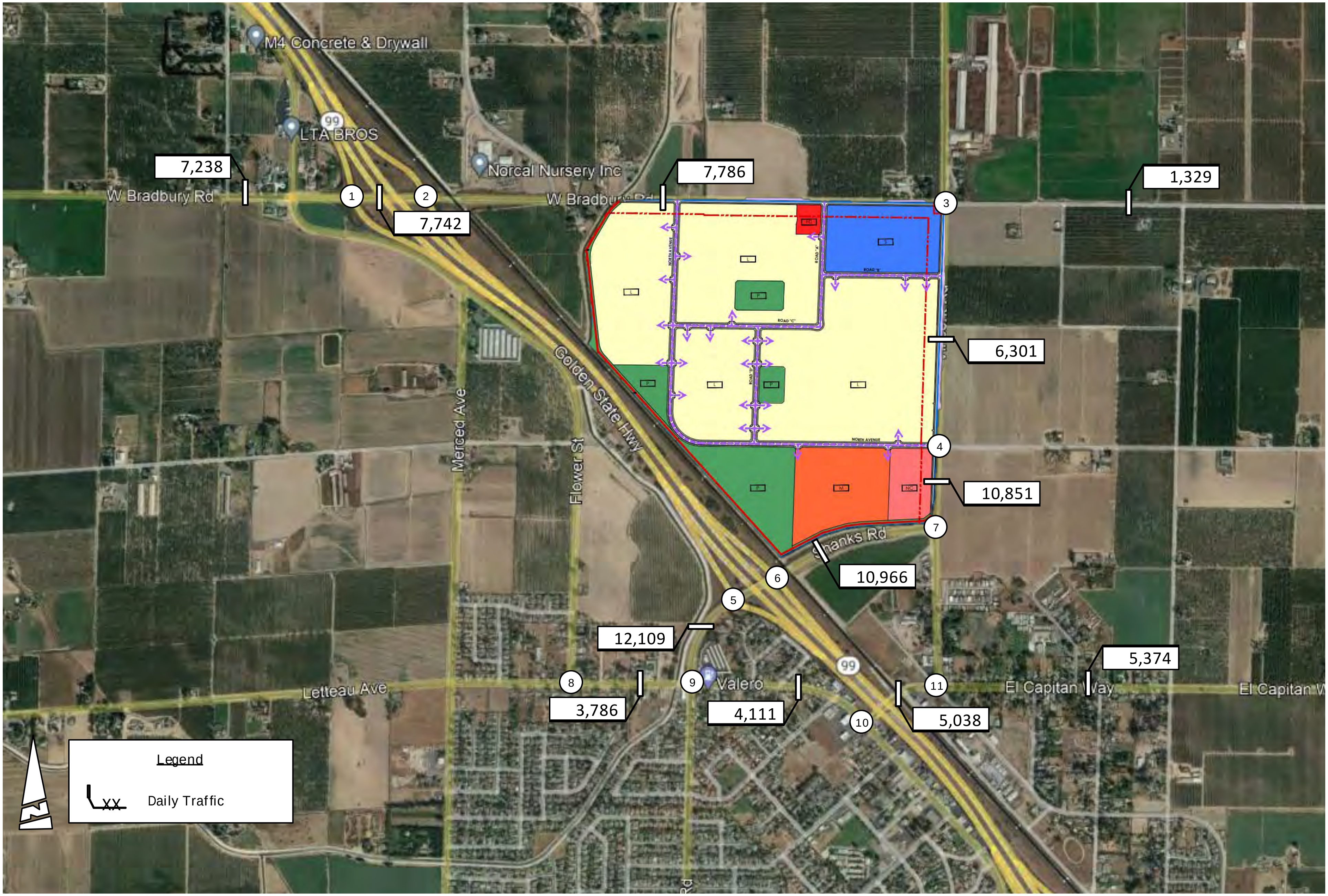
1. **Bradbury Road / SR 99 SB Ramps intersection.** Motorists waiting on the off ramp at the Bradbury Road / SB SR 99 ramps intersection are projected to experience delays that are indicative of LOS E in the peak hour. Caltrans Traffic Operations Policy Directive 13-02 requires that Caltrans consider the relative merits of alternative traffic controls when it becomes necessary to stop traffic on state highways. Roundabouts are the default intersection control, but all-way stops and traffic signals are to be considered. The policy directive requires preparation of an *Intersection Control Evaluation (ICE)* Report to determine the preferred traffic control. While a decision to change the traffic control at this intersection would be made by Caltrans after completion of an ICE report, this intersection would operate at LOS C with an all-way stop.

2. **Bradbury Road / Vincent Road intersection**. The all-way stop controlled Bradbury Road / Vincent Road intersection is projected to operate at LOS F in the a.m. peak hour. While all elements of the project add traffic to this intersection, morning peak hour conditions are primarily related to the peak travel characteristics of the two schools planned near this. To improve the Level of service and accommodate peak school traffic it will be necessary to improve the intersection in manner that is consistent with the Delhi Community Plan. At a minimum the following improvements are needed to achieve LOS D or better conditions during the morning peak hour:

    - Widen all approaches to provide separate left turn lanes while continuing to accommodate the turning requirements of trucks
    - Signalize the intersection

3. **Vincent Road / North Avenue.** Motorists waiting on the eastbound and westbound North Avenue approaches are projected to experience delays that are indicative of LOS F conditions. To improve the operation of the intersection it will be necessary to widen both streets to the standards of the Delhi Community Plan and to provide the following minimum geometric improvements:

    - Widen all approaches to provide separate left turn lanes while continuing to accommodate the turning requirements of trucks
    - Signalize the intersection

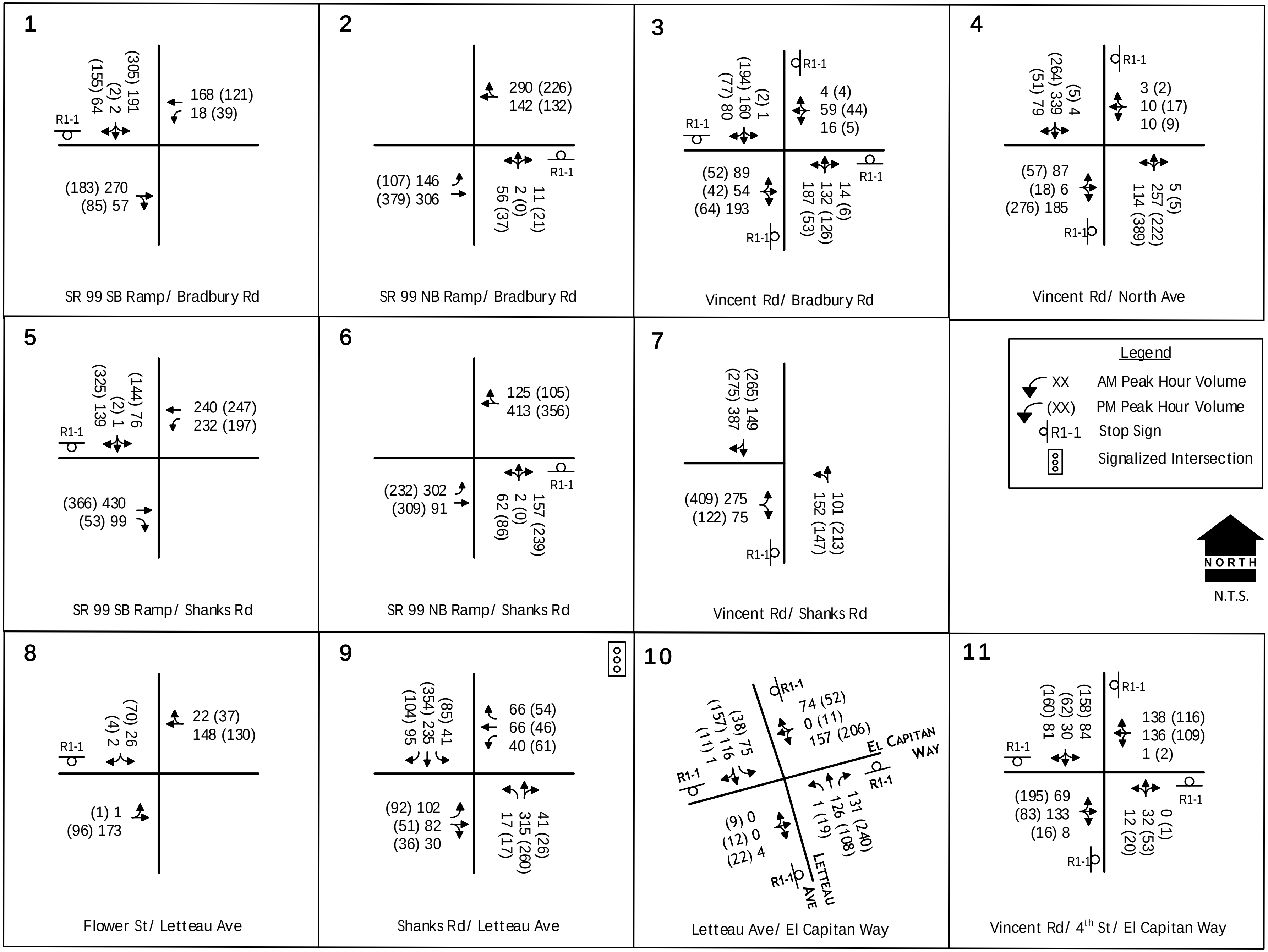


KD Anderson & Associates, Inc.
Transportation Engineers

EXISTING PLUS PROJECT AVERAGE DAILY TRAFFIC VOLUMES AND STUDY LOCATIONS

5785-03 RA 7/5/2022

figure 6



KD Anderson & Associates, Inc.
Transportation Engineers

EXISTING PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

5785-03 RA 7/5/2022

figure 7

4. **Shanks Road / SR 99 SB Ramps Intersection**. The off ramp is projected to operate at LOS F during both the a.m. and p.m. peak hours with the addition of Bradbury Ranch Master Plan traffic. Because the intersections on Shanks Road are in close proximity, the applicable improvements at this intersection are linked to choices made at other intersections, and queuing between intersections is a consideration. A Caltrans *ICE* Report will be needed to determine the preferred traffic control. While a decision to change the traffic control at this intersection would be made by Caltrans after completion of an ICE report, this intersection would operate at LOS C with an all-way stop, and LOS C with an all-way stop.

5. **Shanks Road / SR 99 NB Ramps Intersection**. The off ramp is projected to operate at LOS F during both the a.m. and p.m. peak hours with the addition of Bradbury Ranch Master Plan traffic. As noted previously the closely spaced intersections on Shanks Road require that applicable improvements at this intersection be chosen with consideration of improvements made at other intersections, and queuing between intersections is a consideration. A Caltrans *ICE* Report will be needed to determine the preferred traffic control. While a decision to change the traffic control at this intersection would be made by Caltrans after completion of an ICE report, this intersection would operate at LOS C with an all-way stop and with a traffic signal.

6. **Shanks Road / Vincent Road Intersection.** The eastbound Shanks Road approach is projected to operate at LOS F in both the a.m. and p.m. peak hour with the addition of Bradbury Ranch Master Plan traffic. After taking into account the operation of the adjacent SR 99 ramp intersections, the following improvements would be needed to deliver LOS D conditions:

   - Widened both streets in a manner that is consistent with the Community Plan's Minor Collector street section
   - Provide separate left turn lanes on each approach while accommodating truck turning traffic
   - Signalize the intersection

These improvements would yield LOS C or better conditions. An All-Way stop with similar lanes would yield LOS D but would not address issues of queuing on Shanks Road at the SR 99 interchange.

The Community Plan indicates that this location will ultimately require widening and a traffic signal when the Delhi Community Plan is built out.

Existing Plus Project Peak Hour Traffic Signal Warrants

Existing Plus Project traffic volumes were reviewed to determine whether any un-signalized locations would carry traffic volumes that satisfy MUTCD peak hour warrants. the following intersections will carry volumes that would satisfy arrant requirements under "rural" criteria (i.e., design speed >40 mph):

- Bradbury Road / Vincent Road
- Vincent Road / North Avenue

These intersections on Shanks Road would reach a level that would satisfy peak hour warrants under "urban" criteria (i.e., design speed < 40 mph).

- Shanks Road / SR 99 SB ramps
- Shanks Road / SR 99 NB Ramps
- Shanks Road / Vincent Road

Roadway Segment Level of Service

Traffic Volumes. Table 10 identifies the project's daily traffic volume contribution to study area roadways, as well as resulting Existing Plus Project traffic volumes.

Results. As shown, with one exception all study area roads would carry volumes that are indicative of LOS D or better conditions without providing additional through travel lanes. The exception is the portion of Vincent Road from North Avenue to Shanks Road along the commercial parcel frontage. The daily traffic volume on this segment is indicative of LOS F under the Merced County General Plan EIR thresholds for this roadway classification.

Caltrans Ramp Intersection Operations

Traffic Volumes. While no existing daily traffic volume counts are available from Caltrans for SR 99 ramps in Delhi, Table 11 presents the additional daily traffic added to ramps by the proposed project.

Analysis Approach. From the standpoint of safety, peak period queuing is the primary CEQA consideration for Caltrans facilities. The extent to which anticipated queues on SR 99 off ramps may extend to the mainline freeway / ramp gore point or may exceed the storage in intersection left turn lanes has been assessed as a CEQA impact using SimTraffic simulation. Table 11 presents Existing and Existing plus Bradbury Ranch Master Plan peak hour traffic volumes, as well as projected 95th percentile queue lengths.

CEQA Impacts. As indicated, under existing conditions there are no appreciable queuing issues associated with the operation of SR 99 ramps in Delhi. However, with buildout of the Bradbury Ranch Master Plan one location is projected to have queueing issues which would cause a significant safety impact.

Without improvements during the p.m. peak hour the 95th percentile queues exceed the available storage. These queues are the result from congestion at the Shanks Road / Vincent Road intersection that creates an eastbound queue on Shanks Road extending back from the Vincent Road intersection through the SR 99 ramps intersections. That queue causes delays for off ramp traffic and creates a NB off ramp queue that extend nearly to the end of the off ramp. A queue ending at that point would limit the length of the off ramp that is available for deceleration prior to stopping, and as a result motorists on SR 99 would have to slow to an unsafe speed to use the off ramp.

This issue can be addressed in concert with improvements at intersections on Shanks Road that are needed to address LOS effects and traffic signal warrants.

TABLE 9
EXISTING PLUS PROJECT INTERSECTION LEVELS OF SERVICE

Intersection	Control	AM Peak Hour				PM Peak Hour				Signal warrants met?
		Existing		Existing Plus Project		Existing		Existing Plus Project		
		Ave Delay (sec/veh)	LOS	Ave Delay (sec/veh)	LOS	Ave Delay (sec/veh)	LOS	Ave Delay (sec/veh)	LOS	
1. Bradbury Rd & SR 99 SB Ramps SB approach	SB Stop	12.3	B	24.8	C	11.9	B	**42.8**	**E**	No
	AWS	-	-	13.3	B	-	-	18.0	C	
2. Bradbury Rd & SR 99 NB Ramps NB approach	NB Stop	16.9	C	33.2	D	13.4	B	20.0	C	No
3. Bradbury Rd & Vincent Rd	AWS	8.9	A	**97.6**	**F**	8.9	A	10.0	A	**Yes**
	Signal			49.5	D			18.6	B	
4. North Ave / Vincent Rd EB approach WB approach	EB/WB Stop	9.1 10.5	A B	**119.2** **41.7**	**F** **E**	- 10.1	- B	**281.5** **103.3**	**F** **F**	**Yes**
	AWS	-	-	28.2	D	-	-	22.7	C	
	Signal			32.5	C			40.0	D	
5. Shanks Rd & SR 99 SB Ramps SB approach	SB Stop	13.3	B	**53.8**	**F**	17.1	C	**197.0**	**F**	**Yes**
	AWS	-	-	16.2	C	-	-	24.7	C	
	Signal			15.5	B			22.5	C	
6. Shanks Rd & SR 99 NB Ramps NB approach	NB Stop	21.9	C	**58.0**	**F**	19.1	C	**85.1**	**F**	**Yes**
	AWS	-	-	19.6	C	-	-	20.1	C	
	Signal			21.9	C			23.1	C	
7. Shanks Rd / Vincent Rd EB approach	EB Stop	11.5	B	**148.9**	**F**	11.5	B	**507.2**	**F**	**Yes**
	AWS	-	-	17.3	C	-	-	31.0	D	
	Signal			20.8	C			17.4	B	
8. Letteau Ave / Flower St SB approach	SB Stop	10.5	B	11.8	B	9.8	A	10.4	B	No
9. Shanks Rd / Letteau Ave	Signal	13.8	B	15.0	B	12.9	B	14.3	B	No
10. Letteau Ave / El Capitan Way	AWS	10.7	B	12.2	B	9.7	A	12.8	B	No
11. El Capitan Way / Vincent Rd	AWS	10.0	A	12.9	B	8.8	A	15.6	C	No

LOS = Level of Service **BOLD values** exceed LOS D

TABLE 10
EXISTING PLUS PROJECT ROADWAY SEGMENT LEVEL OF SERVICE

Road	Location	Maximum Volume at Adopted Minimum LOS D Standard	Existing Conditions		Existing Plus Project		
			Daily Volume	Level of Service	Daily Volume		Level of Service
					Project Only	Total	
SR 99	SB Off ramp to Bradbury Rd				2,100		
	SB On ramp from Bradbury Rd				80		
	NB Off ramp t0 Bradbury Rd				75		
	NB on ramp from Bradbury Rd				2,100		
Bradbury Road	Griffith Rd to SR 99	10,700	6.778	C	580	7,358	C
	SR 99 SB to SR 99 NB	10,700	5,222	C	2,755	7,977	C
	SR 99 NB to North Ave	10,700	3,598	C	4,935	8,533	C
	North Ave to Vincent Rd	10,700	3,598	C	2,510	6,108	C
	East of Vincent Rd	10,700	1,229	B	165	1,394	B
Letteau Avenue	Merced Ave to Shanks Rd	13,900	2,946	C	1.065	4,011	C
	Shanks Rd to El Capitan Way	13,900	4,111	C	0	4,111	C
Shanks Road	Letteau Ave to SR 99	13,900	9,769	C	2,140	11,909	D
	SR 99 to Vincent Rd	13,900	4,846	C	6,100	10,946	C
SR 99	SB Off ramp to Shanks Rd				500		
	SB on ramp from Shanks Rd				1,600		
	NB off ramp to Shanks Rd				1,595		
	NB on ramp from Shanks Rd				500		
El Capitan Way	Letteau Ave to Vincent Rd	13,900	3,358	C	2,655	6,013	C
	East of Vincent Rd	13,900	4,284	C	1,095	5,379	C
Vincent Road	Bradbury Rd to North Ave	10,700	3,451	C	3,400	6,851	C
			3,451		9,150	**12,601**	**F**
	Shanks Rd to El Capitan Way	13,900	3,700 (e)	C	4,630	8,330	C

(e) is estimated daily volume based on peak hour count

TABLE 11
EXISTING PLUS INTERSECTION 95TH PERCENTILE QUEUES

Intersection	Lane	Storage (feet)	AM Peak Hour				PM Peak Hour				Adequate?
			Existing		Existing Plus Project		Existing		Existing Plus Project		
			Volume (vph)	95th % Queue (feet)	Volume (vph)	95th % Queue (feet)	Volume (vph)	95th % Queue (feet)	Volume (v0h)	95th % Queue (feet)	
Without Improvements											
1. Bradbury Rd & SR 99 SB Ramps	SB off	1,250	126	70	257	120	206	80	562	225	Yes
	WB left	240	11	<25	18	<25	5	<25	39	30	Yes
2. Bradbury Rd & SR 99 NB Ramps	NB off	2,130	67	60	69	70	52	60	58	65	Yes
	EB left	280	146	50	146	75	105	40	107	60	Yes
5. Shanks Rd & SR 99 SB Ramps	SB off	1,425	194	75	216	140	416	120	471	495	Yes
	WB left	160	83	45	232	75	65	35	197	70	Yes
6. Shanks Rd & SR 99 NB Ramps	NB off	1,175	114	75	221	170	134	75	327	**1,090**	**No**
	EB left	120	302	80	302	105	232	60	232	140	Yes
	EB through	460	91	0	203	30	114	0	309	**450**	**No**
With Improvements											
			With Signals		**With AWS**		**With Signals**		**With AWS**		
1. Bradbury Rd & SR 99 SB Ramps[1]	SB off	1,250			257	90			562	155	Yes
	WB left	240			18	30			39	40	Yes
5. Shanks Rd & SR 99 SB Ramps	SB off	1,425	216	140	216	80	471	285	471	210	Yes
	WB left	160	232	140	232	65	197	140	197	60	Yes
	WB through	405	240	160	240	60	247	165	247	60	Yes
6. Shanks Rd & SR 99 NB Ramps	NB off	1,175	221	150	221	75	232	190	232	90	Yes
	EB left	120	302	155	302	75	309	150	309	65	Yes
	EB through	460	91	255	91	50	202	210	202	65	Yes
	WB thru		413	300	413	195	356	235	356	135	Yes
7 Shanks Rd / Vincent Rd	EB left	-	275	155	275	95	409	210	409	325	--
	EB right	-	75	45	75	45	122	60	122	60	--
	NB left		152	120	152	95	147	115	147	185	--
	SB thru		149	105	149	65	265	165	265	110	--
	SB right		387	125	387	115	275	105	275	90	--

[1] all way stop control

APPENDIX

Prepared by National Data & Surveying Services

SR 99 SB Ramps & Bradbury Rd

Peak Hour Turning Movement Count

ID: 22-090056-001
City: Turlock

Day: Wednesday
Date: 5/4/2022

PEAK HOURS		COUNT PERIODS
AM	07:15 AM - 08:15 AM	7:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:30 PM - 05:30 PM	4:00 PM - 06:00 PM

SR 99 SB Ramps

SOUTHBOUND

	↲	↓	↳	⤵	⇧
AM	64	2	60	0	0
NOON	0	0	0	0	0
PM	137	1	68	0	0
	0	0	0	0	

Bradbury Rd

EASTBOUND

	AM	NOON	PM	
⇦	189	0	258	
⤺	0	0	0	0
↱	0	0	0	0
→	229	0	174	0
↴	57	0	110	0

Bradbury Rd

WESTBOUND

		PM	NOON	AM
0	↰	0	0	0
0	←	121	0	125
0	↙	5	0	11
0	⤹	0	0	0
	⇨	242	0	289

CONTROL

1-Way Stop (SB)

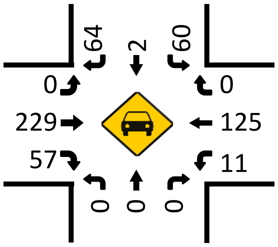
	AM	NOON	PM
TEV	548	0	616
PHF	0.86		0.90

NORTHBOUND

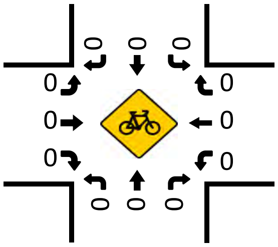
SR 99 SB Ramps

	⇩	⤺	↰	↑	↱
		0	0	0	0
PM	116	0	0	0	0
NOON	0	0	0	0	0
AM	70	0	0	0	0

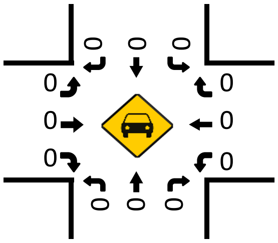
Totals (AM)



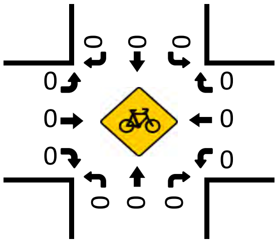
Total Bikes (AM)



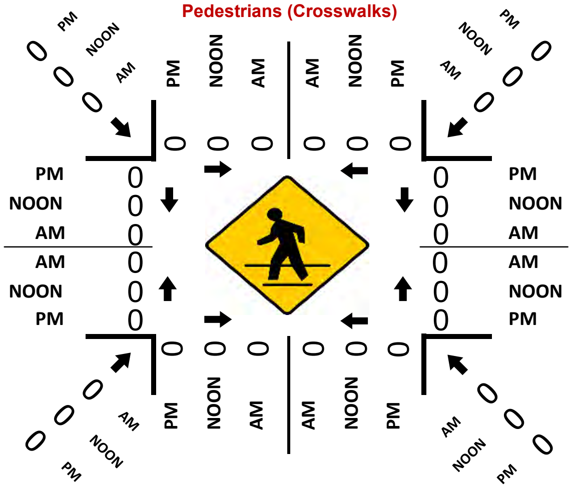
Totals (NOON)



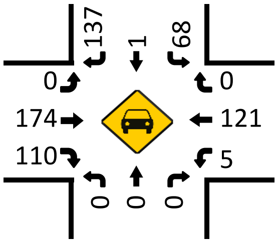
Total Bikes (NOON)



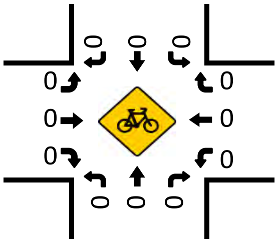
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: SR 99 SB Ramps & Bradbury Rd
City: Turlock
Control: 1-Way Stop (SB)

Project ID: 22-090056-001
Date: 5/4/2022

Data - Totals

NS/EW Streets:	SR 99 SB Ramps				SR 99 SB Ramps				Bradbury Rd				Bradbury Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	12	1	9	0	0	35	17	0	1	23	0	0	98
7:15 AM	0	0	0	0	16	0	12	0	0	47	24	0	3	21	0	0	123
7:30 AM	0	0	0	0	14	1	13	0	0	71	14	0	1	28	0	0	142
7:45 AM	0	0	0	0	15	1	21	0	0	67	13	0	1	42	0	0	160
8:00 AM	0	0	0	0	15	0	18	0	0	44	6	0	6	34	0	0	123
8:15 AM	0	0	0	0	8	1	11	0	0	46	8	0	2	36	0	0	112
8:30 AM	0	0	0	0	17	1	12	0	0	38	8	0	3	23	0	0	102
8:45 AM	0	0	0	0	10	0	10	0	0	40	14	0	5	21	0	0	100
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	107	5	106	0	0	388	104	0	22	228	0	0	960
APPROACH %'s :					49.08%	2.29%	48.62%	0.00%	0.00%	78.86%	21.14%	0.00%	8.80%	91.20%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	60	2	64	0	0	229	57	0	11	125	0	0	548
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.938	0.500	0.762	0.000	0.000	0.806	0.594	0.000	0.458	0.744	0.000	0.000	0.856
						0.851				0.841				0.791			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	18	1	39	0	0	40	25	0	6	27	0	0	156
4:15 PM	0	0	0	0	10	0	25	0	0	47	23	0	1	34	0	0	140
4:30 PM	0	0	0	0	16	0	35	0	0	40	42	0	1	38	0	0	172
4:45 PM	0	0	0	0	11	1	25	0	0	35	22	0	1	31	0	0	126
5:00 PM	0	0	0	0	20	0	27	0	0	56	21	0	2	25	0	0	151
5:15 PM	0	0	0	0	21	0	50	0	0	43	25	0	1	27	0	0	167
5:30 PM	0	0	0	0	16	0	36	0	0	51	23	0	1	28	0	0	155
5:45 PM	0	0	0	0	15	0	36	0	0	47	6	0	2	24	0	0	130
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	127	2	273	0	0	359	187	0	15	234	0	0	1197
APPROACH %'s :					31.59%	0.50%	67.91%	0.00%	0.00%	65.75%	34.25%	0.00%	6.02%	93.98%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	68	1	137	0	0	174	110	0	5	121	0	0	616
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.810	0.250	0.685	0.000	0.000	0.777	0.655	0.000	0.625	0.796	0.000	0.000	0.895
						0.725				0.866				0.808			

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 99 SB Ramps & Bradbury Rd
City: Turlock
Control: 1-Way Stop (SB)

Project ID: 22-090056-001
Date: 5/4/2022

Data - Bikes

NS/EW Streets:	SR 99 SB Ramps				SR 99 SB Ramps				Bradbury Rd				Bradbury Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 99 SB Ramps & Bradbury Rd
City: Turlock

Project ID: 22-090056-001
Date: 5/4/2022

Data - Pedestrians (Crosswalks)

NS/EW Streets:	SR 99 SB Ramps		SR 99 SB Ramps		Bradbury Rd		Bradbury Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	04:30 PM - 05:30 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

SR 99 NB Ramps & Bradbury Rd

Peak Hour Turning Movement Count

ID: 22-090056-002
City: Turlock

Day: Wednesday
Date: 5/4/2022

	PEAK HOURS	COUNT PERIODS
AM	07:30 AM - 08:30 AM	7:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:15 PM - 05:15 PM	4:00 PM - 06:00 PM

SR 99 NB Ramps

SOUTHBOUND

	↲	↓	↳	↶	⇧
AM	0	0	0	0	208
NOON	0	0	0	0	0
PM	0	0	0	0	161
	0	0	0	0	

Bradbury Rd

EASTBOUND

	AM	NOON	PM	
⇦	148	0	134	
↶	0	0	1	0
↱	146	0	104	0
→	135	0	129	0
↴	0	0	0	0

Bradbury Rd

WESTBOUND

		PM	NOON	AM
0	↰	53	0	60
0	←	93	0	92
0	↙	0	0	0
0	↷	0	0	0
	⇨	137	0	144

CONTROL

1-Way Stop (NB)

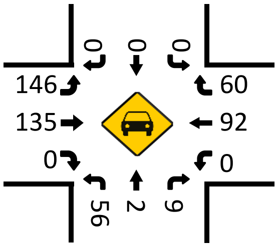
	AM	NOON	PM
TEV	500	0	432
PHF	0.86		0.92

NORTHBOUND

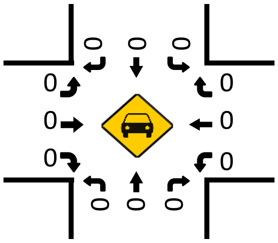
SR 99 NB Ramps

	⇩	↶	↰	↑	↱
		0	0	0	0
PM	0	0	40	4	8
NOON	0	0	0	0	0
AM	0	0	56	2	9

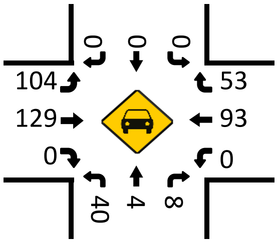
Totals (AM)



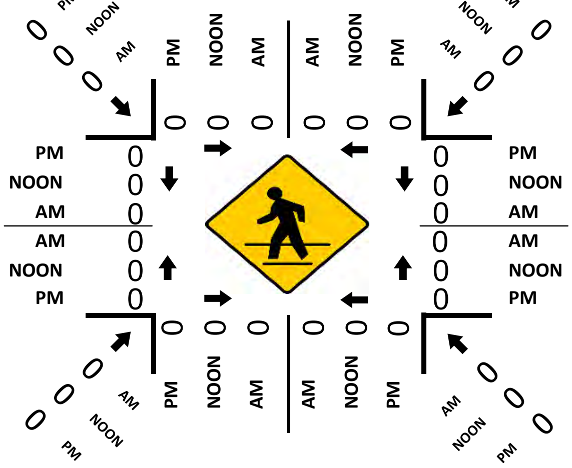
Totals (NOON)



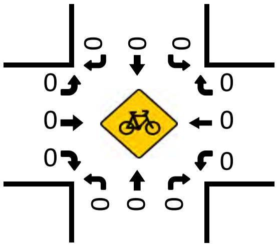
Totals (PM)



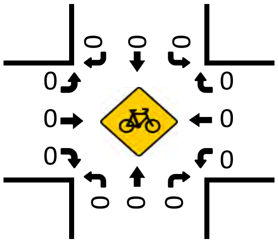
Pedestrians (Crosswalks)



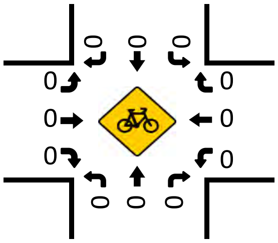
Total Bikes (AM)



Total Bikes (NOON)



Total Bikes (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: SR 99 NB Ramps & Bradbury Rd
City: Turlock
Control: 1-Way Stop (NB)

Project ID: 22-090056-002
Date: 5/4/2022

Data - Totals

NS/EW Streets:	SR 99 NB Ramps				SR 99 NB Ramps				Bradbury Rd				Bradbury Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	12	0	1	0	0	0	0	0	27	18	0	0	0	12	9	0	79
7:15 AM	12	1	1	0	0	0	0	0	37	27	0	0	0	14	13	0	105
7:30 AM	8	2	3	0	0	0	0	0	50	36	0	0	0	19	16	0	134
7:45 AM	15	0	4	0	0	0	0	0	41	38	0	0	0	31	16	0	145
8:00 AM	18	0	0	0	0	0	0	0	35	25	0	0	0	21	11	0	110
8:15 AM	15	0	2	0	0	0	0	0	20	36	0	0	0	21	17	0	111
8:30 AM	10	0	1	0	0	0	0	0	24	29	0	0	0	16	14	0	94
8:45 AM	13	0	2	0	0	0	0	0	26	26	0	0	0	15	7	0	89
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	103	3	14	0	0	0	0	0	260	235	0	0	0	149	103	0	867
APPROACH %'s :	85.83%	2.50%	11.67%	0.00%					52.53%	47.47%	0.00%	0.00%	0.00%	59.13%	40.87%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	56	2	9	0	0	0	0	0	146	135	0	0	0	92	60	0	500
PEAK HR FACTOR :	0.778	0.250	0.563	0.000	0.000	0.000	0.000	0.000	0.730	0.888	0.000	0.000	0.000	0.742	0.882	0.000	0.862
	0.882								0.817				0.809				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	8	0	2	0	0	0	0	0	28	35	0	0	0	22	13	0	108
4:15 PM	12	0	4	0	0	0	0	0	24	33	0	0	0	25	18	0	116
4:30 PM	15	1	3	0	0	0	0	0	27	27	0	0	0	23	9	0	105
4:45 PM	6	0	1	0	0	0	0	0	22	26	0	0	0	25	14	0	94
5:00 PM	7	3	0	0	0	0	0	0	31	43	0	1	0	20	12	0	117
5:15 PM	12	0	1	0	0	0	0	0	34	29	0	0	0	15	11	0	102
5:30 PM	8	0	2	0	0	0	0	0	33	36	0	0	0	22	10	0	111
5:45 PM	8	0	0	0	0	0	0	0	26	35	0	0	0	17	15	0	101
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	76	4	13	0	0	0	0	0	225	264	0	1	0	169	102	0	854
APPROACH %'s :	81.72%	4.30%	13.98%	0.00%					45.92%	53.88%	0.00%	0.20%	0.00%	62.36%	37.64%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	40	4	8	0	0	0	0	0	104	129	0	1	0	93	53	0	432
PEAK HR FACTOR :	0.667	0.333	0.500	0.000	0.000	0.000	0.000	0.000	0.839	0.750	0.000	0.250	0.000	0.930	0.736	0.000	0.923
	0.684								0.780				0.849				

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 99 NB Ramps & Bradbury Rd
City: Turlock
Control: 1-Way Stop (NB)

Project ID: 22-090056-002
Date: 5/4/2022

Data - Bikes

NS/EW Streets:	SR 99 NB Ramps				SR 99 NB Ramps				Bradbury Rd				Bradbury Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 99 NB Ramps & Bradbury Rd
City: Turlock

Project ID: 22-090056-002
Date: 5/4/2022

Data - Pedestrians (Crosswalks)

NS/EW Streets:	SR 99 NB Ramps		SR 99 NB Ramps		Bradbury Rd		Bradbury Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	04:15 PM - 05:15 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

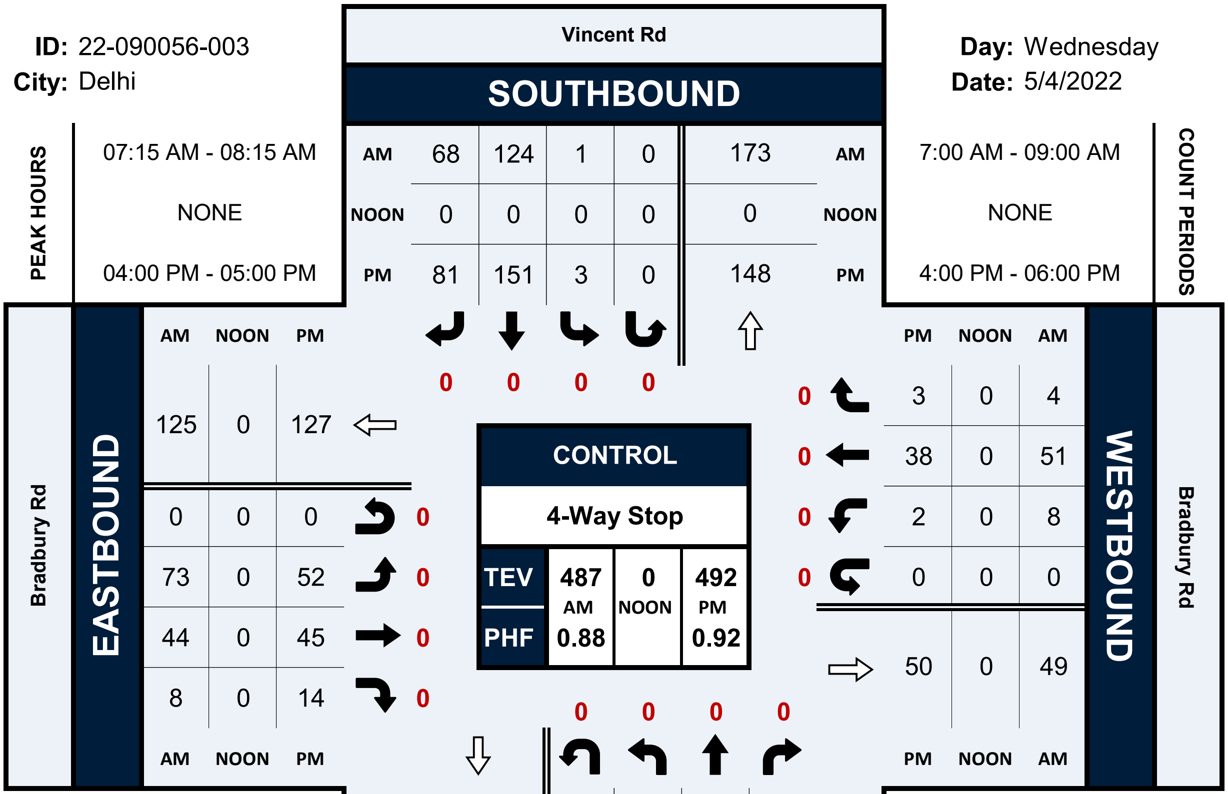
Vincent Rd & Bradbury Rd

Peak Hour Turning Movement Count

ID: 22-090056-003
City: Delhi

Day: Wednesday
Date: 5/4/2022

	PEAK HOURS	COUNT PERIODS
AM	07:15 AM - 08:15 AM	7:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:00 PM - 05:00 PM	4:00 PM - 06:00 PM



Vincent Rd — SOUTHBOUND

	Right	Through	Left	U-turn	Exit
AM	68	124	1	0	173
NOON	0	0	0	0	0
PM	81	151	3	0	148
Bikes	0	0	0	0	

Bradbury Rd — EASTBOUND

	AM	NOON	PM	Bikes
Exit	125	0	127	
U-turn	0	0	0	0
Left	73	0	52	0
Through	44	0	45	0
Right	8	0	14	0

Bradbury Rd — WESTBOUND

	Bikes	PM	NOON	AM
Right	0	3	0	4
Through	0	38	0	51
Left	0	2	0	8
U-turn	0	0	0	0
Exit		50	0	49

CONTROL

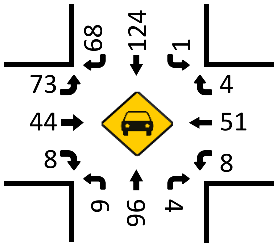
4-Way Stop

	AM	NOON	PM
TEV	487	0	492
PHF	0.88		0.92

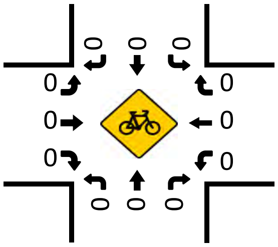
Vincent Rd — NORTHBOUND

	Exit	U-turn	Left	Through	Right
Bikes		0	0	0	0
PM	167	0	8	93	2
NOON	0	0	0	0	0
AM	140	0	6	96	4

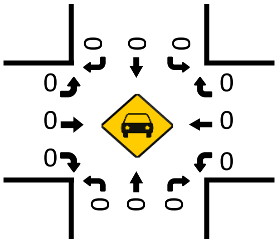
Totals (AM)



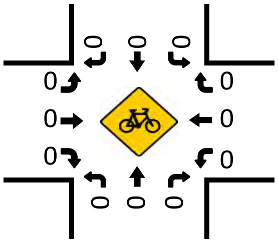
Total Bikes (AM)



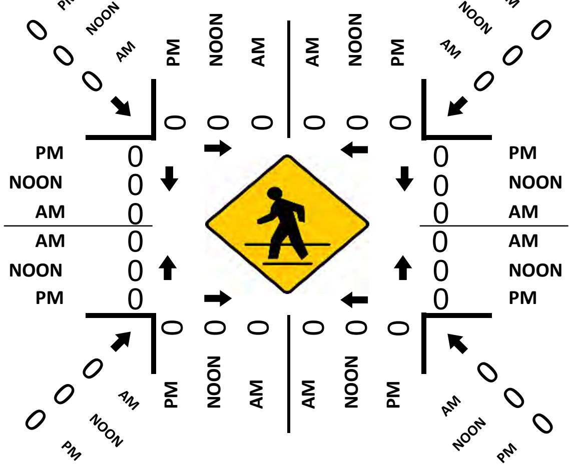
Totals (NOON)



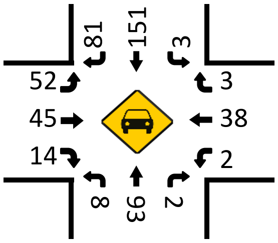
Total Bikes (NOON)



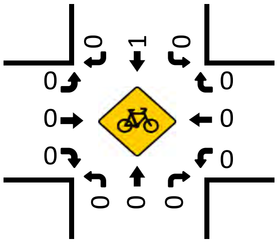
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: Vincent Rd & Bradbury Rd
City: Delhi
Control: 4-Way Stop

Project ID: 22-090056-003
Date: 5/4/2022

Data - Totals

NS/EW Streets:	Vincent Rd				Vincent Rd				Bradbury Rd				Bradbury Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	14	0	0	1	17	11	0	14	5	0	0	0	7	2	0	73
7:15 AM	1	27	1	0	0	25	13	0	16	8	2	0	2	7	2	0	104
7:30 AM	1	28	0	0	0	33	20	0	25	10	4	0	1	16	1	0	139
7:45 AM	4	23	2	0	0	33	21	0	19	14	0	0	2	18	1	0	137
8:00 AM	0	18	1	0	1	33	14	0	13	12	2	0	3	10	0	0	107
8:15 AM	4	11	1	0	0	20	21	0	18	10	6	0	1	6	0	0	98
8:30 AM	2	15	0	0	0	16	17	0	15	7	2	0	3	5	1	0	83
8:45 AM	0	10	1	0	0	8	12	0	12	7	1	0	1	7	0	0	59
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	14	146	6	0	2	185	129	0	132	73	17	0	13	76	7	0	800
APPROACH %'s :	8.43%	87.95%	3.61%	0.00%	0.63%	58.54%	40.82%	0.00%	59.46%	32.88%	7.66%	0.00%	13.54%	79.17%	7.29%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	6	96	4	0	1	124	68	0	73	44	8	0	8	51	4	0	487
PEAK HR FACTOR :	0.375	0.857	0.500	0.000	0.250	0.939	0.810	0.000	0.730	0.786	0.500	0.000	0.667	0.708	0.500	0.000	0.876
	0.914				0.894				0.801				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	24	1	0	2	32	19	0	14	15	7	0	0	10	1	0	127
4:15 PM	4	27	0	0	0	39	23	0	17	8	3	0	1	12	0	0	134
4:30 PM	1	22	1	0	0	33	19	0	11	10	1	0	0	5	2	0	105
4:45 PM	1	20	0	0	1	47	20	0	10	12	3	0	1	11	0	0	126
5:00 PM	2	25	1	0	0	24	21	0	22	13	4	0	0	5	0	0	117
5:15 PM	0	21	0	0	1	36	20	0	10	15	2	0	1	7	2	0	115
5:30 PM	1	17	2	0	0	32	12	0	18	9	5	0	0	7	0	0	103
5:45 PM	5	17	0	0	0	24	17	0	21	10	3	0	1	5	1	0	104
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	16	173	5	0	4	267	151	0	123	92	28	0	4	62	6	0	931
APPROACH %'s :	8.25%	89.18%	2.58%	0.00%	0.95%	63.27%	35.78%	0.00%	50.62%	37.86%	11.52%	0.00%	5.56%	86.11%	8.33%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	8	93	2	0	3	151	81	0	52	45	14	0	2	38	3	0	492
PEAK HR FACTOR :	0.500	0.861	0.500	0.000	0.375	0.803	0.880	0.000	0.765	0.750	0.500	0.000	0.500	0.792	0.375	0.000	0.918
	0.831				0.864				0.771				0.827				

National Data & Surveying Services Intersection Turning Movement Count

Location: Vincent Rd & Bradbury Rd
City: Delhi
Control: 4-Way Stop

Project ID: 22-090056-003
Date: 5/4/2022

Data - Bikes

NS/EW Streets:	Vincent Rd				Vincent Rd				Bradbury Rd				Bradbury Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
						0.250											

National Data & Surveying Services Intersection Turning Movement Count

Location: Vincent Rd & Bradbury Rd
City: Delhi

Project ID: 22-090056-003
Date: 5/4/2022

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Vincent Rd		Vincent Rd		Bradbury Rd		Bradbury Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	04:00 PM - 05:00 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

Vincent Rd & North Ave

Peak Hour Turning Movement Count

ID: 22-090056-004
City: Delhi

Day: Wednesday
Date: 5/4/2022

PEAK HOURS		COUNT PERIODS
07:15 AM - 08:15 AM	AM	7:00 AM - 09:00 AM
NONE	NOON	NONE
04:00 PM - 05:00 PM	PM	4:00 PM - 06:00 PM

Vincent Rd

SOUTHBOUND

AM	2	137	1	0	106	AM
NOON	0	0	0	0	0	NOON
PM	0	162	0	0	104	PM
	0	0	0	0		

North Ave

EASTBOUND

AM	NOON	PM	
2	0	1	
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0

CONTROL

2-Way Stop (EB/WB)

	AM	NOON	PM
TEV	262	0	277
PHF	0.81		0.94

North Ave

WESTBOUND

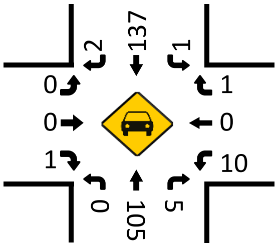
	PM	NOON	AM
0	1	0	1
0	0	0	0
0	3	0	10
0	0	0	0
	7	0	6

NORTHBOUND

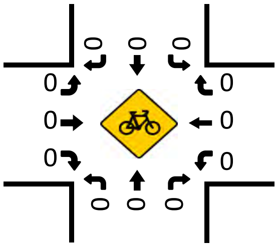
		0	0	0	0	
PM	165	0	1	103	7	PM
NOON	0	0	0	0	0	NOON
AM	148	0	0	105	5	AM

Vincent Rd

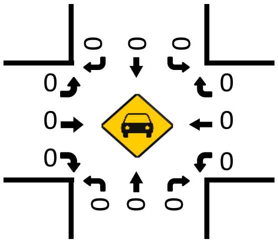
Totals (AM)



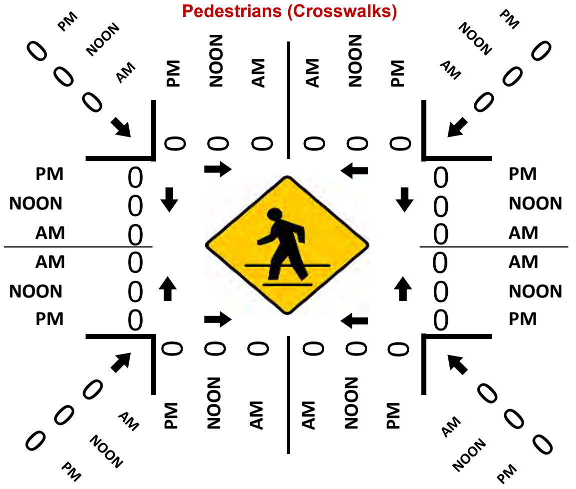
Total Bikes (AM)



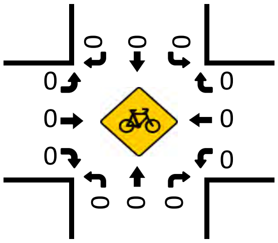
Totals (NOON)



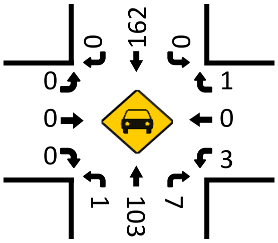
Pedestrians (Crosswalks)



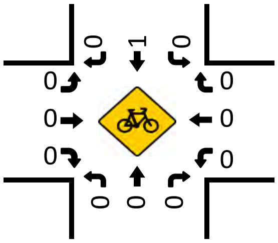
Total Bikes (NOON)



Totals (PM)



Total Bikes (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: Vincent Rd & North Ave
City: Delhi
Control: 2-Way Stop (EB/WB)

Project ID: 22-090056-004
Date: 5/4/2022

Data - Totals

NS/EW Streets:	Vincent Rd				Vincent Rd				North Ave				North Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	16	0	0	0	17	0	0	0	0	0	0	3	0	0	0	36
7:15 AM	0	30	0	0	0	29	0	0	0	0	0	0	4	0	0	0	63
7:30 AM	0	34	3	0	1	36	1	0	0	0	1	0	4	0	1	0	81
7:45 AM	0	22	2	0	0	34	1	0	0	0	0	0	1	0	0	0	60
8:00 AM	0	19	0	0	0	38	0	0	0	0	0	0	1	0	0	0	58
8:15 AM	0	17	1	0	0	27	0	0	0	0	0	0	1	0	0	0	46
8:30 AM	0	16	0	0	0	21	0	0	0	0	0	0	0	0	0	0	37
8:45 AM	0	14	1	0	0	9	0	0	0	0	1	0	4	0	0	0	29
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	168	7	0	1	211	2	0	0	0	2	0	18	0	1	0	410
APPROACH %'s :	0.00%	96.00%	4.00%	0.00%	0.47%	98.60%	0.93%	0.00%	0.00%	0.00%	100.00%	0.00%	94.74%	0.00%	5.26%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	105	5	0	1	137	2	0	0	0	1	0	10	0	1	0	262
PEAK HR FACTOR :	0.000	0.772	0.417	0.000	0.250	0.901	0.500	0.000	0.000	0.000	0.250	0.000	0.625	0.000	0.250	0.000	0.809
	0.743				0.921				0.250				0.550				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	30	2	0	0	42	0	0	0	0	0	0	0	0	0	0	74
4:15 PM	0	29	2	0	0	36	0	0	0	0	0	0	1	0	0	0	68
4:30 PM	1	27	3	0	0	41	0	0	0	0	0	0	2	0	0	0	74
4:45 PM	0	17	0	0	0	43	0	0	0	0	0	0	0	0	1	0	61
5:00 PM	0	29	1	0	1	36	0	0	0	0	0	0	2	0	1	0	70
5:15 PM	0	18	1	0	0	34	1	0	0	0	0	0	1	0	2	0	57
5:30 PM	0	21	1	0	0	40	0	0	1	0	0	0	3	0	0	0	66
5:45 PM	0	20	3	0	1	25	0	0	0	0	0	0	0	0	0	0	49
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	191	13	0	2	297	1	0	1	0	0	0	9	0	4	0	519
APPROACH %'s :	0.49%	93.17%	6.34%	0.00%	0.67%	99.00%	0.33%	0.00%	100.00%	0.00%	0.00%	0.00%	69.23%	0.00%	30.77%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	1	103	7	0	0	162	0	0	0	0	0	0	3	0	1	0	277
PEAK HR FACTOR :	0.250	0.858	0.583	0.000	0.000	0.942	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.250	0.000	0.936
	0.867				0.942								0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Vincent Rd & North Ave
City: Delhi
Control: 2-Way Stop (EB/WB)

Project ID: 22-090056-004
Date: 5/4/2022

Data - Bikes

NS/EW Streets:	Vincent Rd				Vincent Rd				North Ave				North Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
						0.250											

National Data & Surveying Services Intersection Turning Movement Count

Location: Vincent Rd & North Ave
City: Delhi

Project ID: 22-090056-004
Date: 5/4/2022

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Vincent Rd		Vincent Rd		North Ave		North Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	04:00 PM - 05:00 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

Shanks Rd & Letteau Ave

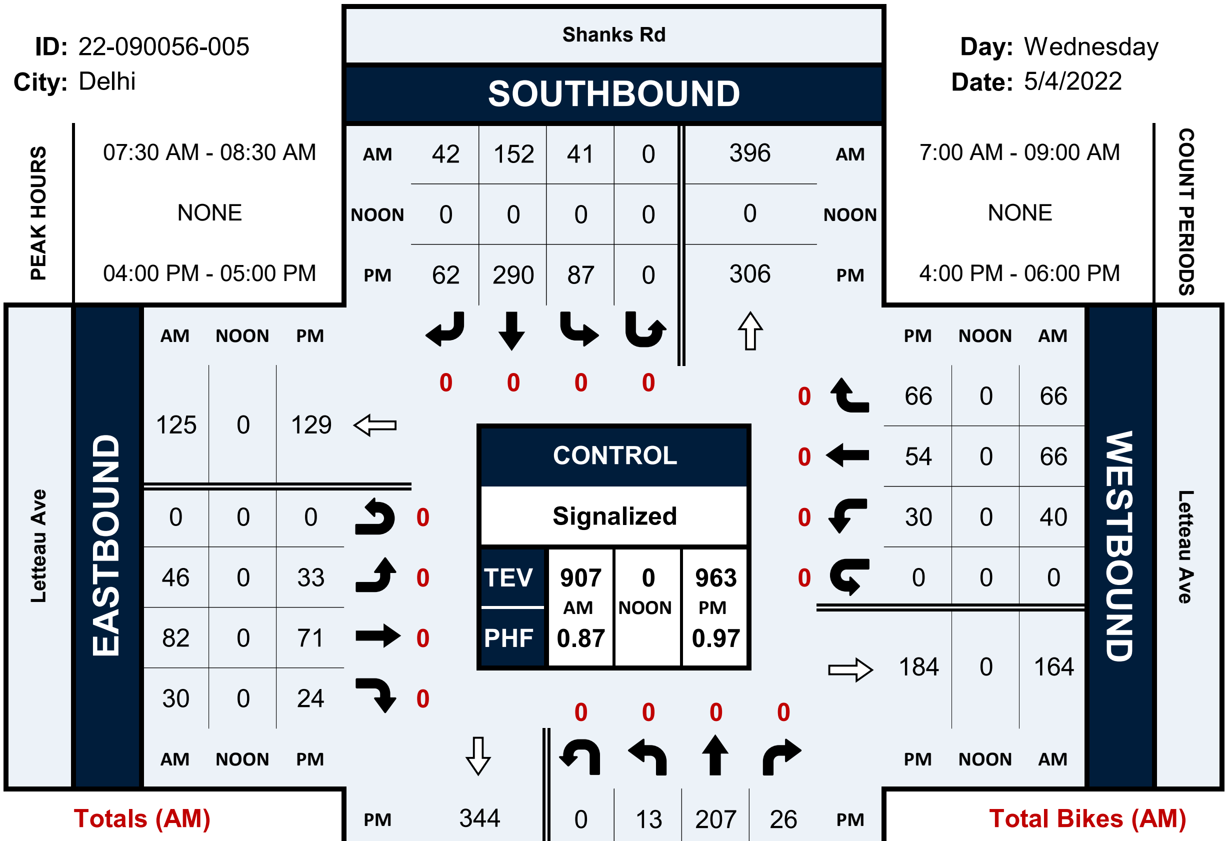
Peak Hour Turning Movement Count

ID: 22-090056-005
City: Delhi

Day: Wednesday
Date: 5/4/2022

PEAK HOURS	
AM	07:30 AM - 08:30 AM
NOON	NONE
PM	04:00 PM - 05:00 PM

COUNT PERIODS	
AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM



Shanks Rd

SOUTHBOUND

AM	42	152	41	0	396
NOON	0	0	0	0	0
PM	62	290	87	0	306
	0	0	0	0	

Letteau Ave

EASTBOUND

AM	NOON	PM	
125	0	129	
0	0	0	0
46	0	33	0
82	0	71	0
30	0	24	0

WESTBOUND

Letteau Ave

	PM	NOON	AM
0	66	0	66
0	54	0	66
0	30	0	40
0	0	0	0
	184	0	164

CONTROL

Signalized

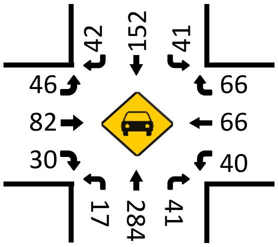
	AM	NOON	PM
TEV	907	0	963
PHF	0.87		0.97

		0	0	0	0
PM	344	0	13	207	26
NOON	0	0	0	0	0
AM	222	0	17	284	41

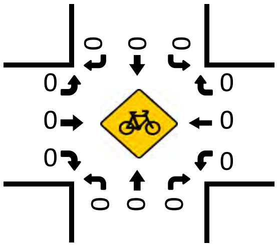
NORTHBOUND

Shanks Rd

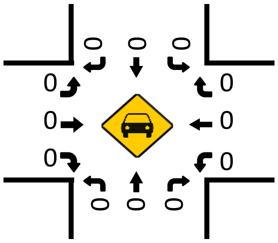
Totals (AM)



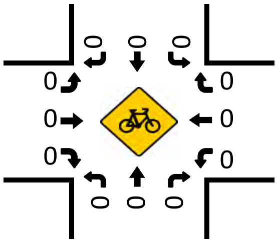
Total Bikes (AM)



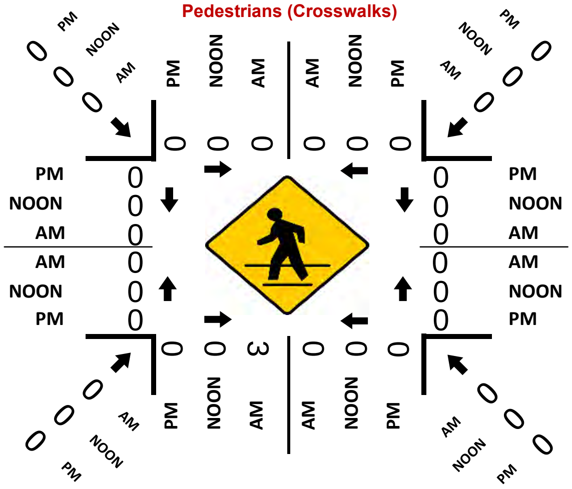
Totals (NOON)



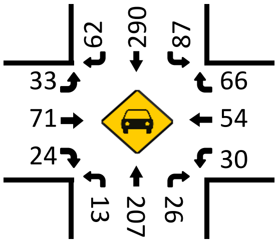
Total Bikes (NOON)



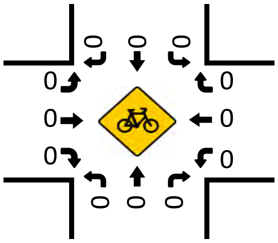
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: Shanks Rd & Letteau Ave
City: Delhi
Control: Signalized

Project ID: 22-090056-005
Date: 5/4/2022

Data - Totals

NS/EW Streets:	Shanks Rd				Shanks Rd				Letteau Ave				Letteau Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	59	3	0	5	18	2	0	16	6	1	0	3	5	7	0	126
7:15 AM	2	98	5	0	10	27	9	0	14	6	4	0	1	6	11	0	193
7:30 AM	3	86	5	0	4	37	7	0	11	9	4	0	7	8	18	0	199
7:45 AM	5	64	13	0	12	38	20	0	15	22	13	0	10	25	8	0	245
8:00 AM	4	81	17	0	15	43	9	0	8	34	4	0	13	15	19	0	262
8:15 AM	5	53	6	0	10	34	6	0	12	17	9	0	10	18	21	0	201
8:30 AM	1	56	7	0	8	19	6	0	12	8	2	0	8	9	14	0	150
8:45 AM	3	34	3	0	10	17	9	0	5	11	0	0	3	15	16	0	126
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	24	531	59	0	74	233	68	0	93	113	37	0	55	101	114	0	1502
APPROACH %'s :	3.91%	86.48%	9.61%	0.00%	19.73%	62.13%	18.13%	0.00%	38.27%	46.50%	15.23%	0.00%	20.37%	37.41%	42.22%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	17	284	41	0	41	152	42	0	46	82	30	0	40	66	66	0	907
PEAK HR FACTOR :	0.850	0.826	0.603	0.000	0.683	0.884	0.525	0.000	0.767	0.603	0.577	0.000	0.769	0.660	0.786	0.000	0.865
	0.838				0.839				0.790				0.878				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	46	6	0	22	68	15	0	8	16	9	0	7	15	17	0	230
4:15 PM	4	57	6	0	20	81	10	0	6	17	5	0	6	12	15	0	239
4:30 PM	4	51	5	0	29	67	17	0	11	19	6	0	10	11	17	0	247
4:45 PM	4	53	9	0	16	74	20	0	8	19	4	0	7	16	17	0	247
5:00 PM	5	41	3	0	20	71	7	0	9	11	3	0	8	13	30	0	221
5:15 PM	3	35	10	0	26	64	16	0	20	10	1	0	3	15	16	0	219
5:30 PM	2	52	9	0	16	71	14	0	8	13	2	0	3	10	15	0	215
5:45 PM	3	49	4	0	26	65	15	0	15	12	12	0	8	17	12	0	238
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	26	384	52	0	175	561	114	0	85	117	42	0	52	109	139	0	1856
APPROACH %'s :	5.63%	83.12%	11.26%	0.00%	20.59%	66.00%	13.41%	0.00%	34.84%	47.95%	17.21%	0.00%	17.33%	36.33%	46.33%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	13	207	26	0	87	290	62	0	33	71	24	0	30	54	66	0	963
PEAK HR FACTOR :	0.813	0.908	0.722	0.000	0.750	0.895	0.775	0.000	0.750	0.934	0.667	0.000	0.750	0.844	0.971	0.000	0.975
	0.918				0.971				0.889				0.938				

National Data & Surveying Services Intersection Turning Movement Count

Location: Shanks Rd & Letteau Ave
City: Delhi
Control: Signalized

Project ID: 22-090056-005
Date: 5/4/2022

Data - Bikes

NS/EW Streets:	Shanks Rd				Shanks Rd				Letteau Ave				Letteau Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2
APPROACH %'s :					100.00%	0.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services

Intersection Turning Movement Count

Location: Shanks Rd & Letteau Ave
City: Delhi

Project ID: 22-090056-005
Date: 5/4/2022

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Shanks Rd		Shanks Rd		Letteau Ave		Letteau Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	2	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	4	0	0	0	0	0	4
APPROACH %'s :			100.00%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	0	0	3	0	0	0	0	0	3
PEAK HR FACTOR :			0.375						0.375
			0.375						

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	1	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	1	0	1
APPROACH %'s :							100.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

SR 99 SB Ramps & Shanks Rd

Peak Hour Turning Movement Count

ID: 22-090056-006
City: Delhi

Day: Wednesday
Date: 5/4/2022

PEAK HOURS	
AM	07:15 AM - 08:15 AM
NOON	NONE
PM	04:15 PM - 05:15 PM

COUNT PERIODS	
AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SR 99 SB Ramps

SOUTHBOUND

	↲	↓	↳	⮍	⇧
AM	139	1	54	0	0
NOON	0	0	0	0	0
PM	320	0	96	0	0
	0	0	0	0	

Shanks Rd

EASTBOUND

	AM	NOON	PM	
⇦	238	0	444	
⮌	0	0	0	0
↱	0	0	0	0
→	340	0	253	0
↴	99	0	58	0

Shanks Rd

WESTBOUND

		PM	NOON	AM
0	↰	0	0	0
0	←	124	0	99
0	↙	65	0	83
0	⮎	0	0	0
	⇨	349	0	394

CONTROL

1-Way Stop (SB)

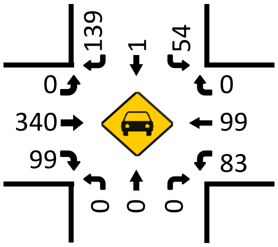
	AM	NOON	PM
TEV	**815**	**0**	**916**
PHF	**0.97**		**0.96**

NORTHBOUND

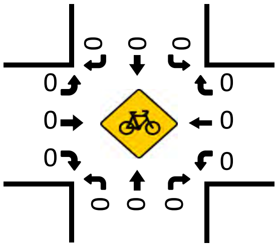
SR 99 SB Ramps

	⇩	⮏	↰	↑	↱
		0	0	0	0
PM	123	0	0	0	0
NOON	0	0	0	0	0
AM	183	0	0	0	0

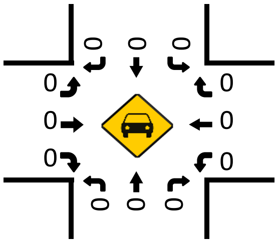
Totals (AM)



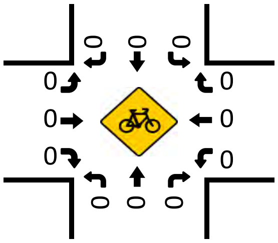
Total Bikes (AM)



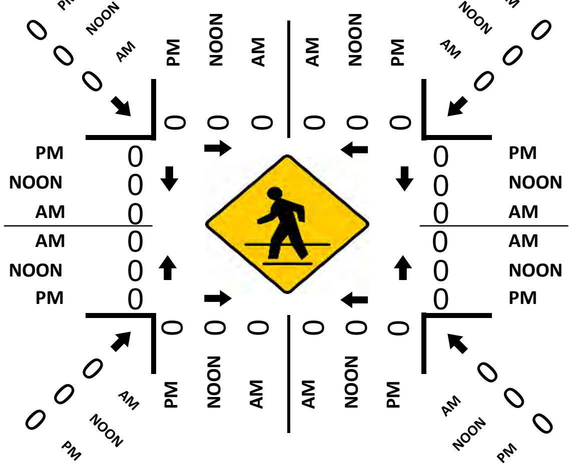
Totals (NOON)



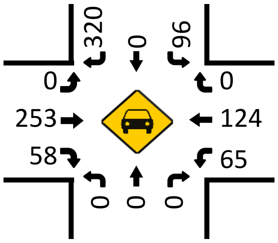
Total Bikes (NOON)



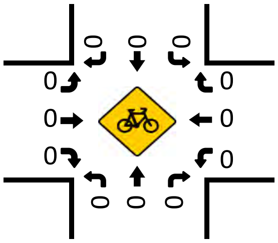
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: SR 99 SB Ramps & Shanks Rd
City: Delhi
Control: 1-Way Stop (SB)

Project ID: 22-090056-006
Date: 5/4/2022

Data - Totals

NS/EW Streets:	SR 99 SB Ramps				SR 99 SB Ramps				Shanks Rd				Shanks Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	7	0	24	0	0	62	19	0	10	6	0	0	128
7:15 AM	0	0	0	0	13	0	32	0	0	99	27	0	15	17	0	0	203
7:30 AM	0	0	0	0	11	1	28	0	0	81	36	0	25	24	0	0	206
7:45 AM	0	0	0	0	18	0	33	0	0	68	19	0	24	35	0	0	197
8:00 AM	0	0	0	0	12	0	46	0	0	92	17	0	19	23	0	0	209
8:15 AM	0	0	0	0	6	1	30	0	0	77	13	0	18	15	0	0	160
8:30 AM	0	0	0	0	7	0	21	0	0	61	18	0	9	7	0	0	123
8:45 AM	0	0	0	0	5	0	24	0	0	42	11	0	7	14	0	0	103
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	79	2	238	0	0	582	160	0	127	141	0	0	1329
APPROACH %'s :					24.76%	0.63%	74.61%	0.00%	0.00%	78.44%	21.56%	0.00%	47.39%	52.61%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	54	1	139	0	0	340	99	0	83	99	0	0	815
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.750	0.250	0.755	0.000	0.000	0.859	0.688	0.000	0.830	0.707	0.000	0.000	0.975
					0.836				0.871				0.771				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	27	0	76	0	0	55	12	0	13	25	0	0	208
4:15 PM	0	0	0	0	17	0	82	0	0	65	16	0	19	26	0	0	225
4:30 PM	0	0	0	0	28	0	84	0	0	65	13	0	17	31	0	0	238
4:45 PM	0	0	0	0	28	0	78	0	0	59	13	0	14	42	0	0	234
5:00 PM	0	0	0	0	23	0	76	0	0	64	16	0	15	25	0	0	219
5:15 PM	0	0	0	0	17	0	80	0	0	55	12	0	15	25	0	0	204
5:30 PM	0	0	0	0	19	0	76	0	0	66	14	0	16	27	0	0	218
5:45 PM	0	0	0	0	13	0	80	0	0	53	19	0	8	23	0	0	196
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	172	0	632	0	0	482	115	0	117	224	0	0	1742
APPROACH %'s :					21.39%	0.00%	78.61%	0.00%	0.00%	80.74%	19.26%	0.00%	34.31%	65.69%	0.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	0	0	0	96	0	320	0	0	253	58	0	65	124	0	0	916
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.857	0.000	0.952	0.000	0.000	0.973	0.906	0.000	0.855	0.738	0.000	0.000	0.962
					0.929				0.960				0.844				

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 99 SB Ramps & Shanks Rd
City: Delhi
Control: 1-Way Stop (SB)

Project ID: 22-090056-006
Date: 5/4/2022

Data - Bikes

NS/EW Streets:	SR 99 SB Ramps				SR 99 SB Ramps				Shanks Rd				Shanks Rd				
	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
APPROACH %'s :													0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR 99 SB Ramps & Shanks Rd
City: Delhi

Project ID: 22-090056-006
Date: 5/4/2022

Data - Pedestrians (Crosswalks)

NS/EW Streets:	SR 99 SB Ramps		SR 99 SB Ramps		Shanks Rd		Shanks Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
PM	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	2	0	0	0	0	0	0	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	2	0	0	0	0	0	0	0	2
APPROACH %'s :	100.00%	0.00%							
PEAK HR :	04:15 PM - 05:15 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

SR 99 NB Ramps & Shanks Rd

Peak Hour Turning Movement Count

ID: 22-090056-007
City: Delhi

Day: Wednesday
Date: 5/4/2022

PEAK HOURS	
AM	07:15 AM - 08:15 AM
NOON	NONE
PM	04:15 PM - 05:15 PM

COUNT PERIODS	
AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SR 99 NB Ramps

SOUTHBOUND

AM	0	0	0	0	407	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	324	PM
	0	0	0	0		

Shanks Rd

EASTBOUND

AM	NOON	PM	
186	0	187	
1	0	0	0
302	0	232	0
91	0	114	0
0	0	0	0
AM	NOON	PM	

Shanks Rd

WESTBOUND

	PM	NOON	AM
0	92	0	103
0	112	0	123
0	0	0	0
0	0	0	0
	173	0	141
	PM	NOON	AM

CONTROL

1-Way Stop (NB)

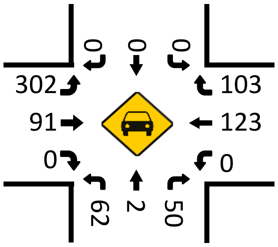
	AM	NOON	PM
TEV	734	0	684
PHF	0.98		0.95

NORTHBOUND

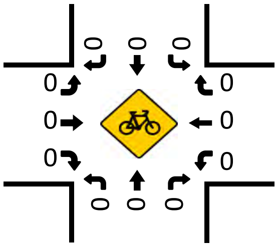
SR 99 NB Ramps

		0	0	0	0	
PM	0	0	75	0	59	PM
NOON	0	0	0	0	0	NOON
AM	0	0	62	2	50	AM

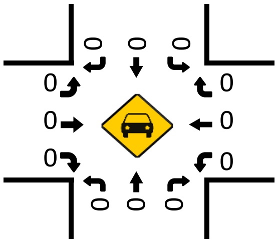
Totals (AM)



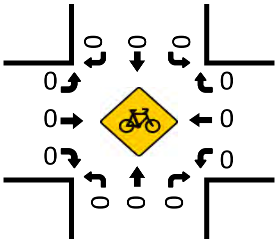
Total Bikes (AM)



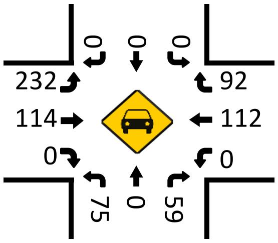
Totals (NOON)



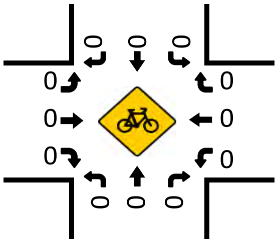
Total Bikes (NOON)



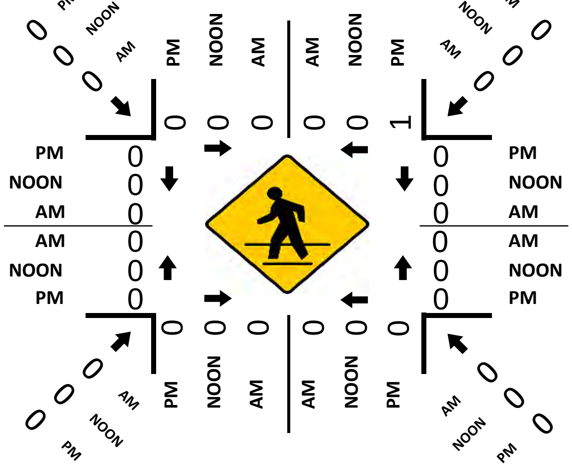
Totals (PM)



Total Bikes (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services Intersection Turning Movement Count

Location: SR 99 NB Ramps & Shanks Rd
City: Delhi
Control: 1-Way Stop (NB)

Project ID: 22-090056-007
Date: 5/4/2022

Data - Totals

NS/EW Streets:	SR 99 NB Ramps				SR 99 NB Ramps				Shanks Rd				Shanks Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	0	7	0	0	0	0	0	57	14	0	0	0	10	17	0	110
7:15 AM	11	0	13	0	0	0	0	0	87	23	0	0	0	22	32	0	188
7:30 AM	15	0	17	0	0	0	0	0	73	20	0	0	0	35	21	0	181
7:45 AM	22	1	14	0	0	0	0	0	61	26	0	0	0	35	26	0	185
8:00 AM	14	1	6	0	0	0	0	0	81	22	0	1	0	31	24	0	180
8:15 AM	11	1	8	0	0	0	0	0	71	11	0	0	0	18	28	0	148
8:30 AM	6	1	9	0	0	0	0	0	57	10	0	0	0	13	13	0	109
8:45 AM	10	0	8	0	0	0	0	0	43	6	0	0	0	8	11	0	86
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	94	4	82	0	0	0	0	0	530	132	0	1	0	172	172	0	1187
APPROACH %'s :	52.22%	2.22%	45.56%	0.00%					79.94%	19.91%	0.00%	0.15%	0.00%	50.00%	50.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	62	2	50	0	0	0	0	0	302	91	0	1	0	123	103	0	734
PEAK HR FACTOR :	0.705	0.500	0.735	0.000	0.000	0.000	0.000	0.000	0.868	0.875	0.000	0.250	0.000	0.879	0.805	0.000	0.976
	0.770								0.895				0.926				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	0	16	0	0	0	0	0	47	35	0	0	0	26	20	0	159
4:15 PM	16	0	17	0	0	0	0	0	55	25	0	0	0	32	25	0	170
4:30 PM	17	0	12	0	0	0	0	0	62	30	0	0	0	25	34	0	180
4:45 PM	26	0	11	0	0	0	0	0	57	33	0	0	0	30	17	0	174
5:00 PM	16	0	19	0	0	0	0	0	58	26	0	0	0	25	16	0	160
5:15 PM	20	0	13	0	0	0	0	0	47	27	0	0	0	21	18	0	146
5:30 PM	17	0	17	0	0	0	0	0	59	27	0	0	0	24	19	0	163
5:45 PM	16	0	10	0	0	0	0	0	47	16	0	0	0	16	22	0	127
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	143	0	115	0	0	0	0	0	432	219	0	0	0	199	171	0	1279
APPROACH %'s :	55.43%	0.00%	44.57%	0.00%					66.36%	33.64%	0.00%	0.00%	0.00%	53.78%	46.22%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	75	0	59	0	0	0	0	0	232	114	0	0	0	112	92	0	684
PEAK HR FACTOR :	0.721	0.000	0.776	0.000	0.000	0.000	0.000	0.000	0.935	0.864	0.000	0.000	0.000	0.875	0.676	0.000	0.950
	0.905								0.940				0.864				

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 99 NB Ramps & Shanks Rd
City: Delhi
Control: 1-Way Stop (NB)

Project ID: 22-090056-007
Date: 5/4/2022

Data - Bikes

NS/EW Streets:	SR 99 NB Ramps				SR 99 NB Ramps				Shanks Rd				Shanks Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
APPROACH %'s :													0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: SR 99 NB Ramps & Shanks Rd
City: Delhi

Project ID: 22-090056-007
Date: 5/4/2022

Data - Pedestrians (Crosswalks)

NS/EW Streets:	SR 99 NB Ramps		SR 99 NB Ramps		Shanks Rd		Shanks Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	2	0	0	0	0	0	0	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	2	1	0	0	0	0	0	0	3
APPROACH %'s :	66.67%	33.33%							
PEAK HR :	04:15 PM - 05:15 PM								TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	1
PEAK HR FACTOR :		0.250							0.250
	0.250								

Prepared by National Data & Surveying Services

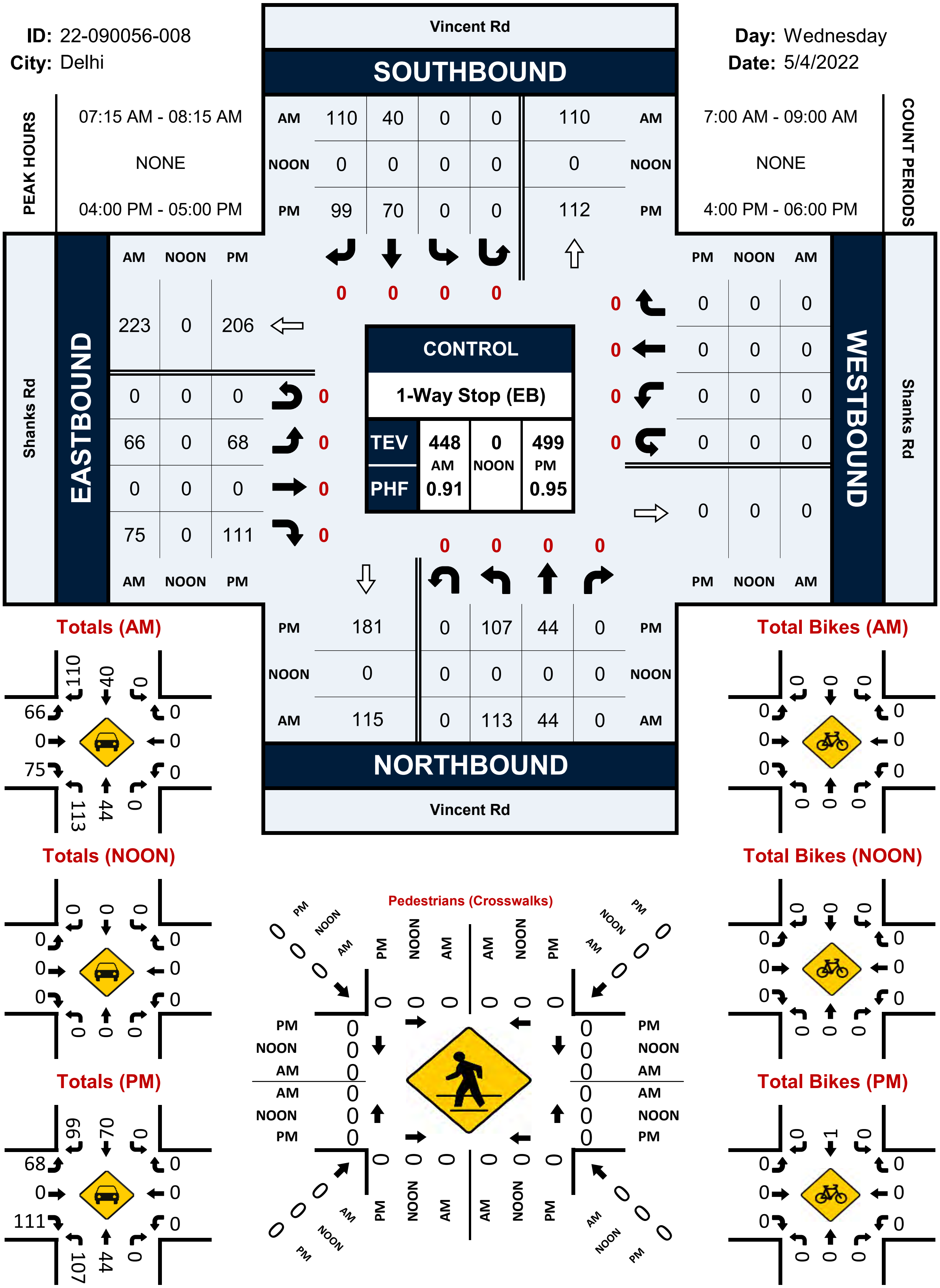
Vincent Rd & Shanks Rd

Peak Hour Turning Movement Count

ID: 22-090056-008
City: Delhi

Day: Wednesday
Date: 5/4/2022

PEAK HOURS		COUNT PERIODS
AM	07:15 AM - 08:15 AM	7:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:00 PM - 05:00 PM	4:00 PM - 06:00 PM



Vincent Rd — SOUTHBOUND

	↲	↓	↳	↶	⇧	
AM	110	40	0	0	110	AM
NOON	0	0	0	0	0	NOON
PM	99	70	0	0	112	PM
	0	0	0	0		

Shanks Rd — EASTBOUND

	AM	NOON	PM	
⇦	223	0	206	
↶	0	0	0	0
↱	66	0	68	0
→	0	0	0	0
↴	75	0	111	0

Shanks Rd — WESTBOUND

		PM	NOON	AM
0	↰	0	0	0
0	←	0	0	0
0	↙	0	0	0
0	↶	0	0	0
	⇨	0	0	0

Vincent Rd — NORTHBOUND

	⇩	↶	↰	↑	↱	
		0	0	0	0	
PM	181	0	107	44	0	PM
NOON	0	0	0	0	0	NOON
AM	115	0	113	44	0	AM

CONTROL

1-Way Stop (EB)

	AM	NOON	PM
TEV	448	0	499
PHF	0.91		0.95

Totals (AM)

Totals (NOON)

Totals (PM)

Pedestrians (Crosswalks)

Total Bikes (AM)

Total Bikes (NOON)

Total Bikes (PM)

National Data & Surveying Services Intersection Turning Movement Count

Location: Vincent Rd & Shanks Rd
City: Delhi
Control: 1-Way Stop (EB)

Project ID: 22-090056-008
Date: 5/4/2022

Data - Totals

NS/EW Streets:	Vincent Rd				Vincent Rd				Shanks Rd				Shanks Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	21	2	0	0	0	8	10	0	13	0	8	0	0	0	0	0	62
7:15 AM	30	9	0	0	0	9	26	0	21	0	15	0	0	0	0	0	110
7:30 AM	18	18	0	0	0	8	32	0	20	0	17	0	0	0	0	0	113
7:45 AM	40	10	0	0	0	9	27	0	14	0	23	0	0	0	0	0	123
8:00 AM	25	7	0	0	0	14	25	0	11	0	20	0	0	0	0	0	102
8:15 AM	27	8	0	0	0	9	18	0	10	0	7	0	0	0	0	0	79
8:30 AM	14	7	0	0	0	9	12	0	9	0	11	0	0	0	0	0	62
8:45 AM	14	7	0	0	0	5	10	0	9	0	6	0	0	0	0	0	51
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	189	68	0	0	0	71	160	0	107	0	107	0	0	0	0	0	702
APPROACH %'s :	73.54%	26.46%	0.00%	0.00%	0.00%	30.74%	69.26%	0.00%	50.00%	0.00%	50.00%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	113	44	0	0	0	40	110	0	66	0	75	0	0	0	0	0	448
PEAK HR FACTOR :	0.706	0.611	0.000	0.000	0.000	0.714	0.859	0.000	0.786	0.000	0.815	0.000	0.000	0.000	0.000	0.000	0.911
	0.785				0.938				0.953								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	24	5	0	0	0	20	19	0	23	0	27	0	0	0	0	0	118
4:15 PM	30	17	0	0	0	16	28	0	18	0	23	0	0	0	0	0	132
4:30 PM	32	11	0	0	0	8	28	0	15	0	29	0	0	0	0	0	123
4:45 PM	21	11	0	0	0	26	24	0	12	0	32	0	0	0	0	0	126
5:00 PM	21	6	0	0	0	9	21	0	21	0	22	0	0	0	0	0	100
5:15 PM	18	3	0	0	0	19	20	0	20	0	23	0	0	0	0	0	103
5:30 PM	23	2	0	0	0	20	22	0	18	0	24	0	0	0	0	0	109
5:45 PM	20	14	0	0	0	15	16	0	12	0	16	0	0	0	0	0	93
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	189	69	0	0	0	133	178	0	139	0	196	0	0	0	0	0	904
APPROACH %'s :	73.26%	26.74%	0.00%	0.00%	0.00%	42.77%	57.23%	0.00%	41.49%	0.00%	58.51%	0.00%					
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	107	44	0	0	0	70	99	0	68	0	111	0	0	0	0	0	499
PEAK HR FACTOR :	0.836	0.647	0.000	0.000	0.000	0.673	0.884	0.000	0.739	0.000	0.867	0.000	0.000	0.000	0.000	0.000	0.945
	0.803				0.845				0.895								

National Data & Surveying Services Intersection Turning Movement Count

Location: Vincent Rd & Shanks Rd
City: Delhi
Control: 1-Way Stop (EB)

Project ID: 22-090056-008
Date: 5/4/2022

Data - Bikes

NS/EW Streets:	Vincent Rd				Vincent Rd				Shanks Rd				Shanks Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
						0.250											

National Data & Surveying Services Intersection Turning Movement Count

Location: Vincent Rd & Shanks Rd
City: Delhi

Project ID: 22-090056-008
Date: 5/4/2022

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Vincent Rd		Vincent Rd		Shanks Rd		Shanks Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	07:15 AM - 08:15 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
PM	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	04:00 PM - 05:00 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

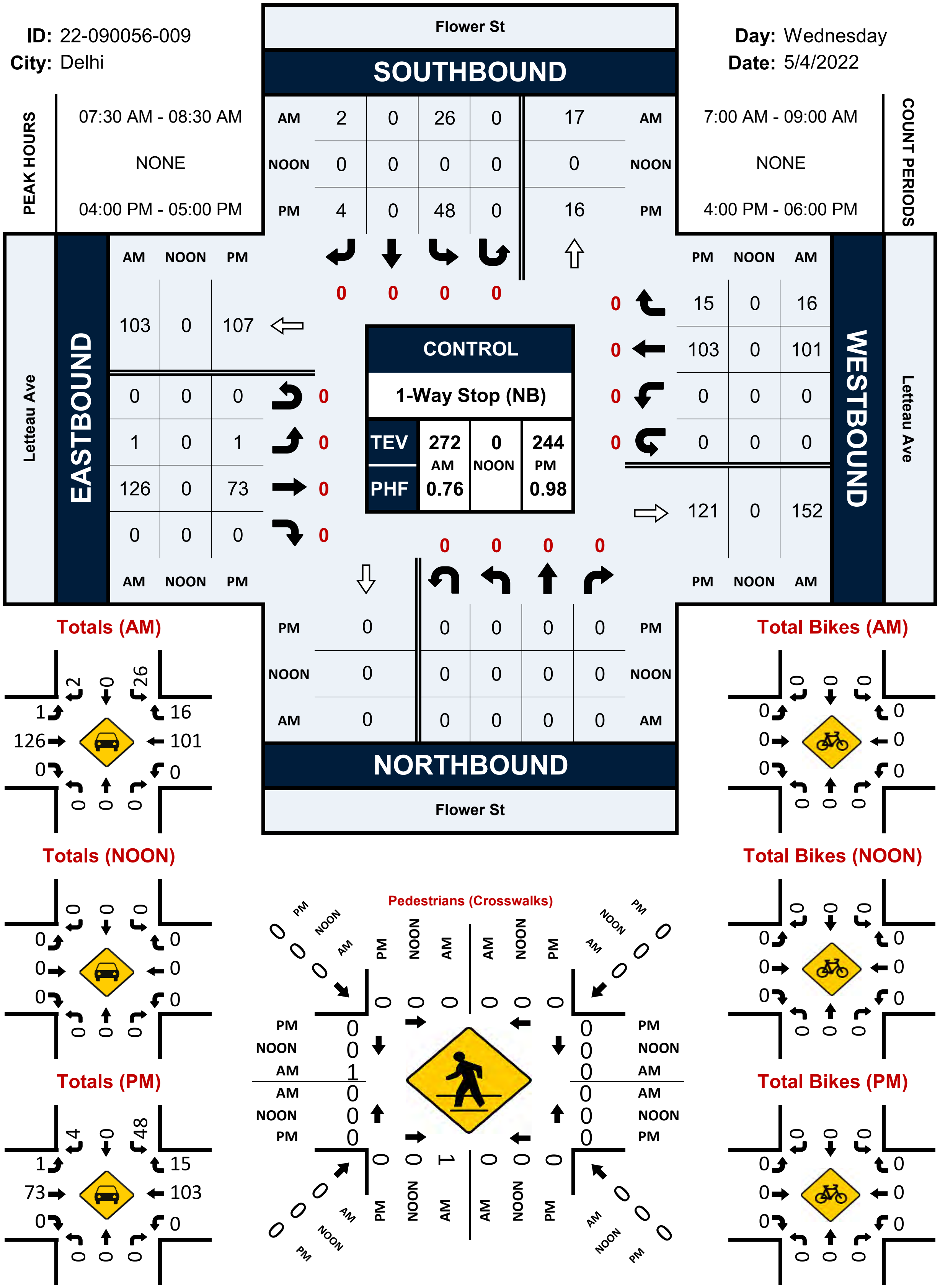
Prepared by National Data & Surveying Services

Flower St & Letteau Ave

Peak Hour Turning Movement Count

ID: 22-090056-009
City: Delhi

Day: Wednesday
Date: 5/4/2022



National Data & Surveying Services Intersection Turning Movement Count

Location: Flower St & Letteau Ave
City: Delhi
Control: 1-Way Stop (NB)

Project ID: 22-090056-009
Date: 5/4/2022

Data - Totals

NS/EW Streets:	Flower St				Flower St				Letteau Ave				Letteau Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	3	0	0	0	0	24	0	0	0	7	1	0	35
7:15 AM	0	0	0	0	2	0	1	0	0	15	0	0	0	12	3	0	33
7:30 AM	0	0	0	0	6	0	0	0	0	23	0	0	0	18	1	0	48
7:45 AM	0	0	0	0	6	0	1	0	0	36	0	0	0	45	1	0	89
8:00 AM	0	0	0	0	4	0	1	0	0	44	0	0	0	22	6	0	77
8:15 AM	0	0	0	0	10	0	0	0	1	23	0	0	0	16	8	0	58
8:30 AM	0	0	1	0	5	0	1	0	1	13	0	0	0	13	3	0	37
8:45 AM	0	0	0	0	1	0	0	0	0	14	0	0	0	18	6	0	39
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	37	0	4	0	2	192	0	0	0	151	29	0	416
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	90.24%	0.00%	9.76%	0.00%	1.03%	98.97%	0.00%	0.00%	0.00%	83.89%	16.11%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	26	0	2	0	1	126	0	0	0	101	16	0	272
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.650	0.000	0.500	0.000	0.250	0.716	0.000	0.000	0.000	0.561	0.500	0.000	0.764
					0.700				0.722				0.636				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	16	0	0	0	1	14	0	0	0	25	3	0	59
4:15 PM	0	0	0	0	10	0	0	0	0	22	0	0	0	26	3	0	61
4:30 PM	0	0	0	0	13	0	3	0	0	20	0	0	0	21	5	0	62
4:45 PM	0	0	0	0	9	0	1	0	0	17	0	0	0	31	4	0	62
5:00 PM	0	0	0	0	7	1	2	0	0	17	0	0	0	20	8	0	55
5:15 PM	0	0	0	0	3	0	1	0	0	24	0	0	0	25	6	0	59
5:30 PM	0	0	0	0	6	0	0	0	0	19	0	0	0	26	3	0	54
5:45 PM	0	1	0	0	9	1	1	0	0	29	0	0	0	27	5	0	73
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	73	2	8	0	1	162	0	0	0	201	37	0	485
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	87.95%	2.41%	9.64%	0.00%	0.61%	99.39%	0.00%	0.00%	0.00%	84.45%	15.55%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	48	0	4	0	1	73	0	0	0	103	15	0	244
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.750	0.000	0.333	0.000	0.250	0.830	0.000	0.000	0.000	0.831	0.750	0.000	0.984
					0.813				0.841				0.843				

National Data & Surveying Services Intersection Turning Movement Count

Location: Flower St & Letteau Ave
City: Delhi
Control: 1-Way Stop (NB)

Project ID: 22-090056-009
Date: 5/4/2022

Data - Bikes

NS/EW Streets:	Flower St				Flower St				Letteau Ave				Letteau Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: Flower St & Letteau Ave
City: Delhi

Project ID: 22-090056-009
Date: 5/4/2022

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Flower St		Flower St		Letteau Ave		Letteau Ave		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	0	0	1	2
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	0	0	1	2
APPROACH %'s :			100.00%	0.00%			0.00%	100.00%	
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	0	0	1	0	0	0	0	1	2
PEAK HR FACTOR :			0.250					0.250	0.250
			0.250				0.250		

	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
PM	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	04:00 PM - 05:00 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

Vincent Rd & El Capitan Way

Peak Hour Turning Movement Count

ID: 22-090056-010
City: Delhi

Day: Wednesday
Date: 5/4/2022

PEAK HOURS

07:30 AM - 08:30 AM
NONE
04:00 PM - 05:00 PM

COUNT PERIODS

7:00 AM - 09:00 AM
NONE
4:00 PM - 06:00 PM

Vincent Rd

SOUTHBOUND

AM	28	12	55	0	150	AM
NOON	0	0	0	0	0	NOON
PM	34	16	118	0	127	PM
	0	0	0	0		

El Capitan Way

EASTBOUND

AM	NOON	PM	
175	0	141	
0	0	0	0
26	0	31	0
133	0	67	0
8	0	10	0
AM	NOON	PM	

CONTROL

4-Way Stop

TEV	534 AM	0 NOON	483 PM
PHF	0.73		0.91

El Capitan Way

WESTBOUND

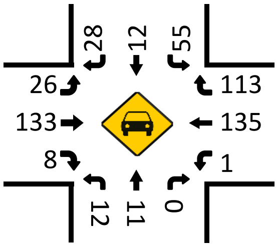
	PM	NOON	AM
0	88	0	113
0	96	0	135
0	2	0	1
0	0	0	0
	187	0	188
	PM	NOON	AM

NORTHBOUND

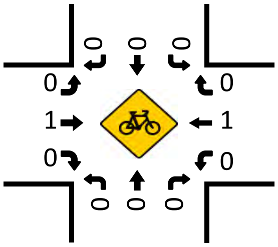
Vincent Rd

		0	0	0	0	
PM	28	0	11	8	2	PM
NOON	0	0	0	0	0	NOON
AM	21	0	12	11	0	AM

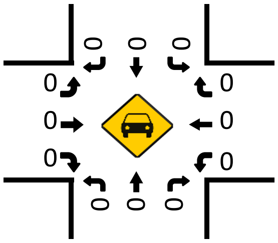
Totals (AM)



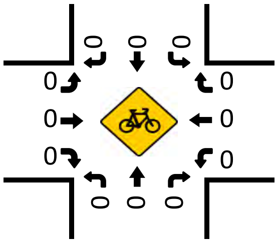
Total Bikes (AM)



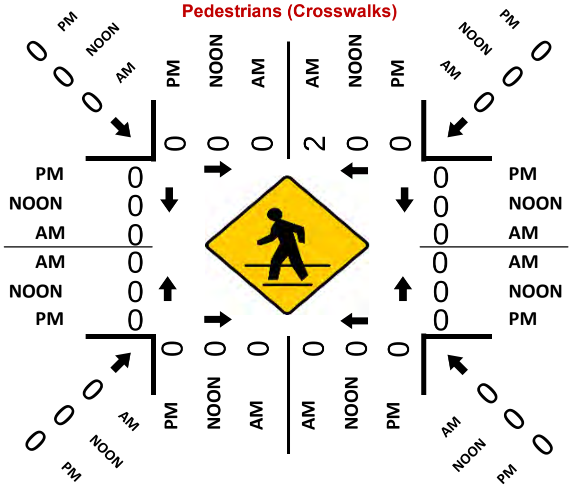
Totals (NOON)



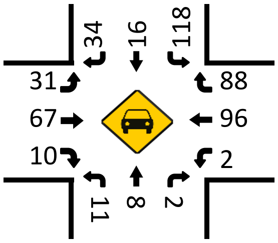
Total Bikes (NOON)



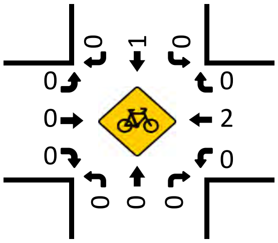
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Vincent Rd & El Capitan Way
City: Delhi
Control: 4-Way Stop

Project ID: 22-090056-010
Date: 5/4/2022

Data - Totals

NS/EW Streets:	Vincent Rd				Vincent Rd				El Capitan Way				El Capitan Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	0	0	11	1	4	0	1	14	0	0	0	13	23	0	69
7:15 AM	0	1	0	0	15	5	5	0	3	14	0	0	0	16	35	0	94
7:30 AM	2	4	0	0	14	1	6	0	8	23	1	0	0	16	18	0	93
7:45 AM	2	2	0	0	16	4	10	0	6	41	1	0	1	57	44	0	184
8:00 AM	5	1	0	0	19	5	6	0	6	44	2	0	0	38	25	0	151
8:15 AM	3	4	0	0	6	2	6	0	6	25	4	0	0	24	26	0	106
8:30 AM	3	3	0	0	8	2	10	0	8	12	1	0	1	8	12	0	68
8:45 AM	2	1	0	0	5	0	5	0	8	6	5	0	0	14	14	0	60
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	19	16	0	0	94	20	52	0	46	179	14	0	2	186	197	0	825
APPROACH %'s :	54.29%	45.71%	0.00%	0.00%	56.63%	12.05%	31.33%	0.00%	19.25%	74.90%	5.86%	0.00%	0.52%	48.31%	51.17%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	12	11	0	0	55	12	28	0	26	133	8	0	1	135	113	0	534
PEAK HR FACTOR :	0.600	0.688	0.000	0.000	0.724	0.600	0.700	0.000	0.813	0.756	0.500	0.000	0.250	0.592	0.642	0.000	0.726
	0.821				0.792				0.803				0.610				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	5	1	0	29	7	9	0	7	18	2	0	2	31	17	0	132
4:15 PM	3	1	1	0	26	2	8	0	4	20	4	0	0	20	30	0	119
4:30 PM	2	2	0	0	30	3	9	0	15	15	2	0	0	28	23	0	129
4:45 PM	2	0	0	0	33	4	8	0	5	14	2	0	0	17	18	0	103
5:00 PM	5	0	0	0	19	5	11	0	8	15	2	0	0	13	22	0	100
5:15 PM	2	1	0	0	31	2	12	0	2	14	3	0	0	16	19	0	102
5:30 PM	2	1	1	0	17	0	15	0	5	16	0	0	0	12	25	0	94
5:45 PM	3	1	0	0	26	9	7	0	7	15	3	0	0	18	18	0	107
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	23	11	3	0	211	32	79	0	53	127	18	0	2	155	172	0	886
APPROACH %'s :	62.16%	29.73%	8.11%	0.00%	65.53%	9.94%	24.53%	0.00%	26.77%	64.14%	9.09%	0.00%	0.61%	47.11%	52.28%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	11	8	2	0	118	16	34	0	31	67	10	0	2	96	88	0	483
PEAK HR FACTOR :	0.688	0.400	0.500	0.000	0.894	0.571	0.944	0.000	0.517	0.838	0.625	0.000	0.250	0.774	0.733	0.000	0.915
	0.525				0.933				0.844				0.912				

National Data & Surveying Services Intersection Turning Movement Count

Location: Vincent Rd & El Capitan Way
City: Delhi
Control: 4-Way Stop

Project ID: 22-090056-010
Date: 5/4/2022

Data - Bikes

NS/EW Streets:	Vincent Rd				Vincent Rd				El Capitan Way				El Capitan Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.500
										0.250				0.250			

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	0	0	0	1	0	0	0	4	0	0	6
APPROACH %'s :					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	3
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.750
						0.250								0.500			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Vincent Rd & El Capitan Way
City: Delhi

Project ID: 22-090056-010
Date: 5/4/2022

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Vincent Rd		Vincent Rd		El Capitan Way		El Capitan Way		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	2	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	2	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	4	0	0	0	0	0	0	4
APPROACH %'s :	0.00%	100.00%							
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	0	2	0	0	0	0	0	0	2
PEAK HR FACTOR :		0.250							0.250
	0.250								

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	2	3	0	0	5
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	2	3	0	0	5
APPROACH %'s :					40.00%	60.00%			
PEAK HR :	04:00 PM - 05:00 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

Letteau Ave & El Capitan Way

Peak Hour Turning Movement Count

ID: 22-090056-011
City: Delhi

Day: Wednesday
Date: 5/4/2022

PEAK HOURS		COUNT PERIODS
07:45 AM - 08:45 AM	AM	7:00 AM - 09:00 AM
NONE	NOON	NONE
04:00 PM - 05:00 PM	PM	4:00 PM - 06:00 PM

Letteau Ave

SOUTHBOUND

	↲	↓	↳	⮌	⇧
AM	1	116	74	1	201
NOON	0	0	0	0	0
PM	12	161	36	0	184
	0	0	0	0	

El Capitan Way

EASTBOUND

	AM	NOON	PM	
⇦	2	0	18	
⮌	0	0	0	0
↱	0	0	4	0
→	0	0	2	0
↴	4	0	8	0

WESTBOUND

El Capitan Way

		PM	NOON	AM
0	↰	50	0	74
0	←	2	0	0
0	↙	92	0	102
0	⮎	0	0	0
	⇨	116	0	162

CONTROL

3-Way Stop (NB/SB/WB)

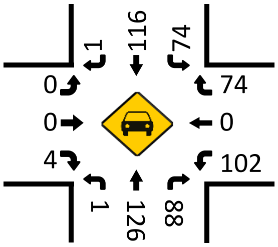
	AM	NOON	PM
TEV	587	0	579
PHF	0.78		0.93

	⇩	⮍	↰	↑	↱
		0	0	0	0
PM	261	0	4	130	78
NOON	0	0	0	0	0
AM	222	0	1	126	88

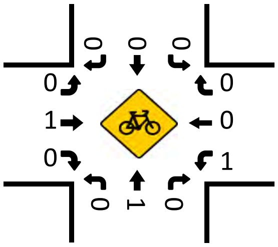
NORTHBOUND

Letteau Ave

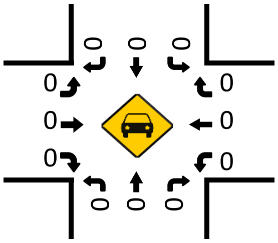
Totals (AM)



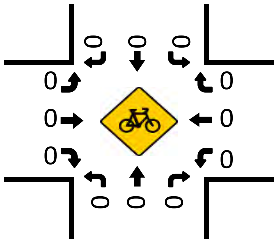
Total Bikes (AM)



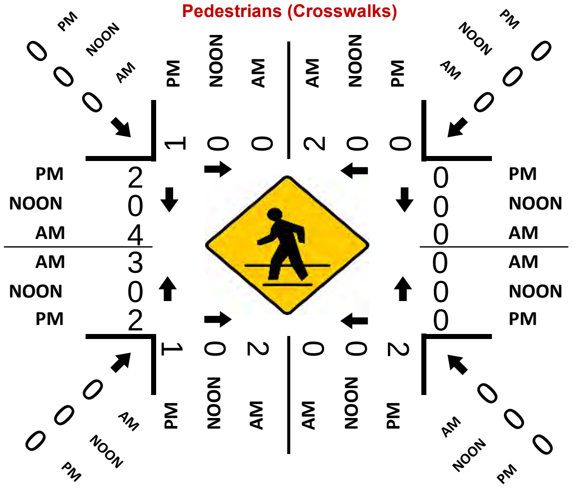
Totals (NOON)



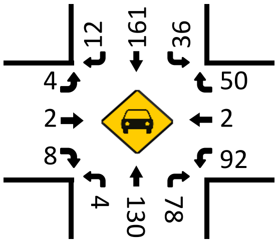
Total Bikes (NOON)



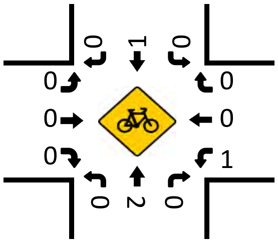
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: Letteau Ave & El Capitan Way
City: Delhi
Control: 3-Way Stop (NB/SB/WB)

Project ID: 22-090056-011
Date: 5/4/2022

Data - Totals

NS/EW Streets:	Letteau Ave				Letteau Ave				El Capitan Way				El Capitan Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	9	9	0	4	11	0	0	0	0	0	0	15	0	3	0	51
7:15 AM	0	7	12	0	8	13	0	0	0	0	0	0	13	0	7	0	60
7:30 AM	0	13	21	0	8	12	0	0	0	0	0	0	13	0	11	0	78
7:45 AM	0	17	29	0	24	22	0	0	0	0	0	0	33	0	30	0	155
8:00 AM	0	38	28	0	31	41	0	0	0	0	0	0	34	0	17	0	189
8:15 AM	0	46	18	0	11	29	0	1	0	0	1	0	21	0	16	0	143
8:30 AM	1	25	13	0	8	24	1	0	0	0	3	0	14	0	11	0	100
8:45 AM	1	22	14	0	8	20	0	1	0	0	0	0	14	0	12	0	92
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	177	144	0	102	172	1	2	0	0	4	0	157	0	107	0	868
APPROACH %'s :	0.62%	54.80%	44.58%	0.00%	36.82%	62.09%	0.36%	0.72%	0.00%	0.00%	100.00%	0.00%	59.47%	0.00%	40.53%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	1	126	88	0	74	116	1	1	0	0	4	0	102	0	74	0	587
PEAK HR FACTOR :	0.250	0.685	0.759	0.000	0.597	0.707	0.250	0.250	0.000	0.000	0.333	0.000	0.750	0.000	0.617	0.000	0.776
	0.814				0.667				0.333				0.698				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	31	25	0	9	32	1	0	0	0	1	0	26	0	8	0	134
4:15 PM	2	26	20	0	7	42	1	0	0	0	1	0	25	1	11	0	136
4:30 PM	0	36	18	0	11	39	6	0	1	0	4	0	21	1	17	0	154
4:45 PM	1	37	15	0	9	48	4	0	3	2	2	0	20	0	14	0	155
5:00 PM	2	37	19	0	12	40	0	0	1	0	0	0	12	0	8	0	131
5:15 PM	0	25	11	0	6	31	2	0	2	0	2	0	23	1	12	0	115
5:30 PM	0	29	14	0	13	35	4	0	1	0	2	0	19	2	15	0	134
5:45 PM	1	28	10	0	8	39	5	0	2	0	3	0	27	0	10	0	133
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	249	132	0	75	306	23	0	10	2	15	0	173	5	95	0	1092
APPROACH %'s :	1.80%	64.18%	34.02%	0.00%	18.56%	75.74%	5.69%	0.00%	37.04%	7.41%	55.56%	0.00%	63.37%	1.83%	34.80%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	4	130	78	0	36	161	12	0	4	2	8	0	92	2	50	0	579
PEAK HR FACTOR :	0.500	0.878	0.780	0.000	0.818	0.839	0.500	0.000	0.333	0.250	0.500	0.000	0.885	0.500	0.735	0.000	0.934
	0.930				0.857				0.500				0.923				

National Data & Surveying Services Intersection Turning Movement Count

Location: Letteau Ave & El Capitan Way
City: Delhi
Control: 3-Way Stop (NB/SB/WB)

Project ID: 22-090056-011
Date: 5/4/2022

Data - Bikes

NS/EW Streets:	Letteau Ave				Letteau Ave				El Capitan Way				El Capitan Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	0	1	0	0	1	0	0	1	0	1	0	5
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	3
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.750
	0.250								0.250				0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	1	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	4
5:15 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	9	0	0	0	4	0	0	0	1	0	0	1	1	1	0	18
APPROACH %'s :	10.00%	90.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	33.33%	33.33%	33.33%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	2	0	0	0	1	0	0	0	0	0	0	1	0	0	0	4
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.500
	0.500				0.250								0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Letteau Ave & El Capitan Way
City: Delhi

Project ID: 22-090056-011
Date: 5/4/2022

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Letteau Ave		Letteau Ave		El Capitan Way		El Capitan Way		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	1	0	0	1	0	2
7:45 AM	0	0	1	0	0	0	0	1	2
8:00 AM	0	0	0	0	0	0	1	1	2
8:15 AM	0	2	0	0	0	0	1	2	5
8:30 AM	0	0	1	0	0	0	1	0	2
8:45 AM	0	0	0	0	0	0	1	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	2	2	1	0	0	5	4	14
APPROACH %'s :	0.00%	100.00%	66.67%	33.33%			55.56%	44.44%	
PEAK HR :	07:45 AM - 08:45 AM								TOTAL
PEAK HR VOL :	0	2	2	0	0	0	3	4	11
PEAK HR FACTOR :		0.250	0.500				0.750	0.500	0.550
	0.250		0.500				0.583		

	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
PM	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	1	0	0	0	0	0	0	1	2
4:15 PM	0	0	1	1	0	0	0	1	3
4:30 PM	0	0	0	1	0	0	2	0	3
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	1
5:30 PM	1	1	0	0	0	0	0	0	2
5:45 PM	1	0	0	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	3	1	1	2	0	0	2	3	12
APPROACH %'s :	75.00%	25.00%	33.33%	66.67%			40.00%	60.00%	
PEAK HR :	04:00 PM - 05:00 PM								TOTAL
PEAK HR VOL :	1	0	1	2	0	0	2	2	8
PEAK HR FACTOR :	0.250		0.250	0.500			0.250	0.500	0.667
	0.250		0.375				0.500		

Prepared by National Data & Surveying Services

VOLUME

Bradbury Rd Bet. Griffith Rd & SR 99

Day: Wednesday
Date: 5/4/2022

City: Delhi
Project #: CA22_090057_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,557	3,221	6,778

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			3		10		13		12:00			45		47		92	
0:15			9		4		13		12:15			63		31		94	
0:30			6		6		12		12:30			38		50		88	
0:45			5	23	6	26	11	49	12:45			41	187	45	173	86	360
1:00			6		2		8		13:00			45		40		85	
1:15			4		3		7		13:15			81		52		133	
1:30			11		3		14		13:30			51		66		117	
1:45			3	24	6	14	9	38	13:45			52	229	67	225	119	454
2:00			6		4		10		14:00			71		47		118	
2:15			5		2		7		14:15			67		63		130	
2:30			7		6		13		14:30			62		53		115	
2:45			4	22	4	16	8	38	14:45			74	274	54	217	128	491
3:00			10		3		13		15:00			78		52		130	
3:15			10		2		12		15:15			77		58		135	
3:30			11		5		16		15:30			68		71		139	
3:45			10	41	6	16	16	57	15:45			70	293	56	237	126	530
4:00			8		5		13		16:00			65		66		131	
4:15			16		9		25		16:15			70		61		131	
4:30			25		16		41		16:30			86		74		160	
4:45			34	83	12	42	46	125	16:45			55	276	57	258	112	534
5:00			18		15		33		17:00			77		52		129	
5:15			29		21		50		17:15			68		79		147	
5:30			34		24		58		17:30			73		64		137	
5:45			38	119	51	111	89	230	17:45			54	272	58	253	112	525
6:00			45		34		79		18:00			41		58		99	
6:15			40		43		83		18:15			45		59		104	
6:30			51		29		80		18:30			52		41		93	
6:45			38	174	37	143	75	317	18:45			37	175	43	201	80	376
7:00			52		32		84		19:00			28		45		73	
7:15			71		33		104		19:15			27		40		67	
7:30			85		41		126		19:30			25		39		64	
7:45			80	288	63	169	143	457	19:45			18	98	29	153	47	251
8:00			50		52		102		20:00			23		22		45	
8:15			54		47		101		20:15			17		30		47	
8:30			46		35		81		20:30			21		30		51	
8:45			54	204	31	165	85	369	20:45			21	82	22	104	43	186
9:00			50		49		99		21:00			22		22		44	
9:15			62		68		130		21:15			11		24		35	
9:30			29		42		71		21:30			12		20		32	
9:45			57	198	24	183	81	381	21:45			15	60	19	85	34	145
10:00			67		26		93		22:00			11		20		31	
10:15			47		35		82		22:15			9		17		26	
10:30			39		42		81		22:30			6		13		19	
10:45			45	198	68	171	113	369	22:45			12	38	11	61	23	99
11:00			50		26		76		23:00			3		8		11	
11:15			50		41		91		23:15			5		10		15	
11:30			35		45		80		23:30			8		11		19	
11:45			47	182	46	158	93	340	23:45			1	17	11	40	12	57
TOTALS				1556		1214		**2770**	**TOTALS**				2001		2007		**4008**
SPLIT %				56.2%		43.8%		**40.9%**	**SPLIT %**				49.9%		50.1%		**59.1%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,557	3,221	6,778

AM Peak Hour			7:00	7:30	**7:15**	**PM Peak Hour**			14:45	16:30	**15:45**
AM Pk Volume			288	203	**475**	**PM Pk Volume**			297	262	**548**
Pk Hr Factor			0.847	0.806	**0.830**	**Pk Hr Factor**			0.952	0.829	**0.856**
7 - 9 Volume	0	0	492	334	**826**	**4 - 6 Volume**	0	0	548	511	**1059**
7 - 9 Peak Hour			7:00	7:30	**7:15**	**4 - 6 Peak Hour**			16:15	16:30	**16:30**
7 - 9 Pk Volume	0	0	288	203	**475**	**4 - 6 Pk Volume**	0	0	288	262	**548**
Pk Hr Factor	0.000	0.000	0.847	0.806	**0.830**	**Pk Hr Factor**	0.000	0.000	0.837	0.829	**0.856**

Prepared by National Data & Surveying Services

VOLUME

Bradbury Rd across SR 99

Day: Wednesday
Date: 5/4/2022

City: Delhi
Project #: CA22_090057_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,752	1,470	5,222

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			5		3		8		12:00			65		21		86	
0:15			4		2		6		12:15			51		16		67	
0:30			4		3		7		12:30			44		17		61	
0:45			5	18	2	10	7	28	12:45			57	217	30	84	87	301
1:00			2		1		3		13:00			66		22		88	
1:15			2		2		4		13:15			50		27		77	
1:30			6		2		8		13:30			37		19		56	
1:45			9	19	0	5	9	24	13:45			68	221	23	91	91	312
2:00			5		1		6		14:00			57		16		73	
2:15			7		2		9		14:15			65		14		79	
2:30			3		1		4		14:30			57		19		76	
2:45			10	25	0	4	10	29	14:45			60	239	24	73	84	312
3:00			7		0		7		15:00			54		33		87	
3:15			12		2		14		15:15			71		81		152	
3:30			5		2		7		15:30			68		49		117	
3:45			10	34	3	7	13	41	15:45			54	247	33	196	87	443
4:00			16		2		18		16:00			63		30		93	
4:15			21		5		26		16:15			57		37		94	
4:30			27		4		31		16:30			54		38		92	
4:45			20	84	6	17	26	101	16:45			48	222	31	136	79	358
5:00			22		8		30		17:00			75		27		102	
5:15			29		17		46		17:15			63		27		90	
5:30			45		13		58		17:30			69		30		99	
5:45			48	144	13	51	61	195	17:45			61	268	25	109	86	377
6:00			52		21		73		18:00			51		8		59	
6:15			71		20		91		18:15			48		13		61	
6:30			106		29		135		18:30			51		10		61	
6:45			72	301	31	101	103	402	18:45			49	199	8	39	57	238
7:00			45		24		69		19:00			33		10		43	
7:15			64		26		90		19:15			37		11		48	
7:30			86		27		113		19:30			40		8		48	
7:45			79	274	46	123	125	397	19:45			25	135	5	34	30	169
8:00			60		39		99		20:00			29		5		34	
8:15			56		36		92		20:15			26		3		29	
8:30			53		26		79		20:30			19		3		22	
8:45			52	221	28	129	80	350	20:45			35	109	1	12	36	121
9:00			61		20		81		21:00			24		5		29	
9:15			49		12		61		21:15			17		4		21	
9:30			55		14		69		21:30			21		8		29	
9:45			47	212	20	66	67	278	21:45			17	79	7	24	24	103
10:00			52		16		68		22:00			19		3		22	
10:15			48		11		59		22:15			14		2		16	
10:30			44		13		57		22:30			8		3		11	
10:45			60	204	12	52	72	256	22:45			11	52	4	12	15	64
11:00			50		18		68		23:00			6		4		10	
11:15			42		21		63		23:15			9		4		13	
11:30			53		29		82		23:30			10		2		12	
11:45			52	197	15	83	67	280	23:45			6	31	2	12	8	43
TOTALS				1733		648		**2381**	**TOTALS**				2019		822		**2841**
SPLIT %				72.8%		27.2%		**45.6%**	**SPLIT %**				71.1%		28.9%		**54.4%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,752	1,470	5,222

AM Peak Hour			6:00	7:30	**7:30**	**PM Peak Hour**			17:00	15:00	**15:15**
AM Pk Volume			301	148	**429**	**PM Pk Volume**			268	196	**449**
Pk Hr Factor			0.710	0.804	**0.858**	**Pk Hr Factor**			0.893	0.605	**0.738**
7 - 9 Volume	0	0	495	252	**747**	**4 - 6 Volume**	0	0	490	245	**735**
7 - 9 Peak Hour			7:15	7:30	**7:30**	**4 - 6 Peak Hour**			17:00	16:00	**17:00**
7 - 9 Pk Volume	0	0	289	148	**429**	**4 - 6 Pk Volume**	0	0	268	136	**377**
Pk Hr Factor	0.000	0.000	0.840	0.804	**0.858**	**Pk Hr Factor**	0.000	0.000	0.893	0.895	**0.924**

Prepared by National Data & Surveying Services

VOLUME

Bradbury Rd Bet. SR 99 & Vincent Rd

Day: Wednesday
Date: 5/4/2022

City: Delhi
Project #: CA22_090057_003

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,769	1,829	3,598

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			1		5		6		12:00			32		20		52	
0:15			1		1		2		12:15			26		19		45	
0:30			1		1		2		12:30			17		26		43	
0:45			8	11	2	9	10	20	12:45			26	101	43	108	69	209
1:00			0		1		1		13:00			23		26		49	
1:15			0		1		1		13:15			30		29		59	
1:30			4		3		7		13:30			17		29		46	
1:45			1	5	1	6	2	11	13:45			29	99	33	117	62	216
2:00			3		2		5		14:00			21		24		45	
2:15			4		1		5		14:15			19		34		53	
2:30			3		7		10		14:30			30		25		55	
2:45			4	14	2	12	6	26	14:45			36	106	38	121	74	227
3:00			0		1		1		15:00			25		38		63	
3:15			4		1		5		15:15			38		36		74	
3:30			2		5		7		15:30			35		70		105	
3:45			3	9	4	11	7	20	15:45			33	131	42	186	75	317
4:00			8		2		10		16:00			37		34		71	
4:15			14		8		22		16:15			39		43		82	
4:30			11		10		21		16:30			28		33		61	
4:45			12	45	5	25	17	70	16:45			29	133	38	148	67	281
5:00			6		6		12		17:00			43		32		75	
5:15			13		14		27		17:15			33		26		59	
5:30			27		17		44		17:30			38		31		69	
5:45			25	71	29	66	54	137	17:45			36	150	30	119	66	269
6:00			12		20		32		18:00			22		20		42	
6:15			24		25		49		18:15			15		30		45	
6:30			36		16		52		18:30			20		23		43	
6:45			33	105	27	88	60	193	18:45			13	70	25	98	38	168
7:00			22		20		42		19:00			14		16		30	
7:15			29		23		52		19:15			15		11		26	
7:30			42		36		78		19:30			8		13		21	
7:45			29	122	42	121	71	243	19:45			8	45	8	48	16	93
8:00			33		33		66		20:00			18		6		24	
8:15			34		39		73		20:15			14		6		20	
8:30			33		33		66		20:30			11		8		19	
8:45			22	122	24	129	46	251	20:45			16	59	7	27	23	86
9:00			23		34		57		21:00			12		14		26	
9:15			41		29		70		21:15			7		7		14	
9:30			28		29		57		21:30			9		5		14	
9:45			30	122	22	114	52	236	21:45			8	36	9	35	17	71
10:00			21		13		34		22:00			5		2		7	
10:15			20		26		46		22:15			3		4		7	
10:30			23		28		51		22:30			4		2		6	
10:45			22	86	47	114	69	200	22:45			4	16	6	14	10	30
11:00			32		21		53		23:00			2		4		6	
11:15			29		22		51		23:15			5		3		8	
11:30			17		32		49		23:30			2		2		4	
11:45			20	98	27	102	47	200	23:45			4	13	2	11	6	24
TOTALS				810		797		**1607**	**TOTALS**				959		1032		**1991**
SPLIT %				50.4%		49.6%		**44.7%**	**SPLIT %**				48.2%		51.8%		**55.3%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,769	1,829	3,598

	NB	SB	EB	WB	Total		NB	SB	EB	WB	Total
AM Peak Hour			7:30	7:30	**7:30**	**PM Peak Hour**			17:00	15:30	**15:30**
AM Pk Volume			138	150	**288**	**PM Pk Volume**			150	189	**333**
Pk Hr Factor			0.821	0.893	**0.923**	**Pk Hr Factor**			0.872	0.675	**0.793**
7 - 9 Volume	0	0	244	250	**494**	**4 - 6 Volume**	0	0	283	267	**550**
7 - 9 Peak Hour			7:30	7:30	**7:30**	**4 - 6 Peak Hour**			17:00	16:00	**16:15**
7 - 9 Pk Volume	0	0	138	150	**288**	**4 - 6 Pk Volume**	0	0	150	148	**285**
Pk Hr Factor	0.000	0.000	0.821	0.893	**0.923**	**Pk Hr Factor**	0.000	0.000	0.872	0.860	**0.869**

Prepared by National Data & Surveying Services

VOLUME

Bradbury Rd Bet. Vincent Rd & Sycamore St

Day: Wednesday
Date: 5/4/2022

City: Delhi
Project #: CA22_090057_004

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	650	579	1,229

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			0		0		0		12:00			8		5		13	
0:15			1		1		2		12:15			17		6		23	
0:30			2		0		2		12:30			10		9		19	
0:45			0	3	0	1	0	4	12:45			9	44	15	35	24	79
1:00			0		0		0		13:00			11		10		21	
1:15			0		1		1		13:15			17		5		22	
1:30			1		0		1		13:30			16		13		29	
1:45			1	2	0	1	1	3	13:45			11	55	12	40	23	95
2:00			0		1		1		14:00			12		9		21	
2:15			0		0		0		14:15			14		20		34	
2:30			1		3		4		14:30			10		8		18	
2:45			1	2	1	5	2	7	14:45			10	46	14	51	24	97
3:00			0		1		1		15:00			12		12		24	
3:15			1		1		2		15:15			12		10		22	
3:30			1		1		2		15:30			15		10		25	
3:45			0	2	1	4	1	6	15:45			14	53	10	42	24	95
4:00			2		1		3		16:00			18		11		29	
4:15			0		2		2		16:15			7		13		20	
4:30			1		2		3		16:30			12		6		18	
4:45			2	5	2	7	4	12	16:45			12	49	12	42	24	91
5:00			0		4		4		17:00			13		6		19	
5:15			1		8		9		17:15			16		10		26	
5:30			3		6		9		17:30			12		6		18	
5:45			5	9	9	27	14	36	17:45			9	50	6	28	15	78
6:00			6		8		14		18:00			12		11		23	
6:15			4		8		12		18:15			12		8		20	
6:30			8		9		17		18:30			11		3		14	
6:45			9	27	6	31	15	58	18:45			7	42	2	24	9	66
7:00			7		8		15		19:00			4		3		7	
7:15			9		9		18		19:15			6		3		9	
7:30			9		19		28		19:30			9		6		15	
7:45			14	39	19	55	33	94	19:45			5	24	2	14	7	38
8:00			13		12		25		20:00			5		2		7	
8:15			12		7		19		20:15			9		3		12	
8:30			7		9		16		20:30			5		3		8	
8:45			8	40	8	36	16	76	20:45			5	24	6	14	11	38
9:00			5		10		15		21:00			2		3		5	
9:15			9		10		19		21:15			8		2		10	
9:30			6		9		15		21:30			4		1		5	
9:45			6	26	11	40	17	66	21:45			3	17	1	7	4	24
10:00			6		5		11		22:00			1		2		3	
10:15			7		9		16		22:15			4		3		7	
10:30			10		7		17		22:30			3		1		4	
10:45			6	29	12	33	18	62	22:45			2	10	1	7	3	17
11:00			6		5		11		23:00			5		2		7	
11:15			11		6		17		23:15			0		1		1	
11:30			15		9		24		23:30			1		0		1	
11:45			12	44	10	30	22	74	23:45			2	8	2	5	4	13
TOTALS				228		270		**498**	**TOTALS**				422		309		**731**
SPLIT %				45.8%		54.2%		**40.5%**	**SPLIT %**				57.7%		42.3%		**59.5%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	650	579	1,229

	NB	SB	EB	WB	Total		NB	SB	EB	WB	Total
AM Peak Hour			11:30	7:15	**7:30**	**PM Peak Hour**			15:15	13:30	**13:30**
AM Pk Volume			52	59	**105**	**PM Pk Volume**			59	54	**107**
Pk Hr Factor			0.765	0.776	**0.795**	**Pk Hr Factor**			0.819	0.675	**0.787**
7 - 9 Volume	0	0	79	91	**170**	**4 - 6 Volume**	0	0	99	70	**169**
7 - 9 Peak Hour			7:30	7:15	**7:30**	**4 - 6 Peak Hour**			16:30	16:00	**16:00**
7 - 9 Pk Volume	0	0	48	59	**105**	**4 - 6 Pk Volume**	0	0	53	42	**91**
Pk Hr Factor	0.000	0.000	0.857	0.776	**0.795**	**Pk Hr Factor**	0.000	0.000	0.828	0.808	**0.784**

Prepared by National Data & Surveying Services

VOLUME

Letteau Ave Bet. Merced Ave & Shanks Rd

Day: Wednesday
Date: 5/4/2022

City: Delhi
Project #: CA22_090057_005

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,524	1,422	2,946

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			0		0		0		12:00			22		17		39	
0:15			1		3		4		12:15			23		18		41	
0:30			2		2		4		12:30			23		24		47	
0:45			1	4	2	7	3	11	12:45			25	93	16	75	41	168
1:00			0		3		3		13:00			20		29		49	
1:15			0		0		0		13:15			23		31		54	
1:30			2		0		2		13:30			15		25		40	
1:45			1	3	1	4	2	7	13:45			31	89	21	106	52	195
2:00			4		2		6		14:00			35		24		59	
2:15			1		1		2		14:15			31		26		57	
2:30			7		4		11		14:30			32		21		53	
2:45			2	14	0	7	2	21	14:45			14	112	19	90	33	202
3:00			2		2		4		15:00			28		29		57	
3:15			1		1		2		15:15			26		17		43	
3:30			7		1		8		15:30			24		31		55	
3:45			4	14	4	8	8	22	15:45			34	112	26	103	60	215
4:00			2		4		6		16:00			29		27		56	
4:15			3		4		7		16:15			31		26		57	
4:30			8		9		17		16:30			30		28		58	
4:45			5	18	12	29	17	47	16:45			25	115	38	119	63	234
5:00			6		7		13		17:00			21		24		45	
5:15			15		6		21		17:15			28		30		58	
5:30			12		11		23		17:30			25		26		51	
5:45			13	46	16	40	29	86	17:45			38	112	33	113	71	225
6:00			15		9		24		18:00			30		23		53	
6:15			12		7		19		18:15			19		10		29	
6:30			23		9		32		18:30			27		17		44	
6:45			27	77	12	37	39	114	18:45			25	101	31	81	56	182
7:00			26		8		34		19:00			25		23		48	
7:15			19		16		35		19:15			20		17		37	
7:30			27		18		45		19:30			15		15		30	
7:45			43	115	45	87	88	202	19:45			16	76	16	71	32	147
8:00			44		27		71		20:00			16		18		34	
8:15			32		26		58		20:15			18		19		37	
8:30			21		16		37		20:30			10		14		24	
8:45			16	113	24	93	40	206	20:45			8	52	11	62	19	114
9:00			10		21		31		21:00			14		14		28	
9:15			14		14		28		21:15			11		12		23	
9:30			20		15		35		21:30			12		8		20	
9:45			18	62	20	70	38	132	21:45			7	44	9	43	16	87
10:00			18		18		36		22:00			3		11		14	
10:15			13		14		27		22:15			6		6		12	
10:30			17		16		33		22:30			11		7		18	
10:45			15	63	15	63	30	126	22:45			4	24	7	31	11	55
11:00			16		21		37		23:00			3		4		7	
11:15			18		16		34		23:15			3		2		5	
11:30			14		11		25		23:30			1		4		5	
11:45			10	58	21	69	31	127	23:45			0	7	4	14	4	21
TOTALS				587		514		**1101**	**TOTALS**				937		908		**1845**
SPLIT %				53.3%		46.7%		**37.4%**	**SPLIT %**				50.8%		49.2%		**62.6%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,524	1,422	2,946

AM Peak Hour			7:30	7:30	**7:30**	**PM Peak Hour**			13:45	16:30	**16:00**
AM Pk Volume			146	116	**262**	**PM Pk Volume**			129	120	**234**
Pk Hr Factor			0.830	0.644	**0.744**	**Pk Hr Factor**			0.921	0.789	**0.929**
7 - 9 Volume	0	0	228	180	**408**	**4 - 6 Volume**	0	0	227	232	**459**
7 - 9 Peak Hour			7:30	7:30	**7:30**	**4 - 6 Peak Hour**			16:00	16:30	**16:00**
7 - 9 Pk Volume	0	0	146	116	**262**	**4 - 6 Pk Volume**	0	0	115	120	**234**
Pk Hr Factor	0.000	0.000	0.830	0.644	**0.744**	**Pk Hr Factor**	0.000	0.000	0.927	0.789	**0.929**

Prepared by National Data & Surveying Services

VOLUME

Letteau Ave Bet. Shanks Rd & El Capitan Way

Day: Wednesday
Date: 5/4/2022

City: Delhi
Project #: CA22_090057_006

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,072	2,039	4,111

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			3		4		7		12:00			30		27		57	
0:15			3		2		5		12:15			29		27		56	
0:30			4		2		6		12:30			38		32		70	
0:45			3	13	4	12	7	25	12:45			35	132	29	115	64	247
1:00			0		1		1		13:00			38		37		75	
1:15			0		1		1		13:15			38		48		86	
1:30			2		1		3		13:30			31		44		75	
1:45			0	2	0	3	0	5	13:45			37	144	34	163	71	307
2:00			3		3		6		14:00			54		36		90	
2:15			3		0		3		14:15			44		38		82	
2:30			2		4		6		14:30			36		37		73	
2:45			1	9	2	9	3	18	14:45			28	162	24	135	52	297
3:00			1		1		2		15:00			50		42		92	
3:15			0		0		0		15:15			35		39		74	
3:30			3		3		6		15:30			38		32		70	
3:45			1	5	4	8	5	13	15:45			44	167	45	158	89	325
4:00			1		6		7		16:00			43		31		74	
4:15			1		5		6		16:15			43		37		80	
4:30			3		14		17		16:30			51		39		90	
4:45			1	6	12	37	13	43	16:45			48	185	34	141	82	326
5:00			2		10		12		17:00			36		48		84	
5:15			5		11		16		17:15			44		33		77	
5:30			1		14		15		17:30			43		35		78	
5:45			6	14	10	45	16	59	17:45			40	163	38	154	78	317
6:00			10		18		28		18:00			32		20		52	
6:15			9		14		23		18:15			38		29		67	
6:30			14		20		34		18:30			47		25		72	
6:45			11	44	13	65	24	109	18:45			30	147	35	109	65	256
7:00			15		10		25		19:00			34		26		60	
7:15			20		17		37		19:15			26		17		43	
7:30			20		28		48		19:30			41		21		62	
7:45			50	105	43	98	93	203	19:45			22	123	21	85	43	208
8:00			68		43		111		20:00			29		26		55	
8:15			33		49		82		20:15			22		15		37	
8:30			20		36		56		20:30			17		23		40	
8:45			27	148	32	160	59	308	20:45			17	85	25	89	42	174
9:00			17		23		40		21:00			22		20		42	
9:15			26		25		51		21:15			17		16		33	
9:30			37		27		64		21:30			12		12		24	
9:45			29	109	28	103	57	212	21:45			8	59	12	60	20	119
10:00			35		31		66		22:00			8		11		19	
10:15			21		22		43		22:15			7		15		22	
10:30			20		32		52		22:30			10		7		17	
10:45			23	99	28	113	51	212	22:45			4	29	4	37	8	66
11:00			32		33		65		23:00			6		4		10	
11:15			34		31		65		23:15			2		3		5	
11:30			20		29		49		23:30			2		6		8	
11:45			21	107	28	121	49	228	23:45			5	15	6	19	11	34
TOTALS				661		774		**1435**	**TOTALS**				1411		1265		**2676**
SPLIT %				46.1%		53.9%		**34.9%**	**SPLIT %**				52.7%		47.3%		**65.1%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,072	2,039	4,111

	NB	SB	EB	WB	Total		NB	SB	EB	WB	Total
AM Peak Hour			7:30	7:45	**7:45**	**PM Peak Hour**			16:00	13:00	**16:15**
AM Pk Volume			171	171	**342**	**PM Pk Volume**			185	163	**336**
Pk Hr Factor			0.629	0.872	**0.770**	**Pk Hr Factor**			0.907	0.849	**0.933**
7 - 9 Volume	0	0	253	258	**511**	**4 - 6 Volume**	0	0	348	295	**643**
7 - 9 Peak Hour			7:30	7:45	**7:45**	**4 - 6 Peak Hour**			16:00	16:15	**16:15**
7 - 9 Pk Volume	0	0	171	171	**342**	**4 - 6 Pk Volume**	0	0	185	158	**336**
Pk Hr Factor	0.000	0.000	0.629	0.872	**0.770**	**Pk Hr Factor**	0.000	0.000	0.907	0.823	**0.933**

Prepared by National Data & Surveying Services

VOLUME

Shanks Rd Bet. Letteau Ave & SR 99 SB Ramps

Day: Wednesday
Date: 5/4/2022

City: Delhi
Project #: CA22_090057_007

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,951	4,818	9,769

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			6		16		22		**12:00**			69		61		130	
0:15			5		14		19		**12:15**			61		54		115	
0:30			2		5		7		**12:30**			54		63		117	
0:45			3	16	9	44	12	60	**12:45**			67	251	79	257	146	508
1:00			2		11		13		**13:00**			52		59		111	
1:15			3		3		6		**13:15**			87		64		151	
1:30			4		8		12		**13:30**			78		73		151	
1:45			4	13	8	30	12	43	**13:45**			81	298	82	278	163	576
2:00			4		8		12		**14:00**			99		69		168	
2:15			9		4		13		**14:15**			80		75		155	
2:30			10		2		12		**14:30**			88		88		176	
2:45			13	36	3	17	16	53	**14:45**			65	332	89	321	154	653
3:00			15		3		18		**15:00**			74		110		184	
3:15			7		6		13		**15:15**			73		85		158	
3:30			26		7		33		**15:30**			67		108		175	
3:45			27	75	9	25	36	100	**15:45**			69	283	111	414	180	697
4:00			17		6		23		**16:00**			67		103		170	
4:15			31		7		38		**16:15**			84		108		192	
4:30			51		13		64		**16:30**			76		117		193	
4:45			40	139	8	34	48	173	**16:45**			76	303	115	443	191	746
5:00			53		13		66		**17:00**			80		100		180	
5:15			67		11		78		**17:15**			66		110		176	
5:30			72		10		82		**17:30**			82		106		188	
5:45			72	264	28	62	100	326	**17:45**			74	302	101	417	175	719
6:00			73		22		95		**18:00**			68		95		163	
6:15			61		25		86		**18:15**			68		97		165	
6:30			90		30		120		**18:30**			63		80		143	
6:45			97	321	34	111	131	432	**18:45**			52	251	80	352	132	603
7:00			83		29		112		**19:00**			53		83		136	
7:15			128		49		177		**19:15**			57		74		131	
7:30			120		53		173		**19:30**			42		94		136	
7:45			85	416	73	204	158	620	**19:45**			38	190	63	314	101	504
8:00			111		72		183		**20:00**			37		88		125	
8:15			90		49		139		**20:15**			36		71		107	
8:30			87		29		116		**20:30**			52		61		113	
8:45			53	341	38	188	91	529	**20:45**			41	166	82	302	123	468
9:00			53		43		96		**21:00**			37		63		100	
9:15			43		33		76		**21:15**			31		53		84	
9:30			59		43		102		**21:30**			27		42		69	
9:45			55	210	43	162	98	372	**21:45**			25	120	38	196	63	316
10:00			71		57		128		**22:00**			20		39		59	
10:15			60		48		108		**22:15**			27		40		67	
10:30			56		35		91		**22:30**			18		29		47	
10:45			52	239	47	187	99	426	**22:45**			18	83	41	149	59	232
11:00			59		67		126		**23:00**			13		27		40	
11:15			59		46		105		**23:15**			14		17		31	
11:30			64		56		120		**23:30**			19		18		37	
11:45			62	244	61	230	123	474	**23:45**			12	58	19	81	31	139
TOTALS				2314		1294		**3608**	**TOTALS**				2637		3524		**6161**
SPLIT %				64.1%		35.9%		**36.9%**	**SPLIT %**				42.8%		57.2%		**63.1%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,951	4,818	9,769

AM Peak Hour			7:15	7:15	**7:15**	**PM Peak Hour**			13:45	16:00	**16:15**
AM Pk Volume			444	247	**691**	**PM Pk Volume**			348	443	**756**
Pk Hr Factor			0.867	0.846	**0.944**	**Pk Hr Factor**			0.879	0.947	**0.979**
7 - 9 Volume	0	0	757	392	**1149**	**4 - 6 Volume**	0	0	605	860	**1465**
7 - 9 Peak Hour			7:15	7:15	**7:15**	**4 - 6 Peak Hour**			16:15	16:00	**16:15**
7 - 9 Pk Volume	0	0	444	247	**691**	**4 - 6 Pk Volume**	0	0	316	443	**756**
Pk Hr Factor	0.000	0.000	0.867	0.846	**0.944**	**Pk Hr Factor**	0.000	0.000	0.940	0.947	**0.979**

Prepared by National Data & Surveying Services

VOLUME

Shanks Rd Bet. SR 99 NB Ramps & Vincent Rd

Day: Wednesday
Date: 5/4/2022

City: Delhi
Project #: CA22_090057_008

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,304	2,542	4,846

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			4		7		11		**12:00**			27		47		74	
0:15			7		5		12		**12:15**			37		29		66	
0:30			10		2		12		**12:30**			24		30		54	
0:45			1	22	4	18	5	40	**12:45**			33	121	26	132	59	253
1:00			3		4		7		**13:00**			31		46		77	
1:15			3		1		4		**13:15**			39		31		70	
1:30			5		3		8		**13:30**			24		23		47	
1:45			8	19	3	11	11	30	**13:45**			42	136	37	137	79	273
2:00			2		4		6		**14:00**			32		34		66	
2:15			3		2		5		**14:15**			46		46		92	
2:30			8		2		10		**14:30**			29		45		74	
2:45			4	17	7	15	11	32	**14:45**			33	140	52	177	85	317
3:00			0		11		11		**15:00**			45		60		105	
3:15			3		5		8		**15:15**			38		38		76	
3:30			7		2		9		**15:30**			46		63		109	
3:45			11	21	7	25	18	46	**15:45**			48	177	62	223	110	400
4:00			5		12		17		**16:00**			55		47		102	
4:15			12		12		24		**16:15**			41		52		93	
4:30			21		17		38		**16:30**			42		65		107	
4:45			28	66	21	62	49	128	**16:45**			46	184	45	209	91	393
5:00			17		14		31		**17:00**			46		41		87	
5:15			28		21		49		**17:15**			40		37		77	
5:30			37		47		84		**17:30**			47		44		91	
5:45			39	121	31	113	70	234	**17:45**			28	161	37	159	65	320
6:00			42		31		73		**18:00**			33		45		78	
6:15			32		38		70		**18:15**			30		41		71	
6:30			44		41		85		**18:30**			32		37		69	
6:45			48	166	43	153	91	319	**18:45**			29	124	27	150	56	274
7:00			21		26		47		**19:00**			17		21		38	
7:15			39		50		89		**19:15**			25		26		51	
7:30			37		55		92		**19:30**			25		19		44	
7:45			36	133	62	193	98	326	**19:45**			15	82	19	85	34	167
8:00			30		51		81		**20:00**			14		16		30	
8:15			18		49		67		**20:15**			15		20		35	
8:30			22		28		50		**20:30**			23		21		44	
8:45			18	88	18	146	36	234	**20:45**			25	77	18	75	43	152
9:00			26		27		53		**21:00**			23		14		37	
9:15			18		25		43		**21:15**			14		16		30	
9:30			27		24		51		**21:30**			17		14		31	
9:45			20	91	25	101	45	192	**21:45**			16	70	8	52	24	122
10:00			29		28		57		**22:00**			9		10		19	
10:15			18		26		44		**22:15**			14		13		27	
10:30			20		31		51		**22:30**			14		7		21	
10:45			22	89	34	119	56	208	**22:45**			10	47	7	37	17	84
11:00			26		30		56		**23:00**			8		5		13	
11:15			24		37		61		**23:15**			5		10		15	
11:30			35		25		60		**23:30**			9		4		13	
11:45			35	120	36	128	71	248	**23:45**			10	32	3	22	13	54
TOTALS				953		1084		**2037**	**TOTALS**				1351		1458		**2809**
SPLIT %				46.8%		53.2%		**42.0%**	**SPLIT %**				48.1%		51.9%		**58.0%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,304	2,542	4,846

AM Peak Hour			6:00	7:15	**7:15**	**PM Peak Hour**			15:30	15:45	**15:30**
AM Pk Volume			166	218	**360**	**PM Pk Volume**			190	226	**414**
Pk Hr Factor			0.865	0.879	**0.918**	**Pk Hr Factor**			0.864	0.869	**0.941**
7 - 9 Volume	0	0	221	339	**560**	**4 - 6 Volume**	0	0	345	368	**713**
7 - 9 Peak Hour			7:15	7:15	**7:15**	**4 - 6 Peak Hour**			16:00	16:00	**16:00**
7 - 9 Pk Volume	0	0	142	218	**360**	**4 - 6 Pk Volume**	0	0	184	209	**393**
Pk Hr Factor	0.000	0.000	0.910	0.879	**0.918**	**Pk Hr Factor**	0.000	0.000	0.836	0.804	**0.918**

Prepared by National Data & Surveying Services

VOLUME

El Capitan Way Bet. Letteau Ave & Vincent Rd

Day: Wednesday
Date: 5/4/2022

City: Delhi
Project #: CA22_090057_009

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,692	1,866	3,558

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			2		5		7		12:00			19		25		44	
0:15			4		3		7		12:15			20		19		39	
0:30			1		0		1		12:30			28		25		53	
0:45			1	8	1	9	2	17	12:45			23	90	33	102	56	192
1:00			1		1		2		13:00			29		60		89	
1:15			0		0		0		13:15			33		41		74	
1:30			1		1		2		13:30			29		35		64	
1:45			2	4	2	4	4	8	13:45			18	109	36	172	54	281
2:00			3		0		3		14:00			39		39		78	
2:15			2		0		2		14:15			40		42		82	
2:30			5		1		6		14:30			36		29		65	
2:45			2	12	1	2	3	14	14:45			21	136	36	146	57	282
3:00			2		0		2		15:00			37		44		81	
3:15			3		0		3		15:15			32		37		69	
3:30			0		0		0		15:30			26		49		75	
3:45			1	6	3	3	4	9	15:45			23	118	40	170	63	288
4:00			4		3		7		16:00			37		36		73	
4:15			7		2		9		16:15			29		36		65	
4:30			10		4		14		16:30			28		39		67	
4:45			4	25	3	12	7	37	16:45			28	122	35	146	63	268
5:00			7		3		10		17:00			30		22		52	
5:15			16		7		23		17:15			19		35		54	
5:30			12		12		24		17:30			26		38		64	
5:45			16	51	9	31	25	82	17:45			18	93	37	132	55	225
6:00			14		7		21		18:00			31		16		47	
6:15			18		10		28		18:15			19		26		45	
6:30			27		11		38		18:30			21		19		40	
6:45			17	76	6	34	23	110	18:45			18	89	19	80	37	169
7:00			12		20		32		19:00			20		15		35	
7:15			19		20		39		19:15			17		19		36	
7:30			29		25		54		19:30			15		16		31	
7:45			53	113	65	130	118	243	19:45			26	78	23	73	49	151
8:00			59		51		110		20:00			25		20		45	
8:15			31		35		66		20:15			11		22		33	
8:30			22		28		50		20:30			20		23		43	
8:45			22	134	26	140	48	274	20:45			23	79	25	90	48	169
9:00			20		22		42		21:00			17		15		32	
9:15			22		26		48		21:15			11		11		22	
9:30			17		18		35		21:30			12		11		23	
9:45			18	77	21	87	39	164	21:45			11	51	8	45	19	96
10:00			23		27		50		22:00			8		4		12	
10:15			28		16		44		22:15			6		9		15	
10:30			21		32		53		22:30			7		11		18	
10:45			24	96	25	100	49	196	22:45			4	25	2	26	6	51
11:00			23		33		56		23:00			5		2		7	
11:15			19		30		49		23:15			3		3		6	
11:30			22		35		57		23:30			0		2		2	
11:45			25	89	24	122	49	211	23:45			3	11	3	10	6	21
TOTALS				691		674		**1365**	**TOTALS**				1001		1192		**2193**
SPLIT %				50.6%		49.4%		**38.4%**	**SPLIT %**				45.6%		54.4%		**61.6%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,692	1,866	3,558

AM Peak Hour			7:30	7:45	**7:30**	**PM Peak Hour**			14:00	13:00	**15:00**
AM Pk Volume			172	179	**348**	**PM Pk Volume**			136	172	**288**
Pk Hr Factor			0.729	0.688	**0.737**	**Pk Hr Factor**			0.850	0.717	**0.889**
7 - 9 Volume	0	0	247	270	**517**	**4 - 6 Volume**	0	0	215	278	**493**
7 - 9 Peak Hour			7:30	7:45	**7:30**	**4 - 6 Peak Hour**			16:00	16:00	**16:00**
7 - 9 Pk Volume	0	0	172	179	**348**	**4 - 6 Pk Volume**	0	0	122	146	**268**
Pk Hr Factor	0.000	0.000	0.729	0.688	**0.737**	**Pk Hr Factor**	0.000	0.000	0.824	0.936	**0.918**

Prepared by National Data & Surveying Services

VOLUME

Vincent Rd N/O Shanks Rd

Day: Wednesday
Date: 5/4/2022

City: Delhi
Project #: CA22_090057_010

DAILY TOTALS	NB	SB	EB	WB	Total
	1,571	1,880	0	0	3,451

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
0:00	2		6				8		12:00	9		29				38	
0:15	1		3				4		12:15	18		17				35	
0:30	2		3				5		12:30	10		23				33	
0:45	1	6	3	15			4	21	12:45	14	51	14	83			28	134
1:00	1		5				6		13:00	26		22				48	
1:15	3		0				3		13:15	24		16				40	
1:30	2		3				5		13:30	15		20				35	
1:45	5	11	2	10			7	21	13:45	17	82	34	92			51	174
2:00	2		2				4		14:00	21		30				51	
2:15	4		1				5		14:15	32		38				70	
2:30	9		3				12		14:30	24		33				57	
2:45	4	19	4	10			8	29	14:45	20	97	48	149			68	246
3:00	5		4				9		15:00	29		55				84	
3:15	5		4				9		15:15	27		46				73	
3:30	5		1				6		15:30	29		65				94	
3:45	11	26	3	12			14	38	15:45	29	114	68	234			97	348
4:00	8		2				10		16:00	28		43				71	
4:15	10		9				19		16:15	31		44				75	
4:30	26		5				31		16:30	25		35				60	
4:45	23	67	6	22			29	89	16:45	20	104	50	172			70	276
5:00	17		9				26		17:00	33		33				66	
5:15	27		19				46		17:15	20		38				58	
5:30	36		19				55		17:30	23		40				63	
5:45	46	126	21	68			67	194	17:45	24	100	25	136			49	236
6:00	48		10				58		18:00	14		35				49	
6:15	26		19				45		18:15	17		31				48	
6:30	43		22				65		18:30	23		33				56	
6:45	36	153	24	75			60	228	18:45	16	70	20	119			36	189
7:00	16		18				34		19:00	14		15				29	
7:15	31		30				61		19:15	9		20				29	
7:30	31		38				69		19:30	14		15				29	
7:45	25	103	37	123			62	226	19:45	11	48	18	68			29	116
8:00	21		38				59		20:00	7		14				21	
8:15	16		31				47		20:15	5		18				23	
8:30	19		24				43		20:30	13		10				23	
8:45	14	70	9	102			23	172	20:45	7	32	8	50			15	82
9:00	15		22				37		21:00	9		8				17	
9:15	24		20				44		21:15	8		11				19	
9:30	23		19				42		21:30	2		10				12	
9:45	16	78	22	83			38	161	21:45	10	29	7	36			17	65
10:00	22		24				46		22:00	7		9				16	
10:15	10		13				23		22:15	7		11				18	
10:30	20		16				36		22:30	6		8				14	
10:45	20	72	30	83			50	155	22:45	6	26	7	35			13	61
11:00	13		24				37		23:00	2		4				6	
11:15	15		30				45		23:15	5		1				6	
11:30	20		18				38		23:30	5		4				9	
11:45	19	67	20	92			39	159	23:45	8	20	2	11			10	31
TOTALS		798		695				**1493**	**TOTALS**		773		1185				**1958**
SPLIT %		53.4%		46.6%				**43.3%**	**SPLIT %**		39.5%		60.5%				**56.7%**

DAILY TOTALS	NB	SB	EB	WB	Total
	1,571	1,880	0	0	3,451

AM Peak Hour	5:45	7:30			**7:15**	**PM Peak Hour**	15:30	15:00			**15:00**
AM Pk Volume	163	144			**251**	**PM Pk Volume**	117	234			**348**
Pk Hr Factor	0.849	0.947			**0.909**	**Pk Hr Factor**	0.944	0.860			**0.897**
7 - 9 Volume	173	225	0	0	**398**	**4 - 6 Volume**	204	308	0	0	**512**
7 - 9 Peak Hour	7:15	7:30			**7:15**	**4 - 6 Peak Hour**	16:15	16:00			**16:00**
7 - 9 Pk Volume	108	144	0	0	**251**	**4 - 6 Pk Volume**	109	172	0	0	**276**
Pk Hr Factor	0.871	0.947	0.000	0.000	**0.909**	**Pk Hr Factor**	0.826	0.860	0.000	0.000	**0.920**

Prepared by National Data & Surveying Services

VOLUME

El Capitan Way Bet. Vincent Rd & Sycamore St

Day: Wednesday
Date: 5/4/2022

City: Delhi
Project #: CA22_090057_011

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,021	2,263	4,284

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			3		6		9		12:00			25		32		57	
0:15			8		3		11		12:15			35		23		58	
0:30			6		2		8		12:30			42		28		70	
0:45			3	20	1	12	4	32	12:45			29	131	32	115	61	246
1:00			4		1		5		13:00			37		97		134	
1:15			1		0		1		13:15			26		44		70	
1:30			4		0		4		13:30			31		38		69	
1:45			3	12	3	4	6	16	13:45			27	121	39	218	66	339
2:00			6		2		8		14:00			36		36		72	
2:15			2		2		4		14:15			41		36		77	
2:30			3		2		5		14:30			36		28		64	
2:45			2	13	5	11	7	24	14:45			27	140	35	135	62	275
3:00			0		9		9		15:00			30		39		69	
3:15			0		3		3		15:15			44		35		79	
3:30			1		3		4		15:30			43		39		82	
3:45			2	3	8	23	10	26	15:45			33	150	36	149	69	299
4:00			0		12		12		16:00			61		32		93	
4:15			5		8		13		16:15			38		53		91	
4:30			8		11		19		16:30			45		45		90	
4:45			6	19	16	47	22	66	16:45			50	194	35	165	85	359
5:00			7		12		19		17:00			32		23		55	
5:15			11		24		35		17:15			37		34		71	
5:30			22		44		66		17:30			40		33		73	
5:45			14	54	26	106	40	160	17:45			28	137	24	114	52	251
6:00			12		26		38		18:00			42		28		70	
6:15			12		31		43		18:15			37		25		62	
6:30			27		31		58		18:30			24		23		47	
6:45			17	68	36	124	53	192	18:45			18	121	28	104	46	225
7:00			22		37		59		19:00			30		21		51	
7:15			31		45		76		19:15			27		22		49	
7:30			34		34		68		19:30			22		15		37	
7:45			52	139	102	218	154	357	19:45			28	107	16	74	44	181
8:00			61		55		116		20:00			20		14		34	
8:15			27		50		77		20:15			18		21		39	
8:30			19		18		37		20:30			13		19		32	
8:45			11	118	25	148	36	266	20:45			25	76	17	71	42	147
9:00			23		29		52		21:00			26		12		38	
9:15			27		32		59		21:15			20		16		36	
9:30			15		17		32		21:30			17		12		29	
9:45			11	76	19	97	30	173	21:45			16	79	4	44	20	123
10:00			19		30		49		22:00			11		11		22	
10:15			22		26		48		22:15			8		9		17	
10:30			18		36		54		22:30			9		6		15	
10:45			23	82	23	115	46	197	22:45			8	36	5	31	13	67
11:00			26		29		55		23:00			3		2		5	
11:15			16		33		49		23:15			5		6		11	
11:30			28		33		61		23:30			5		4		9	
11:45			37	107	29	124	66	231	23:45			5	18	2	14	7	32
TOTALS				711		1029		**1740**	**TOTALS**				1310		1234		**2544**
SPLIT %				40.9%		59.1%		**40.6%**	**SPLIT %**				51.5%		48.5%		**59.4%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,021	2,263	4,284

AM Peak Hour			7:15	7:30	**7:30**	**PM Peak Hour**			16:00	13:00	**16:00**
AM Pk Volume			178	241	**415**	**PM Pk Volume**			194	218	**359**
Pk Hr Factor			0.730	0.591	**0.674**	**Pk Hr Factor**			0.795	0.562	**0.965**
7 - 9 Volume	0	0	257	366	**623**	**4 - 6 Volume**	0	0	331	279	**610**
7 - 9 Peak Hour			7:15	7:30	**7:30**	**4 - 6 Peak Hour**			16:00	16:00	**16:00**
7 - 9 Pk Volume	0	0	178	241	**415**	**4 - 6 Pk Volume**	0	0	194	165	**359**
Pk Hr Factor	0.000	0.000	0.730	0.591	**0.674**	**Pk Hr Factor**	0.000	0.000	0.795	0.778	**0.965**

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↰	↑			✥			✥	
Traffic Vol, veh/h	0	229	57	11	125	0	0	0	0	60	2	64
Future Vol, veh/h	0	229	57	11	125	0	0	0	0	60	2	64
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	260	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	5	2	5
Mvmt Flow	0	266	66	13	145	0	0	0	0	70	2	74

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	332	0	0	508	470	299	470	503	145
Stage 1	-	-	-	-	-	-	299	299	-	171	171	-
Stage 2	-	-	-	-	-	-	209	171	-	299	332	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.15	6.52	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.545	4.018	3.345
Pot Cap-1 Maneuver	0	-	-	1227	-	0	475	492	741	499	471	894
Stage 1	0	-	-	-	-	0	710	666	-	824	757	-
Stage 2	0	-	-	-	-	0	793	757	-	703	644	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1227	-	-	430	487	741	495	466	894
Mov Cap-2 Maneuver	-	-	-	-	-	-	430	487	-	495	466	-
Stage 1	-	-	-	-	-	-	710	666	-	824	749	-
Stage 2	-	-	-	-	-	-	717	749	-	703	644	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.6	0	12.3
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	-	1227	-	639
HCM Lane V/C Ratio	-	-	-	0.01	-	0.229
HCM Control Delay (s)	0	-	-	8	-	12.3
HCM Lane LOS	A	-	-	A	-	B
HCM 95th %tile Q(veh)	-	-	-	0	-	0.9

HCM 6th TWSC — AM EXISTING

2: NB SR 99 & BRADBURY RD/BRADBURY ROAD — 06/24/2022

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			↱			✥			✥	
Traffic Vol, veh/h	146	135	0	0	92	60	56	2	9	0	0	0
Future Vol, veh/h	146	135	0	0	92	60	56	2	9	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	280	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	5	2	2	5	2	5	2	5	2	2	2
Mvmt Flow	170	157	0	0	107	70	65	2	10	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	177	0	0	-	-	0	639	674	157	645	639	142
Stage 1	-	-	-	-	-	-	497	497	-	142	142	-
Stage 2	-	-	-	-	-	-	142	177	-	503	497	-
Critical Hdwy	4.12	-	-	-	-	-	7.15	6.52	6.25	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.545	4.018	3.345	3.518	4.018	3.318
Pot Cap-1 Maneuver	1399	-	-	0	-	-	385	376	881	385	394	906
Stage 1	-	-	-	0	-	-	549	545	-	861	779	-
Stage 2	-	-	-	0	-	-	854	753	-	551	545	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1399	-	-	-	-	-	349	330	881	343	346	906
Mov Cap-2 Maneuver	-	-	-	-	-	-	349	330	-	343	346	-
Stage 1	-	-	-	-	-	-	482	479	-	756	779	-
Stage 2	-	-	-	-	-	-	854	753	-	476	479	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.1	0	16.9	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	379	1399	-	-	-	-	-
HCM Lane V/C Ratio	0.206	0.121	-	-	-	-	-
HCM Control Delay (s)	16.9	7.9	-	-	-	-	0
HCM Lane LOS	C	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0.8	0.4	-	-	-	-	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	73	44	8	8	51	4	6	96	4	1	124	68
Future Vol, veh/h	73	44	8	8	51	4	6	96	4	1	124	68
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	5	5	2	2	5	2	2	5	2	2	5	5
Mvmt Flow	83	50	9	9	58	5	7	109	5	1	141	77
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.2	8.5	8.6	9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	58%	13%	1%
Vol Thru, %	91%	35%	81%	64%
Vol Right, %	4%	6%	6%	35%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	106	125	63	193
LT Vol	6	73	8	1
Through Vol	96	44	51	124
RT Vol	4	8	4	68
Lane Flow Rate	120	142	72	219
Geometry Grp	1	1	1	1
Degree of Util (X)	0.157	0.194	0.097	0.268
Departure Headway (Hd)	4.703	4.928	4.883	4.401
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	761	726	731	816
Service Time	2.742	2.971	2.931	2.433
HCM Lane V/C Ratio	0.158	0.196	0.098	0.268
HCM Control Delay	8.6	9.2	8.5	9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.7	0.3	1.1

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	0	0	1	10	0	1	0	105	5	1	137	2
Future Vol, veh/h	0	0	1	10	0	1	0	105	5	1	137	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	1	12	0	1	0	130	6	1	169	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	306	308	170	306	306	133	171	0	0	136	0	0
Stage 1	172	172	-	133	133	-	-	-	-	-	-	-
Stage 2	134	136	-	173	173	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	646	606	874	646	608	916	1406	-	-	1448	-	-
Stage 1	830	756	-	870	786	-	-	-	-	-	-	-
Stage 2	869	784	-	829	756	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	645	605	874	645	607	916	1406	-	-	1448	-	-
Mov Cap-2 Maneuver	645	605	-	645	607	-	-	-	-	-	-	-
Stage 1	830	755	-	870	786	-	-	-	-	-	-	-
Stage 2	868	784	-	827	755	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	10.5	0	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1406	-	-	874	663	1448	-	-
HCM Lane V/C Ratio	-	-	-	0.001	0.02	0.001	-	-
HCM Control Delay (s)	0	-	-	9.1	10.5	7.5	0	-
HCM Lane LOS	A	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱	↰	↑			✣			✣	
Traffic Vol, veh/h	0	340	99	83	99	0	0	0	0	54	1	139
Future Vol, veh/h	0	340	99	83	99	0	0	0	0	54	1	139
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	80	110	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	351	102	86	102	0	0	0	0	56	1	143

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	453	0	0	697	625	351	676	727	102
Stage 1	-	-	-	-	-	-	351	351	-	274	274	-
Stage 2	-	-	-	-	-	-	346	274	-	402	453	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1108	-	0	356	401	692	367	351	953
Stage 1	0	-	-	-	-	0	666	632	-	732	683	-
Stage 2	0	-	-	-	-	0	670	683	-	625	570	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1108	-	-	284	370	692	345	324	953
Mov Cap-2 Maneuver	-	-	-	-	-	-	284	370	-	345	324	-
Stage 1	-	-	-	-	-	-	666	632	-	732	630	-
Stage 2	-	-	-	-	-	-	524	630	-	625	570	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.9	0	13.3
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	-	1108	-	635
HCM Lane V/C Ratio	-	-	-	0.077	-	0.315
HCM Control Delay (s)	0	-	-	8.5	-	13.3
HCM Lane LOS	A	-	-	A	-	B
HCM 95th %tile Q(veh)	-	-	-	0.3	-	1.3

6: NB SR 99 & SHANKS RD

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑			↱			✥			✥	
Traffic Vol, veh/h	302	91	0	0	123	103	62	2	50	0	0	0
Future Vol, veh/h	302	91	0	0	123	103	62	2	50	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	308	93	0	0	126	105	63	2	51	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	231	0	-	-	-	0	888	940	93	915	888	179
Stage 1	-	-	-	-	-	-	709	709	-	179	179	-
Stage 2	-	-	-	-	-	-	179	231	-	736	709	-
Critical Hdwy	4.12	-	-	-	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1337	-	0	0	-	-	264	264	964	253	283	864
Stage 1	-	-	0	0	-	-	425	437	-	823	751	-
Stage 2	-	-	0	0	-	-	823	713	-	411	437	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1337	-	-	-	-	-	217	203	964	196	218	864
Mov Cap-2 Maneuver	-	-	-	-	-	-	217	203	-	196	218	-
Stage 1	-	-	-	-	-	-	327	336	-	634	751	-
Stage 2	-	-	-	-	-	-	823	713	-	298	336	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	6.5	0	21.9	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	328	1337	-	-	-	-
HCM Lane V/C Ratio	0.355	0.23	-	-	-	-
HCM Control Delay (s)	21.9	8.5	-	-	-	0
HCM Lane LOS	C	A	-	-	-	A
HCM 95th %tile Q(veh)	1.6	0.9	-	-	-	-

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	66	75	113	44	40	110
Future Vol, veh/h	66	75	113	44	40	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	73	82	124	48	44	121

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	401	105	165	0	-	0
Stage 1	105	-	-	-	-	-
Stage 2	296	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	605	949	1413	-	-	-
Stage 1	919	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	551	949	1413	-	-	-
Mov Cap-2 Maneuver	551	-	-	-	-	-
Stage 1	836	-	-	-	-	-
Stage 2	755	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	11.5		5.6		0
HCM LOS	B				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1413	-	709	-	-
HCM Lane V/C Ratio	0.088	-	0.219	-	-
HCM Control Delay (s)	7.8	0	11.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.8	-	-

8: LETTEAU AVE & FLOWER ST

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱						✥	
Traffic Vol, veh/h	1	126	0	0	101	16	0	0	0	26	0	2
Future Vol, veh/h	1	126	0	0	101	16	0	0	0	26	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	166	0	0	133	21	0	0	0	34	0	3

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	154	0	-	-	-	0				312	312	144
Stage 1	-	-	-	-	-	-				144	144	-
Stage 2	-	-	-	-	-	-				168	168	-
Critical Hdwy	4.12	-	-	-	-	-				6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-				5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-				3.518	4.018	3.318
Pot Cap-1 Maneuver	1426	-	0	0	-	-				681	603	903
Stage 1	-	-	0	0	-	-				883	778	-
Stage 2	-	-	0	0	-	-				862	759	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1426	-	-	-	-	-				680	0	903
Mov Cap-2 Maneuver	-	-	-	-	-	-				680	0	-
Stage 1	-	-	-	-	-	-				882	0	-
Stage 2	-	-	-	-	-	-				862	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1426	-	-	-	692
HCM Lane V/C Ratio	0.001	-	-	-	0.053
HCM Control Delay (s)	7.5	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

9: LETTEAU AVE & SHANKS RD

	↗	→	↙	←	↖	↖	↑	↘	↓	↙
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	53	128	46	76	76	20	373	47	175	48
v/c Ratio	0.19	0.22	0.17	0.13	0.13	0.07	0.50	0.17	0.21	0.06
Control Delay	31.7	13.8	30.9	15.9	1.5	29.7	18.3	31.1	13.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	13.8	30.9	15.9	1.5	29.7	18.3	31.1	13.2	0.1
Queue Length 50th (ft)	14	24	12	18	0	5	83	12	25	0
Queue Length 95th (ft)	#76	61	#64	47	8	30	246	#66	116	0
Internal Link Dist (ft)		1084		1618			608		1872	
Turn Bay Length (ft)	120		120		25	75		260		50
Base Capacity (vph)	272	1354	272	1403	1222	272	1156	272	1191	1056
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.09	0.17	0.05	0.06	0.07	0.32	0.17	0.15	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑	↱	↰	↑↱		↰	↑	↱
Traffic Volume (veh/h)	46	82	30	40	66	66	17	284	41	41	152	42
Future Volume (veh/h)	46	82	30	40	66	66	17	284	41	41	152	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	94	34	46	76	76	20	326	47	47	175	48
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	175	63	75	241	204	36	456	66	76	576	488
Arrive On Green	0.05	0.13	0.13	0.04	0.13	0.13	0.02	0.29	0.29	0.04	0.31	0.31
Sat Flow, veh/h	1781	1311	474	1781	1870	1585	1781	1598	230	1781	1870	1585
Grp Volume(v), veh/h	53	0	128	46	76	76	20	0	373	47	175	48
Grp Sat Flow(s),veh/h/ln	1781	0	1785	1781	1870	1585	1781	0	1829	1781	1870	1585
Q Serve(g_s), s	0.9	0.0	2.2	0.8	1.2	1.4	0.4	0.0	5.9	0.8	2.3	0.7
Cycle Q Clear(g_c), s	0.9	0.0	2.2	0.8	1.2	1.4	0.4	0.0	5.9	0.8	2.3	0.7
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	84	0	239	75	241	204	36	0	522	76	576	488
V/C Ratio(X)	0.63	0.00	0.54	0.62	0.32	0.37	0.55	0.00	0.71	0.62	0.30	0.10
Avail Cap(c_a), veh/h	221	0	1218	221	1914	1622	221	0	1305	221	1334	1131
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.1	0.0	13.0	15.2	12.8	12.9	15.6	0.0	10.3	15.2	8.5	8.0
Incr Delay (d2), s/veh	7.7	0.0	1.9	8.0	0.7	1.1	12.4	0.0	1.8	8.0	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.8	0.4	0.4	0.5	0.2	0.0	1.9	0.4	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	0.0	14.9	23.2	13.5	14.0	28.1	0.0	12.2	23.1	8.8	8.1
LnGrp LOS	C	A	B	C	B	B	C	A	B	C	A	A
Approach Vol, veh/h		181			198			393			270	
Approach Delay, s/veh		17.2			15.9			13.0			11.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	13.2	5.4	8.3	4.7	13.9	5.5	8.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	23.0	4.0	22.0	4.0	23.0	4.0	33.0
Max Q Clear Time (g_c+I1), s	2.8	7.9	2.8	4.2	2.4	4.3	2.9	3.4
Green Ext Time (p_c), s	0.0	1.3	0.0	0.4	0.0	0.8	0.0	0.6

Intersection Summary			
HCM 6th Ctrl Delay			13.8
HCM 6th LOS			B

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		✥			✥		↰	↱		↰	↑	↱
Traffic Vol, veh/h	0	0	4	102	0	74	75	116	1	1	126	131
Future Vol, veh/h	0	0	4	102	0	74	75	116	1	1	126	131
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	131	0	95	96	149	1	1	162	168
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	1

Approach	EB	WB	SE	NW
Opposing Approach	WB	EB	NW	SE
Opposing Lanes	1	1	3	2
Conflicting Approach Left	SE	NW	WB	EB
Conflicting Lanes Left	2	3	1	1
Conflicting Approach Right	NW	SE	EB	WB
Conflicting Lanes Right	3	2	1	1
HCM Control Delay	8.5	12.3	10.8	9.6
HCM LOS	A	B	B	A

Lane	NWLn1	NWLn2	NWLn3	EBLn1	WBLn1	SELn1	SELn2
Vol Left, %	100%	0%	0%	0%	58%	100%	0%
Vol Thru, %	0%	100%	0%	0%	0%	0%	99%
Vol Right, %	0%	0%	100%	100%	42%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1	126	131	4	176	75	117
LT Vol	1	0	0	0	102	75	0
Through Vol	0	126	0	0	0	0	116
RT Vol	0	0	131	4	74	0	1
Lane Flow Rate	1	162	168	5	226	96	150
Geometry Grp	7	7	7	7	7	8	8
Degree of Util (X)	0.002	0.253	0.23	0.008	0.375	0.175	0.252
Departure Headway (Hd)	6.146	5.641	4.932	5.701	5.989	6.558	6.045
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	586	641	732	628	602	548	595
Service Time	3.846	3.341	2.632	3.437	3.714	4.285	3.772
HCM Lane V/C Ratio	0.002	0.253	0.23	0.008	0.375	0.175	0.252
HCM Control Delay	8.9	10.2	9.1	8.5	12.3	10.7	10.8
HCM Lane LOS	A	B	A	A	B	B	B
HCM 95th-tile Q	0	1	0.9	0	1.7	0.6	1

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	26	133	8	1	136	113	12	11	0	55	12	28
Future Vol, veh/h	26	133	8	1	136	113	12	11	0	55	12	28
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	182	11	1	186	155	16	15	0	75	16	38
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.8	10.5	8.9	9.5
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	52%	16%	0%	58%
Vol Thru, %	48%	80%	54%	13%
Vol Right, %	0%	5%	45%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	167	250	95
LT Vol	12	26	1	55
Through Vol	11	133	136	12
RT Vol	0	8	113	28
Lane Flow Rate	32	229	342	130
Geometry Grp	1	1	1	1
Degree of Util (X)	0.048	0.301	0.414	0.187
Departure Headway (Hd)	5.507	4.732	4.357	5.178
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	644	757	822	688
Service Time	3.592	2.782	2.4	3.249
HCM Lane V/C Ratio	0.05	0.303	0.416	0.189
HCM Control Delay	8.9	9.8	10.5	9.5
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.2	1.3	2	0.7

Intersection: 1: BRADBURY RD & SB SR 99

Movement	WB	SB
Directions Served	L	LTR
Maximum Queue (ft)	22	83
Average Queue (ft)	2	43
95th Queue (ft)	13	71
Link Distance (ft)		457
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	260	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: NB SR 99 & BRADBURY RD/BRADBURY ROAD

Movement	EB	WB	NB
Directions Served	L	TR	LTR
Maximum Queue (ft)	56	2	75
Average Queue (ft)	19	0	35
95th Queue (ft)	50	2	58
Link Distance (ft)		5554	627
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	280		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: SHANKS & SB 99

Movement	EB	WB	SB
Directions Served	R	L	LTR
Maximum Queue (ft)	14	50	88
Average Queue (ft)	1	19	46
95th Queue (ft)	9	44	73
Link Distance (ft)			496
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	80	110	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: NB SR 99 & SHANKS RD

Movement	EB	WB	NB
Directions Served	L	TR	LTR
Maximum Queue (ft)	103	19	102
Average Queue (ft)	39	1	44
95th Queue (ft)	78	10	76
Link Distance (ft)		1924	958
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	110		
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

Zone Summary

Zone wide Queuing Penalty: 0

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↰	↑			✥			✥	
Traffic Vol, veh/h	0	174	110	5	121	0	0	0	0	68	1	137
Future Vol, veh/h	0	174	110	5	121	0	0	0	0	68	1	137
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	260	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	5	2	5
Mvmt Flow	0	193	122	6	134	0	0	0	0	76	1	152

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	315	0	0	477	400	254	400	461	134
Stage 1	-	-	-	-	-	-	254	254	-	146	146	-
Stage 2	-	-	-	-	-	-	223	146	-	254	315	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.15	6.52	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.545	4.018	3.345
Pot Cap-1 Maneuver	0	-	-	1245	-	0	498	538	785	555	497	907
Stage 1	0	-	-	-	-	0	750	697	-	850	776	-
Stage 2	0	-	-	-	-	0	780	776	-	744	656	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1245	-	-	412	535	785	553	495	907
Mov Cap-2 Maneuver	-	-	-	-	-	-	412	535	-	553	495	-
Stage 1	-	-	-	-	-	-	750	697	-	850	772	-
Stage 2	-	-	-	-	-	-	645	772	-	744	656	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	0	11.9
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	-	1245	-	746
HCM Lane V/C Ratio	-	-	-	0.004	-	0.307
HCM Control Delay (s)	0	-	-	7.9	-	11.9
HCM Lane LOS	A	-	-	A	-	B
HCM 95th %tile Q(veh)	-	-	-	0	-	1.3

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			↱			✣			✣	
Traffic Vol, veh/h	105	129	0	0	93	53	40	4	8	0	0	0
Future Vol, veh/h	105	129	0	0	93	53	40	4	8	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	280	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	5	2	5	2	5	2	2	2
Mvmt Flow	114	140	0	0	101	58	43	4	9	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	159	0	0	-	-	0	498	527	140	505	498	130
Stage 1	-	-	-	-	-	-	368	368	-	130	130	-
Stage 2	-	-	-	-	-	-	130	159	-	375	368	-
Critical Hdwy	4.12	-	-	-	-	-	7.15	6.52	6.25	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.545	4.018	3.345	3.518	4.018	3.318
Pot Cap-1 Maneuver	1420	-	-	0	-	-	478	456	900	478	474	920
Stage 1	-	-	-	0	-	-	646	621	-	874	789	-
Stage 2	-	-	-	0	-	-	866	766	-	646	621	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1420	-	-	-	-	-	449	420	900	441	436	920
Mov Cap-2 Maneuver	-	-	-	-	-	-	449	420	-	441	436	-
Stage 1	-	-	-	-	-	-	594	571	-	804	789	-
Stage 2	-	-	-	-	-	-	866	766	-	584	571	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.5	0	13.4	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	484	1420	-	-	-	-	-
HCM Lane V/C Ratio	0.117	0.08	-	-	-	-	-
HCM Control Delay (s)	13.4	7.8	-	-	-	-	0
HCM Lane LOS	B	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0.4	0.3	-	-	-	-	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	52	45	14	2	38	3	8	93	2	3	151	81
Future Vol, veh/h	52	45	14	2	38	3	8	93	2	3	151	81
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	5	5	2	2	5	2	2	5	2	2	5	5
Mvmt Flow	57	49	15	2	41	3	9	101	2	3	164	88
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	8.3	8.4	9.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	47%	5%	1%
Vol Thru, %	90%	41%	88%	64%
Vol Right, %	2%	13%	7%	34%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	111	43	235
LT Vol	8	52	2	3
Through Vol	93	45	38	151
RT Vol	2	14	3	81
Lane Flow Rate	112	121	47	255
Geometry Grp	1	1	1	1
Degree of Util (X)	0.144	0.164	0.063	0.303
Departure Headway (Hd)	4.629	4.88	4.881	4.277
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	774	734	732	840
Service Time	2.661	2.917	2.923	2.302
HCM Lane V/C Ratio	0.145	0.165	0.064	0.304
HCM Control Delay	8.4	8.9	8.3	9.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.6	0.2	1.3

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	0	0	0	3	0	1	1	103	7	0	162	0
Future Vol, veh/h	0	0	0	3	0	1	1	103	7	0	162	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	3	0	1	1	110	7	0	172	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	288	291	172	288	288	114	172	0	0	117	0	0
Stage 1	172	172	-	116	116	-	-	-	-	-	-	-
Stage 2	116	119	-	172	172	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	664	619	872	664	622	939	1405	-	-	1471	-	-
Stage 1	830	756	-	889	800	-	-	-	-	-	-	-
Stage 2	889	797	-	830	756	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	663	618	872	663	621	939	1405	-	-	1471	-	-
Mov Cap-2 Maneuver	663	618	-	663	621	-	-	-	-	-	-	-
Stage 1	829	756	-	888	799	-	-	-	-	-	-	-
Stage 2	887	796	-	830	756	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10.1	0.1	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1405	-	-	-	716	1471	-	-
HCM Lane V/C Ratio	0.001	-	-	-	0.006	-	-	-
HCM Control Delay (s)	7.6	0	-	0	10.1	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱	↰	↑			✥			✥	
Traffic Vol, veh/h	0	253	58	65	124	0	0	0	0	96	0	320
Future Vol, veh/h	0	253	58	65	124	0	0	0	0	96	0	320
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	80	110	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	264	60	68	129	0	0	0	0	100	0	333

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	324	0	0	696	529	264	559	589	129
Stage 1	-	-	-	-	-	-	264	264	-	265	265	-
Stage 2	-	-	-	-	-	-	432	265	-	294	324	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1236	-	0	356	455	775	440	421	921
Stage 1	0	-	-	-	-	0	741	690	-	740	689	-
Stage 2	0	-	-	-	-	0	602	689	-	714	650	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1236	-	-	218	430	775	422	398	921
Mov Cap-2 Maneuver	-	-	-	-	-	-	218	430	-	422	398	-
Stage 1	-	-	-	-	-	-	741	690	-	740	651	-
Stage 2	-	-	-	-	-	-	363	651	-	714	650	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.8	0	17.1
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	-	1236	-	724
HCM Lane V/C Ratio	-	-	-	0.055	-	0.599
HCM Control Delay (s)	0	-	-	8.1	-	17.1
HCM Lane LOS	A	-	-	A	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2	-	4

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑			↱			✥			✥	
Traffic Vol, veh/h	232	114	0	0	112	92	75	0	59	0	0	0
Future Vol, veh/h	232	114	0	0	112	92	75	0	59	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	244	120	0	0	118	97	79	0	62	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	215	0	-	-	-	0	775	823	120	806	775	167
Stage 1	-	-	-	-	-	-	608	608	-	167	167	-
Stage 2	-	-	-	-	-	-	167	215	-	639	608	-
Critical Hdwy	4.12	-	-	-	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1355	-	0	0	-	-	315	309	931	300	329	877
Stage 1	-	-	0	0	-	-	483	486	-	835	760	-
Stage 2	-	-	0	0	-	-	835	725	-	464	486	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1355	-	-	-	-	-	272	253	931	241	270	877
Mov Cap-2 Maneuver	-	-	-	-	-	-	272	253	-	241	270	-
Stage 1	-	-	-	-	-	-	396	399	-	685	760	-
Stage 2	-	-	-	-	-	-	835	725	-	355	399	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.5	0	19.1	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	395	1355	-	-	-	-
HCM Lane V/C Ratio	0.357	0.18	-	-	-	-
HCM Control Delay (s)	19.1	8.2	-	-	-	0
HCM Lane LOS	C	A	-	-	-	A
HCM 95th %tile Q(veh)	1.6	0.7	-	-	-	-

7: VINCENT & SHANKS RD

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	68	111	107	44	70	99
Future Vol, veh/h	68	111	107	44	70	99
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	117	113	46	74	104

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	398	126	178	0	-	0
Stage 1	126	-	-	-	-	-
Stage 2	272	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	607	924	1398	-	-	-
Stage 1	900	-	-	-	-	-
Stage 2	774	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	557	924	1398	-	-	-
Mov Cap-2 Maneuver	557	-	-	-	-	-
Stage 1	825	-	-	-	-	-
Stage 2	774	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.5	5.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1398	-	739	-	-
HCM Lane V/C Ratio	0.081	-	0.255	-	-
HCM Control Delay (s)	7.8	0	11.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱						✥	
Traffic Vol, veh/h	1	73	0	0	103	15	0	0	0	48	0	4
Future Vol, veh/h	1	73	0	0	103	15	0	0	0	48	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	74	0	0	105	15	0	0	0	49	0	4

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	120	0	-	-	-	0				189	189	113
Stage 1	-	-	-	-	-	-				113	113	-
Stage 2	-	-	-	-	-	-				76	76	-
Critical Hdwy	4.12	-	-	-	-	-				6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-				5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-				3.518	4.018	3.318
Pot Cap-1 Maneuver	1468	-	0	0	-	-				800	706	940
Stage 1	-	-	0	0	-	-				912	802	-
Stage 2	-	-	0	0	-	-				947	832	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1468	-	-	-	-	-				799	0	940
Mov Cap-2 Maneuver	-	-	-	-	-	-				799	0	-
Stage 1	-	-	-	-	-	-				911	0	-
Stage 2	-	-	-	-	-	-				947	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1468	-	-	-	808
HCM Lane V/C Ratio	0.001	-	-	-	0.066
HCM Control Delay (s)	7.5	0	-	-	9.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

9: LETTEAU AVE & SHANKS RD

06/24/2022

	↗	→	↙	←	↖	↖	↑	↘	↓	↙
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	34	98	31	56	68	13	240	90	299	64
v/c Ratio	0.13	0.16	0.12	0.10	0.12	0.05	0.38	0.29	0.29	0.07
Control Delay	27.1	10.0	27.2	14.0	1.1	27.3	15.9	30.7	12.2	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	10.0	27.2	14.0	1.1	27.3	15.9	30.7	12.2	0.8
Queue Length 50th (ft)	6	11	5	8	0	2	31	15	22	0
Queue Length 95th (ft)	45	50	42	38	6	24	160	#139	205	5
Internal Link Dist (ft)		1084		1618			608		1872	
Turn Bay Length (ft)	120		120		25	75		260		50
Base Capacity (vph)	258	1496	258	1551	1339	258	1287	312	1307	1147
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.07	0.12	0.04	0.05	0.05	0.19	0.29	0.23	0.06

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

9: LETTEAU AVE & SHANKS RD

06/24/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↑	↱	↰	↱		↰	↑	↱
Traffic Volume (veh/h)	33	71	24	30	54	66	13	207	26	87	290	62
Future Volume (veh/h)	33	71	24	30	54	66	13	207	26	87	290	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	73	25	31	56	68	13	213	27	90	299	64
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	165	56	54	226	192	24	350	44	127	510	433
Arrive On Green	0.03	0.12	0.12	0.03	0.12	0.12	0.01	0.22	0.22	0.07	0.27	0.27
Sat Flow, veh/h	1781	1332	456	1781	1870	1585	1781	1627	206	1781	1870	1585
Grp Volume(v), veh/h	34	0	98	31	56	68	13	0	240	90	299	64
Grp Sat Flow(s),veh/h/ln	1781	0	1788	1781	1870	1585	1781	0	1833	1781	1870	1585
Q Serve(g_s), s	0.5	0.0	1.5	0.5	0.8	1.1	0.2	0.0	3.4	1.4	4.0	0.9
Cycle Q Clear(g_c), s	0.5	0.0	1.5	0.5	0.8	1.1	0.2	0.0	3.4	1.4	4.0	0.9
Prop In Lane	1.00		0.26	1.00		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	59	0	221	54	226	192	24	0	395	127	510	433
V/C Ratio(X)	0.58	0.00	0.44	0.57	0.25	0.35	0.53	0.00	0.61	0.71	0.59	0.15
Avail Cap(c_a), veh/h	249	0	1375	249	2157	1828	249	0	1474	249	1503	1274
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.6	0.0	11.6	13.7	11.4	11.5	14.0	0.0	10.1	13.0	9.0	7.9
Incr Delay (d2), s/veh	8.6	0.0	1.4	9.1	0.6	1.1	16.7	0.0	1.5	7.0	1.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.5	0.3	0.3	0.3	0.2	0.0	1.1	0.7	1.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.2	0.0	13.0	22.7	12.0	12.7	30.8	0.0	11.7	20.0	10.1	8.0
LnGrp LOS	C	A	B	C	B	B	C	A	B	C	B	A
Approach Vol, veh/h		132			155			253			453	
Approach Delay, s/veh		15.4			14.4			12.6			11.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	10.2	4.9	7.5	4.4	11.8	4.9	7.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	23.0	4.0	22.0	4.0	23.0	4.0	33.0
Max Q Clear Time (g_c+I1), s	3.4	5.4	2.5	3.5	2.2	6.0	2.5	3.1
Green Ext Time (p_c), s	0.0	0.8	0.0	0.3	0.0	1.3	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		✥			✥		↰	↱		↰	↑	↱
Traffic Vol, veh/h	4	2	8	92	2	50	36	161	12	4	130	78
Future Vol, veh/h	4	2	8	92	2	50	36	161	12	4	130	78
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	2	9	99	2	54	39	173	13	4	140	84
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	1

Approach	EB	WB	SE	NW
Opposing Approach	WB	EB	NW	SE
Opposing Lanes	1	1	3	2
Conflicting Approach Left	SE	NW	WB	EB
Conflicting Lanes Left	2	3	1	1
Conflicting Approach Right	NW	SE	EB	WB
Conflicting Lanes Right	3	2	1	1
HCM Control Delay	8.5	10.3	10.2	8.8
HCM LOS	A	B	B	A

Lane	NWLn1	NWLn2	NWLn3	EBLn1	WBLn1	SELn1	SELn2
Vol Left, %	100%	0%	0%	29%	64%	100%	0%
Vol Thru, %	0%	100%	0%	14%	1%	0%	93%
Vol Right, %	0%	0%	100%	57%	35%	0%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	130	78	14	144	36	173
LT Vol	4	0	0	4	92	36	0
Through Vol	0	130	0	2	2	0	161
RT Vol	0	0	78	8	50	0	12
Lane Flow Rate	4	140	84	15	155	39	186
Geometry Grp	7	7	7	7	7	8	8
Degree of Util (X)	0.007	0.204	0.106	0.023	0.245	0.065	0.283
Departure Headway (Hd)	5.767	5.263	4.558	5.572	5.698	6.028	5.475
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	618	679	782	636	627	591	653
Service Time	3.523	3.019	2.313	3.358	3.465	3.793	3.24
HCM Lane V/C Ratio	0.006	0.206	0.107	0.024	0.247	0.066	0.285
HCM Control Delay	8.6	9.4	7.9	8.5	10.3	9.2	10.4
HCM Lane LOS	A	A	A	A	B	A	B
HCM 95th-tile Q	0	0.8	0.4	0.1	1	0.2	1.2

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	31	67	10	2	96	88	11	8	2	118	16	34
Future Vol, veh/h	31	67	10	2	96	88	11	8	2	118	16	34
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	74	11	2	105	97	12	9	2	130	18	37
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	8.7	8.2	9.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	52%	29%	1%	70%
Vol Thru, %	38%	62%	52%	10%
Vol Right, %	10%	9%	47%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	21	108	186	168
LT Vol	11	31	2	118
Through Vol	8	67	96	16
RT Vol	2	10	88	34
Lane Flow Rate	23	119	204	185
Geometry Grp	1	1	1	1
Degree of Util (X)	0.032	0.154	0.244	0.241
Departure Headway (Hd)	4.943	4.667	4.3	4.705
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	722	768	834	762
Service Time	2.988	2.7	2.328	2.741
HCM Lane V/C Ratio	0.032	0.155	0.245	0.243
HCM Control Delay	8.2	8.6	8.7	9.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.5	1	0.9

Intersection: 1: BRADBURY RD & SB SR 99

Movement	WB	WB	SB
Directions Served	L	T	LTR
Maximum Queue (ft)	16	1	97
Average Queue (ft)	1	0	50
95th Queue (ft)	9	1	81
Link Distance (ft)		760	457
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	260		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: NB SR 99 & BRADBURY RD/BRADBURY ROAD

Movement	EB	WB	NB
Directions Served	L	TR	LTR
Maximum Queue (ft)	44	3	64
Average Queue (ft)	13	0	30
95th Queue (ft)	40	2	57
Link Distance (ft)		5554	627
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	280		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: SHANKS & SB 99

Movement	EB	WB	SB
Directions Served	R	L	LTR
Maximum Queue (ft)	13	38	142
Average Queue (ft)	1	11	77
95th Queue (ft)	8	32	121
Link Distance (ft)			496
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	80	110	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: NB SR 99 & SHANKS RD

Movement	EB	EB	WB	NB
Directions Served	L	T	TR	LTR
Maximum Queue (ft)	74	1	9	92
Average Queue (ft)	27	0	0	44
95th Queue (ft)	58	1	5	75
Link Distance (ft)		546	1924	958
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	110			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Zone Summary

Zone wide Queuing Penalty: 0

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↰	↑			✣			✣	
Traffic Vol, veh/h	0	270	57	18	168	0	0	0	0	191	2	64
Future Vol, veh/h	0	270	57	18	168	0	0	0	0	191	2	64
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	260	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	5	2	5
Mvmt Flow	0	314	66	21	195	0	0	0	0	222	2	74

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	380	0	0	622	584	347	584	617	195
Stage 1	-	-	-	-	-	-	347	347	-	237	237	-
Stage 2	-	-	-	-	-	-	275	237	-	347	380	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.15	6.52	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.545	4.018	3.345
Pot Cap-1 Maneuver	0	-	-	1178	-	0	399	423	696	419	405	839
Stage 1	0	-	-	-	-	0	669	635	-	760	709	-
Stage 2	0	-	-	-	-	0	731	709	-	663	614	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1178	-	-	357	415	696	413	398	839
Mov Cap-2 Maneuver	-	-	-	-	-	-	357	415	-	413	398	-
Stage 1	-	-	-	-	-	-	669	635	-	760	696	-
Stage 2	-	-	-	-	-	-	652	696	-	663	614	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.8	0	24.8
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	-	1178	-	473
HCM Lane V/C Ratio	-	-	-	0.018	-	0.632
HCM Control Delay (s)	0	-	-	8.1	-	24.8
HCM Lane LOS	A	-	-	A	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1	-	4.3

2: NB SR 99 & BRADBURY RD/BRADBURY ROAD

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			↱			✣			✣	
Traffic Vol, veh/h	146	306	0	0	142	290	56	2	11	0	0	0
Future Vol, veh/h	146	306	0	0	142	290	56	2	11	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	280	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	5	2	2	5	2	5	2	5	2	2	2
Mvmt Flow	170	356	0	0	165	337	65	2	13	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	502	0	0	-	-	0	1030	1198	356	1038	1030	334
Stage 1	-	-	-	-	-	-	696	696	-	334	334	-
Stage 2	-	-	-	-	-	-	334	502	-	704	696	-
Critical Hdwy	4.12	-	-	-	-	-	7.15	6.52	6.25	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.545	4.018	3.345	3.518	4.018	3.318
Pot Cap-1 Maneuver	1062	-	-	0	-	-	209	186	681	209	233	708
Stage 1	-	-	-	0	-	-	427	443	-	680	643	-
Stage 2	-	-	-	0	-	-	674	542	-	428	443	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1062	-	-	-	-	-	183	156	681	178	196	708
Mov Cap-2 Maneuver	-	-	-	-	-	-	183	156	-	178	196	-
Stage 1	-	-	-	-	-	-	359	372	-	571	643	-
Stage 2	-	-	-	-	-	-	674	542	-	351	372	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	0	33.2	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	206	1062	-	-	-	-	-
HCM Lane V/C Ratio	0.389	0.16	-	-	-	-	-
HCM Control Delay (s)	33.2	9	-	-	-	-	0
HCM Lane LOS	D	A	-	-	-	-	A
HCM 95th %tile Q(veh)	1.7	0.6	-	-	-	-	-

Intersection	
Intersection Delay, s/veh	97.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	89	54	193	16	59	4	187	132	14	1	160	80
Future Vol, veh/h	89	54	193	16	59	4	187	132	14	1	160	80
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Heavy Vehicles, %	5	5	2	2	5	2	2	5	2	2	5	5
Mvmt Flow	148	90	322	27	98	7	312	220	23	2	267	133
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	117.4	18.6	133.9	45.8
HCM LOS	F	C	F	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	56%	26%	20%	0%
Vol Thru, %	40%	16%	75%	66%
Vol Right, %	4%	57%	5%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	333	336	79	241
LT Vol	187	89	16	1
Through Vol	132	54	59	160
RT Vol	14	193	4	80
Lane Flow Rate	555	560	132	402
Geometry Grp	1	1	1	1
Degree of Util (X)	1.192	1.151	0.338	0.86
Departure Headway (Hd)	8.271	7.915	10.378	8.59
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	444	465	349	426
Service Time	6.271	5.915	8.378	6.59
HCM Lane V/C Ratio	1.25	1.204	0.378	0.944
HCM Control Delay	133.9	117.4	18.6	45.8
HCM Lane LOS	F	F	C	E
HCM 95th-tile Q	20.1	18.9	1.5	8.5

Intersection	
Int Delay, s/veh	32

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	87	6	185	10	10	3	114	257	5	4	339	79
Future Vol, veh/h	87	6	185	10	10	3	114	257	5	4	339	79
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	107	7	228	12	12	4	141	317	6	5	419	98

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1088	1083	468	1198	1129	320	517	0	0	323	0	0
Stage 1	478	478	-	602	602	-	-	-	-	-	-	-
Stage 2	610	605	-	596	527	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	193	217	595	162	204	721	1049	-	-	1237	-	-
Stage 1	568	556	-	486	489	-	-	-	-	-	-	-
Stage 2	482	487	-	490	528	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	158	180	595	84	170	721	1049	-	-	1237	-	-
Mov Cap-2 Maneuver	158	180	-	84	170	-	-	-	-	-	-	-
Stage 1	475	553	-	406	409	-	-	-	-	-	-	-
Stage 2	389	407	-	296	525	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB
HCM Control Delay, s	119.2			41.7			2.7			0.1
HCM LOS	F			E						

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1049	-	-	311	126	1237	-	-
HCM Lane V/C Ratio	0.134	-	-	1.104	0.225	0.004	-	-
HCM Control Delay (s)	9	0	-	119.2	41.7	7.9	0	-
HCM Lane LOS	A	A	-	F	E	A	A	-
HCM 95th %tile Q(veh)	0.5	-	-	13.5	0.8	0	-	-

Intersection	
Int Delay, s/veh	11.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱	↰	↑			✥			✥	
Traffic Vol, veh/h	0	430	99	232	240	0	0	0	0	76	1	139
Future Vol, veh/h	0	430	99	232	240	0	0	0	0	76	1	139
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	80	110	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	443	102	239	247	0	0	0	0	78	1	143

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	545	0	0	1240	1168	443	1219	1270	247
Stage 1	-	-	-	-	-	-	443	443	-	725	725	-
Stage 2	-	-	-	-	-	-	797	725	-	494	545	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1024	-	0	152	193	615	157	168	792
Stage 1	0	-	-	-	-	0	594	576	-	416	430	-
Stage 2	0	-	-	-	-	0	380	430	-	557	519	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1024	-	-	102	148	615	129	129	792
Mov Cap-2 Maneuver	-	-	-	-	-	-	102	148	-	129	129	-
Stage 1	-	-	-	-	-	-	594	576	-	416	330	-
Stage 2	-	-	-	-	-	-	238	330	-	557	519	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	4.7	0	53.8
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	-	1024	-	280
HCM Lane V/C Ratio	-	-	-	0.234	-	0.795
HCM Control Delay (s)	0	-	-	9.6	-	53.8
HCM Lane LOS	A	-	-	A	-	F
HCM 95th %tile Q(veh)	-	-	-	0.9	-	6.2

Intersection	
Int Delay, s/veh	12.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑			↱			✥			✥	
Traffic Vol, veh/h	302	203	0	0	413	125	62	2	157	0	0	0
Future Vol, veh/h	302	203	0	0	413	125	62	2	157	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	308	207	0	0	421	128	63	2	160	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	549	0	-	-	-	0	1308	1372	207	1389	1308	485
Stage 1	-	-	-	-	-	-	823	823	-	485	485	-
Stage 2	-	-	-	-	-	-	485	549	-	904	823	-
Critical Hdwy	4.12	-	-	-	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1021	-	0	0	-	-	136	146	833	120	159	582
Stage 1	-	-	0	0	-	-	368	388	-	563	552	-
Stage 2	-	-	0	0	-	-	563	516	-	331	388	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1021	-	-	-	-	-	104	102	833	73	111	582
Mov Cap-2 Maneuver	-	-	-	-	-	-	104	102	-	73	111	-
Stage 1	-	-	-	-	-	-	257	271	-	393	552	-
Stage 2	-	-	-	-	-	-	563	516	-	185	271	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	6	0	58	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	275	1021	-	-	-	-
HCM Lane V/C Ratio	0.82	0.302	-	-	-	-
HCM Control Delay (s)	58	10	-	-	-	0
HCM Lane LOS	F	B	-	-	-	A
HCM 95th %tile Q(veh)	6.6	1.3	-	-	-	-

Intersection	
Int Delay, s/veh	47

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	275	75	152	101	149	387
Future Vol, veh/h	275	75	152	101	149	387
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	302	82	167	111	164	425

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	822	377	589	0	-	0
Stage 1	377	-	-	-	-	-
Stage 2	445	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	344	670	986	-	-	-
Stage 1	694	-	-	-	-	-
Stage 2	646	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 282	670	986	-	-	-
Mov Cap-2 Maneuver	~ 282	-	-	-	-	-
Stage 1	568	-	-	-	-	-
Stage 2	646	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	148.9		5.6		0	
HCM LOS	F					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	986	-	322	-	-
HCM Lane V/C Ratio	0.169	-	1.194	-	-
HCM Control Delay (s)	9.4	0	148.9	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.6	-	16.5	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s   +: Computation Not Defined   *: All major volume in platoon

8: LETTEAU AVE & FLOWER ST

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱						✥	
Traffic Vol, veh/h	1	173	0	0	148	22	0	0	0	36	0	2
Future Vol, veh/h	1	173	0	0	148	22	0	0	0	36	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	228	0	0	195	29	0	0	0	47	0	3

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	224	0	-	-	-	0				440	440	210
Stage 1	-	-	-	-	-	-				210	210	-
Stage 2	-	-	-	-	-	-				230	230	-
Critical Hdwy	4.12	-	-	-	-	-				6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-				5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-				3.518	4.018	3.318
Pot Cap-1 Maneuver	1345	-	0	0	-	-				574	511	830
Stage 1	-	-	0	0	-	-				825	728	-
Stage 2	-	-	0	0	-	-				808	714	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1345	-	-	-	-	-				573	0	830
Mov Cap-2 Maneuver	-	-	-	-	-	-				573	0	-
Stage 1	-	-	-	-	-	-				824	0	-
Stage 2	-	-	-	-	-	-				808	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1345	-	-	-	582
HCM Lane V/C Ratio	0.001	-	-	-	0.086
HCM Control Delay (s)	7.7	0	-	-	11.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

9: LETTEAU AVE & SHANKS RD

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	117	128	46	76	76	20	409	47	270	109
v/c Ratio	0.58	0.24	0.26	0.17	0.16	0.11	0.65	0.26	0.36	0.15
Control Delay	46.0	14.3	33.8	17.1	1.8	31.0	22.4	34.0	14.7	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	14.3	33.8	17.1	1.8	31.0	22.4	34.0	14.7	4.0
Queue Length 50th (ft)	34	25	13	19	0	5	94	13	40	0
Queue Length 95th (ft)	#170	61	#64	47	8	30	#297	#66	176	27
Internal Link Dist (ft)		1084		1618			608		1872	
Turn Bay Length (ft)	120		120		25	75		260		50
Base Capacity (vph)	203	1324	179	1372	1198	179	1054	179	1108	991
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.10	0.26	0.06	0.06	0.11	0.39	0.26	0.24	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

9: LETTEAU AVE & SHANKS RD

AM EX PL PROJ

06/24/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↑	↱	↰	↱		↰	↑	↱
Traffic Volume (veh/h)	102	82	30	40	66	66	17	315	41	41	235	95
Future Volume (veh/h)	102	82	30	40	66	66	17	315	41	41	235	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	117	94	34	46	76	76	20	362	47	47	270	109
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	203	74	74	213	180	36	488	63	75	603	511
Arrive On Green	0.08	0.16	0.16	0.04	0.11	0.11	0.02	0.30	0.30	0.04	0.32	0.32
Sat Flow, veh/h	1781	1311	474	1781	1870	1585	1781	1622	211	1781	1870	1585
Grp Volume(v), veh/h	117	0	128	46	76	76	20	0	409	47	270	109
Grp Sat Flow(s),veh/h/ln	1781	0	1785	1781	1870	1585	1781	0	1832	1781	1870	1585
Q Serve(g_s), s	2.2	0.0	2.3	0.9	1.3	1.5	0.4	0.0	7.0	0.9	4.0	1.7
Cycle Q Clear(g_c), s	2.2	0.0	2.3	0.9	1.3	1.5	0.4	0.0	7.0	0.9	4.0	1.7
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	147	0	277	74	213	180	36	0	551	75	603	511
V/C Ratio(X)	0.80	0.00	0.46	0.63	0.36	0.42	0.56	0.00	0.74	0.63	0.45	0.21
Avail Cap(c_a), veh/h	205	0	1131	205	1778	1507	205	0	1214	205	1239	1050
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.6	0.0	13.3	16.4	14.2	14.3	16.8	0.0	10.9	16.4	9.3	8.6
Incr Delay (d2), s/veh	13.5	0.0	1.2	8.4	1.0	1.6	12.7	0.0	2.0	8.4	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.8	0.5	0.5	0.5	0.3	0.0	2.3	0.5	1.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.1	0.0	14.5	24.8	15.2	15.9	29.5	0.0	12.9	24.7	9.8	8.8
LnGrp LOS	C	A	B	C	B	B	C	A	B	C	A	A
Approach Vol, veh/h		245			198			429			426	
Approach Delay, s/veh		21.5			17.7			13.7			11.2	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.5	14.4	5.4	9.4	4.7	15.2	6.9	8.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	23.0	4.0	22.0	4.0	23.0	4.0	33.0
Max Q Clear Time (g_c+I1), s	2.9	9.0	2.9	4.3	2.4	6.0	4.2	3.5
Green Ext Time (p_c), s	0.0	1.5	0.0	0.4	0.0	1.4	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Intersection	
Intersection Delay, s/veh	12.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		✥			✥		↰	↑↱		↰	↑	↱
Traffic Vol, veh/h	0	0	4	157	0	74	75	116	1	1	126	131
Future Vol, veh/h	0	0	4	157	0	74	75	116	1	1	126	131
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	201	0	95	96	149	1	1	162	168
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	1

Approach	EB	WB	SE	NW
Opposing Approach	WB	EB	NW	SE
Opposing Lanes	1	1	3	2
Conflicting Approach Left	SE	NW	WB	EB
Conflicting Lanes Left	2	3	1	1
Conflicting Approach Right	NW	SE	EB	WB
Conflicting Lanes Right	3	2	1	1
HCM Control Delay	8.7	15.1	11.3	10.2
HCM LOS	A	C	B	B

Lane	NWLn1	NWLn2	NWLn3	EBLn1	WBLn1	SELn1	SELn2
Vol Left, %	100%	0%	0%	0%	68%	100%	0%
Vol Thru, %	0%	100%	0%	0%	0%	0%	99%
Vol Right, %	0%	0%	100%	100%	32%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1	126	131	4	231	75	117
LT Vol	1	0	0	0	157	75	0
Through Vol	0	126	0	0	0	0	116
RT Vol	0	0	131	4	74	0	1
Lane Flow Rate	1	162	168	5	296	96	150
Geometry Grp	7	7	7	7	7	8	8
Degree of Util (X)	0.002	0.266	0.243	0.008	0.507	0.184	0.265
Departure Headway (Hd)	6.426	5.919	5.209	5.915	6.168	6.879	6.364
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	557	607	689	603	586	522	564
Service Time	4.161	3.654	2.943	3.667	3.901	4.62	4.105
HCM Lane V/C Ratio	0.002	0.267	0.244	0.008	0.505	0.184	0.266
HCM Control Delay	9.2	10.8	9.6	8.7	15.1	11.2	11.4
HCM Lane LOS	A	B	A	A	C	B	B
HCM 95th-tile Q	0	1.1	0.9	0	2.9	0.7	1.1

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	69	133	8	1	136	138	12	32	0	84	30	81
Future Vol, veh/h	69	133	8	1	136	138	12	32	0	84	30	81
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	95	182	11	1	186	189	16	44	0	115	41	111
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.8	13.7	10.1	12.6
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	33%	0%	43%
Vol Thru, %	73%	63%	49%	15%
Vol Right, %	0%	4%	50%	42%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	44	210	275	195
LT Vol	12	69	1	84
Through Vol	32	133	136	30
RT Vol	0	8	138	81
Lane Flow Rate	60	288	377	267
Geometry Grp	1	1	1	1
Degree of Util (X)	0.105	0.44	0.529	0.416
Departure Headway (Hd)	6.271	5.501	5.058	5.608
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	568	653	712	641
Service Time	4.344	3.552	3.106	3.662
HCM Lane V/C Ratio	0.106	0.441	0.529	0.417
HCM Control Delay	10.1	12.8	13.7	12.6
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.4	2.2	3.1	2

Intersection: 1: BRADBURY RD & SB SR 99

Movement	WB	SB
Directions Served	L	LTR
Maximum Queue (ft)	25	156
Average Queue (ft)	4	69
95th Queue (ft)	19	119
Link Distance (ft)		457
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	260	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: NB SR 99 & BRADBURY RD/BRADBURY ROAD

Movement	EB	WB	NB
Directions Served	L	TR	LTR
Maximum Queue (ft)	94	31	80
Average Queue (ft)	40	3	37
95th Queue (ft)	74	18	68
Link Distance (ft)		5554	627
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	280		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: SHANKS & SB 99

Movement	EB	EB	WB	SB
Directions Served	T	R	L	LTR
Maximum Queue (ft)	5	28	88	198
Average Queue (ft)	0	2	40	72
95th Queue (ft)	3	15	75	139
Link Distance (ft)	493			496
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		80	110	
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Intersection: 6: NB SR 99 & SHANKS RD

Movement	EB	EB	WB	NB
Directions Served	L	T	TR	LTR
Maximum Queue (ft)	127	64	28	217
Average Queue (ft)	59	2	2	86
95th Queue (ft)	105	28	15	171
Link Distance (ft)		546	1924	958
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	110			
Storage Blk Time (%)	1			
Queuing Penalty (veh)	2			

Zone Summary

Zone wide Queuing Penalty: 2

HCM 6th TWSC
1: BRADBURY RD & SB SR 99

PM EX PL PROJ
06/25/2022

Intersection	
Int Delay, s/veh	22.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↰	↑			✥			✥	
Traffic Vol, veh/h	0	183	85	39	121	0	0	0	0	305	2	155
Future Vol, veh/h	0	183	85	39	121	0	0	0	0	305	2	155
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	260	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	5	2	5
Mvmt Flow	0	203	94	43	134	0	0	0	0	339	2	172

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	297	0	0	557	470	250	470	517	134
Stage 1	-	-	-	-	-	-	250	250	-	220	220	-
Stage 2	-	-	-	-	-	-	307	220	-	250	297	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.15	6.52	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.15	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.545	4.018	3.345
Pot Cap-1 Maneuver	0	-	-	1264	-	0	441	492	789	499	462	907
Stage 1	0	-	-	-	-	0	754	700	-	776	721	-
Stage 2	0	-	-	-	-	0	703	721	-	747	668	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1264	-	-	347	475	789	486	446	907
Mov Cap-2 Maneuver	-	-	-	-	-	-	347	475	-	486	446	-
Stage 1	-	-	-	-	-	-	754	700	-	776	696	-
Stage 2	-	-	-	-	-	-	548	696	-	747	668	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.9	0	42.8
HCM LOS			A	E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	-	1264	-	575
HCM Lane V/C Ratio	-	-	-	0.034	-	0.893
HCM Control Delay (s)	0	-	-	7.9	-	42.8
HCM Lane LOS	A	-	-	A	-	E
HCM 95th %tile Q(veh)	-	-	-	0.1	-	10.5

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			↱			✣			✣	
Traffic Vol, veh/h	107	379	0	0	132	226	37	0	21	0	0	0
Future Vol, veh/h	107	379	0	0	132	226	37	0	21	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	280	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	2	2	5	2	5	2	5	2	2	2
Mvmt Flow	116	412	0	0	143	246	40	0	23	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	389	0	0	-	-	0	910	1033	412	922	910	266
Stage 1	-	-	-	-	-	-	644	644	-	266	266	-
Stage 2	-	-	-	-	-	-	266	389	-	656	644	-
Critical Hdwy	4.12	-	-	-	-	-	7.15	6.52	6.25	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.545	4.018	3.345	3.518	4.018	3.318
Pot Cap-1 Maneuver	1170	-	-	0	-	-	252	232	633	251	275	773
Stage 1	-	-	-	0	-	-	456	468	-	739	689	-
Stage 2	-	-	-	0	-	-	733	608	-	454	468	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1170	-	-	-	-	-	233	209	633	224	248	773
Mov Cap-2 Maneuver	-	-	-	-	-	-	233	209	-	224	248	-
Stage 1	-	-	-	-	-	-	411	422	-	666	689	-
Stage 2	-	-	-	-	-	-	733	608	-	394	422	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.9	0	20	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	302	1170	-	-	-	-	-
HCM Lane V/C Ratio	0.209	0.099	-	-	-	-	-
HCM Control Delay (s)	20	8.4	-	-	-	-	0
HCM Lane LOS	C	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0.8	0.3	-	-	-	-	-

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	52	42	64	5	44	4	53	126	6	2	194	77
Future Vol, veh/h	52	42	64	5	44	4	53	126	6	2	194	77
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	5	5	2	2	5	2	2	5	2	2	5	5
Mvmt Flow	57	46	70	5	48	4	58	137	7	2	211	84
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	8.9	9.8	10.5
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	29%	33%	9%	1%
Vol Thru, %	68%	27%	83%	71%
Vol Right, %	3%	41%	8%	28%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	185	158	53	273
LT Vol	53	52	5	2
Through Vol	126	42	44	194
RT Vol	6	64	4	77
Lane Flow Rate	201	172	58	297
Geometry Grp	1	1	1	1
Degree of Util (X)	0.274	0.241	0.085	0.379
Departure Headway (Hd)	4.905	5.042	5.316	4.6
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	726	706	667	777
Service Time	2.974	3.118	3.409	2.662
HCM Lane V/C Ratio	0.277	0.244	0.087	0.382
HCM Control Delay	9.8	9.7	8.9	10.5
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	1.1	0.9	0.3	1.8

Intersection	
Int Delay, s/veh	80.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	57	18	276	7	17	2	389	222	5	5	264	51
Future Vol, veh/h	57	18	276	7	17	2	389	222	5	5	264	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	61	19	294	7	18	2	414	236	5	5	281	54

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1395	1387	308	1542	1412	239	335	0	0	241	0	0
Stage 1	318	318	-	1067	1067	-	-	-	-	-	-	-
Stage 2	1077	1069	-	475	345	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	119	143	732	94	138	800	1224	-	-	1326	-	-
Stage 1	693	654	-	269	299	-	-	-	-	-	-	-
Stage 2	265	298	-	570	636	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	69	87	732	33	84	800	1224	-	-	1326	-	-
Mov Cap-2 Maneuver	69	87	-	33	84	-	-	-	-	-	-	-
Stage 1	422	651	-	164	182	-	-	-	-	-	-	-
Stage 2	145	181	-	330	633	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	281.5	103.3	6	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1224	-	-	249	62	1326	-	-
HCM Lane V/C Ratio	0.338	-	-	1.5	0.446	0.004	-	-
HCM Control Delay (s)	9.4	0	-	281.5	103.3	7.7	0	-
HCM Lane LOS	A	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	1.5	-	-	21.9	1.7	0	-	-

Intersection	
Int Delay, s/veh	70.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱	↰	↑			✥			✥	
Traffic Vol, veh/h	0	366	53	197	247	0	0	0	0	144	2	325
Future Vol, veh/h	0	366	53	197	247	0	0	0	0	144	2	325
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	80	110	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	381	55	205	257	0	0	0	0	150	2	339

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	436	0	0	1219	1048	381	1076	1103	257
Stage 1	-	-	-	-	-	-	381	381	-	667	667	-
Stage 2	-	-	-	-	-	-	838	667	-	409	436	-
Critical Hdwy	-	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1124	-	0	157	228	666	197	211	782
Stage 1	0	-	-	-	-	0	641	613	-	448	457	-
Stage 2	0	-	-	-	-	0	361	457	-	619	580	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	1124	-	-	76	187	666	169	173	782
Mov Cap-2 Maneuver	-	-	-	-	-	-	76	187	-	169	173	-
Stage 1	-	-	-	-	-	-	641	613	-	448	374	-
Stage 2	-	-	-	-	-	-	166	374	-	619	580	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	4	0	197
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	-	-	-	1124	-	368
HCM Lane V/C Ratio	-	-	-	0.183	-	1.333
HCM Control Delay (s)	0	-	-	8.9	-	197
HCM Lane LOS	A	-	-	A	-	F
HCM 95th %tile Q(veh)	-	-	-	0.7	-	23.2

Intersection	
Int Delay, s/veh	29.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑			↱			✣			✣	
Traffic Vol, veh/h	232	309	0	0	356	105	86	2	239	0	0	0
Future Vol, veh/h	232	309	0	0	356	105	86	2	239	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	244	325	0	0	375	111	91	2	252	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	486	0	-	-	-	0	1244	1299	325	1371	1244	431
Stage 1	-	-	-	-	-	-	813	813	-	431	431	-
Stage 2	-	-	-	-	-	-	431	486	-	940	813	-
Critical Hdwy	4.12	-	-	-	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1077	-	0	0	-	-	151	161	716	123	174	624
Stage 1	-	-	0	0	-	-	372	392	-	603	583	-
Stage 2	-	-	0	0	-	-	603	551	-	316	392	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1077	-	-	-	-	-	125	124	716	65	135	624
Mov Cap-2 Maneuver	-	-	-	-	-	-	125	124	-	65	135	-
Stage 1	-	-	-	-	-	-	288	303	-	466	583	-
Stage 2	-	-	-	-	-	-	603	551	-	157	303	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4	0	115.1	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	315	1077	-	-	-	-
HCM Lane V/C Ratio	1.093	0.227	-	-	-	-
HCM Control Delay (s)	115.1	9.3	-	-	-	0
HCM Lane LOS	F	A	-	-	-	A
HCM 95th %tile Q(veh)	13.3	0.9	-	-	-	-

Intersection	
Int Delay, s/veh	189.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	409	122	147	213	265	275
Future Vol, veh/h	409	122	147	213	265	275
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	431	128	155	224	279	289

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	958	424	568	0	-	0
Stage 1	424	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 285	630	1004	-	-	-
Stage 1	660	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 235	630	1004	-	-	-
Mov Cap-2 Maneuver	~ 235	-	-	-	-	-
Stage 1	544	-	-	-	-	-
Stage 2	588	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 507.2	3.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1004	-	275	-	-
HCM Lane V/C Ratio	0.154	-	2.033	-	-
HCM Control Delay (s)	9.2	0	$ 507.2	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.5	-	40.6	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱						✥	
Traffic Vol, veh/h	1	96	0	0	130	37	0	0	0	70	0	4
Future Vol, veh/h	1	96	0	0	130	37	0	0	0	70	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	98	0	0	133	38	0	0	0	71	0	4

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	171	0	-	-	-	0				252	252	152
Stage 1	-	-	-	-	-	-				152	152	-
Stage 2	-	-	-	-	-	-				100	100	-
Critical Hdwy	4.12	-	-	-	-	-				6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-				5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-				3.518	4.018	3.318
Pot Cap-1 Maneuver	1406	-	0	0	-	-				737	651	894
Stage 1	-	-	0	0	-	-				876	772	-
Stage 2	-	-	0	0	-	-				924	812	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1406	-	-	-	-	-				736	0	894
Mov Cap-2 Maneuver	-	-	-	-	-	-				736	0	-
Stage 1	-	-	-	-	-	-				875	0	-
Stage 2	-	-	-	-	-	-				924	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1406	-	-	-	743
HCM Lane V/C Ratio	0.001	-	-	-	0.102
HCM Control Delay (s)	7.6	0	-	-	10.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	95	90	63	47	56	18	295	88	365	107
v/c Ratio	0.48	0.21	0.36	0.11	0.12	0.10	0.55	0.50	0.42	0.13
Control Delay	38.8	11.4	35.0	15.5	0.6	29.0	20.2	39.8	14.4	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	11.4	35.0	15.5	0.6	29.0	20.2	39.8	14.4	3.8
Queue Length 50th (ft)	23	11	15	10	0	4	59	21	53	0
Queue Length 95th (ft)	#147	43	#97	34	1	30	200	#136	254	28
Internal Link Dist (ft)		1084		1618			608		1872	
Turn Bay Length (ft)	120		120		25	75		260		50
Base Capacity (vph)	196	1373	177	1456	1264	177	1063	177	1075	965
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.07	0.36	0.03	0.04	0.10	0.28	0.50	0.34	0.11

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↑	↱	↰	↱		↰	↑	↱
Traffic Volume (veh/h)	92	51	36	61	46	54	17	260	26	85	354	104
Future Volume (veh/h)	92	51	36	61	46	54	17	260	26	85	354	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	53	37	63	47	56	18	268	27	88	365	107
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	134	94	96	212	179	33	403	41	121	544	461
Arrive On Green	0.07	0.13	0.13	0.05	0.11	0.11	0.02	0.24	0.24	0.07	0.29	0.29
Sat Flow, veh/h	1781	1026	716	1781	1870	1585	1781	1672	168	1781	1870	1585
Grp Volume(v), veh/h	95	0	90	63	47	56	18	0	295	88	365	107
Grp Sat Flow(s),veh/h/ln	1781	0	1741	1781	1870	1585	1781	0	1840	1781	1870	1585
Q Serve(g_s), s	1.7	0.0	1.5	1.1	0.7	1.0	0.3	0.0	4.6	1.5	5.4	1.6
Cycle Q Clear(g_c), s	1.7	0.0	1.5	1.1	0.7	1.0	0.3	0.0	4.6	1.5	5.4	1.6
Prop In Lane	1.00		0.41	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	128	0	228	96	212	179	33	0	444	121	544	461
V/C Ratio(X)	0.74	0.00	0.39	0.66	0.22	0.31	0.55	0.00	0.67	0.73	0.67	0.23
Avail Cap(c_a), veh/h	225	0	1212	225	1952	1655	225	0	1339	225	1361	1153
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.4	0.0	12.6	14.7	12.8	12.9	15.4	0.0	10.8	14.4	9.9	8.5
Incr Delay (d2), s/veh	8.3	0.0	1.1	7.4	0.5	1.0	13.3	0.0	1.7	8.0	1.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.5	0.6	0.3	0.3	0.2	0.0	1.5	0.8	1.7	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.7	0.0	13.7	22.1	13.3	13.9	28.7	0.0	12.6	22.4	11.3	8.8
LnGrp LOS	C	A	B	C	B	B	C	A	B	C	B	A
Approach Vol, veh/h		185			166			313			560	
Approach Delay, s/veh		18.3			16.8			13.5			12.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	11.6	5.7	8.1	4.6	13.2	6.3	7.6
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	23.0	4.0	22.0	4.0	23.0	4.0	33.0
Max Q Clear Time (g_c+I1), s	3.5	6.6	3.1	3.5	2.3	7.4	3.7	3.0
Green Ext Time (p_c), s	0.0	1.0	0.0	0.3	0.0	1.8	0.0	0.4

Intersection Summary			
HCM 6th Ctrl Delay			14.3
HCM 6th LOS			B

Intersection	
Intersection Delay, s/veh	12.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		✥			✥		↰	↑↱		↰	↑	↱
Traffic Vol, veh/h	9	12	22	206	11	52	38	157	11	19	108	240
Future Vol, veh/h	9	12	22	206	11	52	38	157	11	19	108	240
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	13	24	222	12	56	41	169	12	20	116	258
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	1

Approach	EB	WB	SE	NW
Opposing Approach	WB	EB	NW	SE
Opposing Lanes	1	1	3	2
Conflicting Approach Left	SE	NW	WB	EB
Conflicting Lanes Left	2	3	1	1
Conflicting Approach Right	NW	SE	EB	WB
Conflicting Lanes Right	3	2	1	1
HCM Control Delay	9.9	16.1	12.3	11
HCM LOS	A	C	B	B

Lane	NWLn1	NWLn2	NWLn3	EBLn1	WBLn1	SELn1	SELn2
Vol Left, %	100%	0%	0%	21%	77%	100%	0%
Vol Thru, %	0%	100%	0%	28%	4%	0%	93%
Vol Right, %	0%	0%	100%	51%	19%	0%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	108	240	43	269	38	168
LT Vol	19	0	0	9	206	38	0
Through Vol	0	108	0	12	11	0	157
RT Vol	0	0	240	22	52	0	11
Lane Flow Rate	20	116	258	46	289	41	181
Geometry Grp	7	7	7	7	7	8	8
Degree of Util (X)	0.037	0.195	0.383	0.084	0.521	0.082	0.333
Departure Headway (Hd)	6.562	6.054	5.343	6.505	6.489	7.186	6.629
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	545	591	671	548	555	497	540
Service Time	4.314	3.806	3.094	4.274	4.238	4.948	4.391
HCM Lane V/C Ratio	0.037	0.196	0.385	0.084	0.521	0.082	0.335
HCM Control Delay	9.6	10.3	11.4	9.9	16.1	10.6	12.7
HCM Lane LOS	A	B	B	A	C	B	B
HCM 95th-tile Q	0.1	0.7	1.8	0.3	3	0.3	1.5

Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	195	83	16	2	109	116	20	53	1	158	62	160
Future Vol, veh/h	195	83	16	2	109	116	20	53	1	158	62	160
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	214	91	18	2	120	127	22	58	1	174	68	176
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	15.7	12.5	10.7	18.4
HCM LOS	C	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	66%	1%	42%
Vol Thru, %	72%	28%	48%	16%
Vol Right, %	1%	5%	51%	42%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	74	294	227	380
LT Vol	20	195	2	158
Through Vol	53	83	109	62
RT Vol	1	16	116	160
Lane Flow Rate	81	323	249	418
Geometry Grp	1	1	1	1
Degree of Util (X)	0.149	0.533	0.395	0.646
Departure Headway (Hd)	6.585	5.94	5.696	5.57
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	548	601	626	643
Service Time	4.585	4.031	3.793	3.65
HCM Lane V/C Ratio	0.148	0.537	0.398	0.65
HCM Control Delay	10.7	15.7	12.5	18.4
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	0.5	3.1	1.9	4.7

Intersection: 1: BRADBURY RD & SB SR 99

Movement	WB	WB	SB
Directions Served	L	T	LTR
Maximum Queue (ft)	35	4	282
Average Queue (ft)	7	0	121
95th Queue (ft)	27	4	224
Link Distance (ft)		760	457
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)	260		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: NB SR 99 & BRADBURY RD/BRADBURY ROAD

Movement	EB	WB	NB
Directions Served	L	TR	LTR
Maximum Queue (ft)	66	25	78
Average Queue (ft)	29	1	34
95th Queue (ft)	58	10	64
Link Distance (ft)		5554	627
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	280		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: SHANKS & SB 99

Movement	EB	EB	B19	WB	SB
Directions Served	T	R	T	L	LTR
Maximum Queue (ft)	195	56	83	84	489
Average Queue (ft)	22	5	7	34	245
95th Queue (ft)	165	36	114	68	496
Link Distance (ft)	493		1877		496
Upstream Blk Time (%)	1				13
Queuing Penalty (veh)	6				0
Storage Bay Dist (ft)		80		110	
Storage Blk Time (%)	4	0		0	
Queuing Penalty (veh)	2	0		0	

Intersection: 6: NB SR 99 & SHANKS RD

Movement	EB	EB	WB	NB
Directions Served	L	T	TR	LTR
Maximum Queue (ft)	135	541	26	980
Average Queue (ft)	65	134	2	464
95th Queue (ft)	137	451	15	1089
Link Distance (ft)		548	1924	958
Upstream Blk Time (%)		4		27
Queuing Penalty (veh)		19		0
Storage Bay Dist (ft)	110			
Storage Blk Time (%)	0	22		
Queuing Penalty (veh)	1	50		

Zone Summary

Zone wide Queuing Penalty: 77

Intersection	
Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↰	↑			✥			✥	
Traffic Vol, veh/h	0	270	57	18	168	0	0	0	0	191	2	64
Future Vol, veh/h	0	270	57	18	168	0	0	0	0	191	2	64
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	5	2	5
Mvmt Flow	0	314	66	21	195	0	0	0	0	222	2	74
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	14.5	11.3	0	13.3
HCM LOS	B	B	-	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	74%
Vol Thru, %	100%	83%	0%	100%	1%
Vol Right, %	0%	17%	0%	0%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	327	18	168	257
LT Vol	0	0	18	0	191
Through Vol	0	270	0	168	2
RT Vol	0	57	0	0	64
Lane Flow Rate	0	380	21	195	299
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0	0.552	0.037	0.323	0.462
Departure Headway (Hd)	6.157	5.227	6.407	5.951	5.567
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	0	692	559	604	648
Service Time	4.211	3.256	4.141	3.686	3.599
HCM Lane V/C Ratio	0	0.549	0.038	0.323	0.461
HCM Control Delay	9.2	14.5	9.4	11.5	13.3
HCM Lane LOS	N	B	A	B	B
HCM 95th-tile Q	0	3.4	0.1	1.4	2.4

Intersection	
Intersection Delay, s/veh	28.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			✣		↰	↱		↰	↱	
Traffic Vol, veh/h	87	6	185	10	10	3	114	257	5	4	339	79
Future Vol, veh/h	87	6	185	10	10	3	114	257	5	4	339	79
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	107	7	228	12	12	4	141	317	6	5	419	98
Number of Lanes	1	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	14.2	12.2	17.2	48.1
HCM LOS	B	B	C	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	43%	100%	0%
Vol Thru, %	0%	98%	0%	3%	43%	0%	81%
Vol Right, %	0%	2%	0%	97%	13%	0%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	114	262	87	191	23	4	418
LT Vol	114	0	87	0	10	4	0
Through Vol	0	257	0	6	10	0	339
RT Vol	0	5	0	185	3	0	79
Lane Flow Rate	141	323	107	236	28	5	516
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.282	0.602	0.237	0.44	0.067	0.01	0.933
Departure Headway (Hd)	7.222	6.696	7.932	6.725	8.51	7.155	6.51
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	498	540	453	535	420	503	562
Service Time	4.958	4.432	5.672	4.465	6.579	4.855	4.21
HCM Lane V/C Ratio	0.283	0.598	0.236	0.441	0.067	0.01	0.918
HCM Control Delay	12.8	19.1	13.1	14.7	12.2	9.9	48.5
HCM Lane LOS	B	C	B	B	B	A	E
HCM 95th-tile Q	1.1	4	0.9	2.2	0.2	0	11.8

Intersection	
Intersection Delay, s/veh	16.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱	↰	↑			✥			✥	
Traffic Vol, veh/h	0	430	99	232	240	0	0	0	0	76	1	139
Future Vol, veh/h	0	430	99	232	240	0	0	0	0	76	1	139
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	443	102	239	247	0	0	0	0	78	1	143
Number of Lanes	0	1	1	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	20.3	13.3	0	12.5
HCM LOS	C	B	-	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	0%	100%	0%	35%
Vol Thru, %	100%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	0%	64%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	430	99	232	240	216
LT Vol	0	0	0	232	0	76
Through Vol	0	430	0	0	240	1
RT Vol	0	0	99	0	0	139
Lane Flow Rate	0	443	102	239	247	223
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0	0.728	0.147	0.428	0.408	0.37
Departure Headway (Hd)	7.009	5.91	5.2	6.444	5.937	5.987
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	612	689	560	606	599
Service Time	5.086	3.649	2.939	4.186	3.679	4.034
HCM Lane V/C Ratio	0	0.724	0.148	0.427	0.408	0.372
HCM Control Delay	10.1	22.9	8.8	14	12.7	12.5
HCM Lane LOS	N	C	A	B	B	B
HCM 95th-tile Q	0	6.2	0.5	2.1	2	1.7

Intersection	
Intersection Delay, s/veh	19.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑			↱			✥			✥	
Traffic Vol, veh/h	302	203	0	0	413	125	62	2	157	0	0	0
Future Vol, veh/h	302	203	0	0	413	125	62	2	157	0	0	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	308	207	0	0	421	128	63	2	160	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	14.7	26.9	12.8	0
HCM LOS	B	D	B	-

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	28%	100%	0%	0%	0%
Vol Thru, %	1%	0%	100%	77%	100%
Vol Right, %	71%	0%	0%	23%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	221	302	203	538	0
LT Vol	62	302	0	0	0
Through Vol	2	0	203	413	0
RT Vol	157	0	0	125	0
Lane Flow Rate	226	308	207	549	0
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.379	0.549	0.34	0.809	0
Departure Headway (Hd)	6.057	6.409	5.902	5.303	7.181
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	593	564	609	681	0
Service Time	4.112	4.153	3.645	3.342	5.272
HCM Lane V/C Ratio	0.381	0.546	0.34	0.806	0
HCM Control Delay	12.8	16.7	11.7	26.9	10.3
HCM Lane LOS	B	C	B	D	N
HCM 95th-tile Q	1.8	3.3	1.5	8.4	0

Intersection	
Intersection Delay, s/veh	17.3
Intersection LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↰↑	↑	↱
Traffic Vol, veh/h	275	75	152	101	149	387
Future Vol, veh/h	275	75	152	101	149	387
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	302	82	167	111	164	425
Number of Lanes	1	1	0	1	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	18.6	16.3	17
HCM LOS	C	C	C

Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	60%	100%	0%	0%	0%
Vol Thru, %	40%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	253	275	75	149	387
LT Vol	152	275	0	0	0
Through Vol	101	0	0	149	0
RT Vol	0	0	75	0	387
Lane Flow Rate	278	302	82	164	425
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.507	0.612	0.139	0.288	0.665
Departure Headway (Hd)	6.562	7.29	6.07	6.34	5.628
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	548	496	588	565	638
Service Time	4.632	5.051	3.829	4.108	3.396
HCM Lane V/C Ratio	0.507	0.609	0.139	0.29	0.666
HCM Control Delay	16.3	21	9.8	11.7	19
HCM Lane LOS	C	C	A	B	C
HCM 95th-tile Q	2.8	4	0.5	1.2	5

Intersection: 1: BRADBURY RD & SB SR 99

Movement	EB	WB	WB	SB
Directions Served	TR	L	T	LTR
Maximum Queue (ft)	141	28	80	105
Average Queue (ft)	65	11	33	56
95th Queue (ft)	111	31	62	87
Link Distance (ft)	518		760	457
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		260		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: NORTH & VINCENT ROAD

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	TR
Maximum Queue (ft)	69	83	40	75	85	31	180
Average Queue (ft)	29	46	16	35	44	4	69
95th Queue (ft)	51	74	43	56	69	22	128
Link Distance (ft)	1044	1044	1010		781		2564
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				200		200	
Storage Blk Time (%)							1
Queuing Penalty (veh)							0

Intersection: 5: SHANKS & SB 99

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	200	105	77	77	92
Average Queue (ft)	95	55	39	32	51
95th Queue (ft)	163	109	63	58	79
Link Distance (ft)	493			546	496
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		80	110		
Storage Blk Time (%)	10	0	0	0	
Queuing Penalty (veh)	10	1	0	0	

Intersection: 6: NB SR 99 & SHANKS RD

Movement	EB	EB	WB	NB
Directions Served	L	T	TR	LTR
Maximum Queue (ft)	84	56	230	88
Average Queue (ft)	45	27	110	47
95th Queue (ft)	72	47	195	74
Link Distance (ft)		546	1905	940
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	110			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 7: VINCENT & SHANKS RD

Movement	EB	EB	NB	SB	SB
Directions Served	L	R	LT	T	R
Maximum Queue (ft)	125	58	120	81	139
Average Queue (ft)	56	23	60	42	68
95th Queue (ft)	94	45	96	66	114
Link Distance (ft)	1905	1905	1628	781	781
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 10

Intersection	
Intersection Delay, s/veh	18
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↰	↑			✥			✥	
Traffic Vol, veh/h	0	183	85	39	121	0	0	0	0	305	2	155
Future Vol, veh/h	0	183	85	39	121	0	0	0	0	305	2	155
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	5	2	2	5	2	2	2	2	5	2	5
Mvmt Flow	0	203	94	43	134	0	0	0	0	339	2	172
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	13.8	11.2	0	22.8
HCM LOS	B	B	-	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	66%
Vol Thru, %	100%	68%	0%	100%	0%
Vol Right, %	0%	32%	0%	0%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	268	39	121	462
LT Vol	0	0	39	0	305
Through Vol	0	183	0	121	2
RT Vol	0	85	0	0	155
Lane Flow Rate	0	298	43	134	513
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0	0.471	0.084	0.244	0.754
Departure Headway (Hd)	6.272	5.7	6.996	6.538	5.288
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	0	631	511	549	683
Service Time	4.347	3.748	4.753	4.295	3.326
HCM Lane V/C Ratio	0	0.472	0.084	0.244	0.751
HCM Control Delay	9.3	13.8	10.4	11.4	22.8
HCM Lane LOS	N	B	B	B	C
HCM 95th-tile Q	0	2.5	0.3	1	6.9

Intersection	
Intersection Delay, s/veh	22.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			✥		↰	↱		↰	↱	
Traffic Vol, veh/h	57	18	276	7	17	2	389	222	5	5	264	51
Future Vol, veh/h	57	18	276	7	17	2	389	222	5	5	264	51
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	61	19	294	7	18	2	414	236	5	5	281	54
Number of Lanes	1	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Righ	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	17.4	12.1	27	21.3
HCM LOS	C	B	D	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	27%	100%	0%
Vol Thru, %	0%	98%	0%	6%	65%	0%	84%
Vol Right, %	0%	2%	0%	94%	8%	0%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	389	227	57	294	26	5	315
LT Vol	389	0	57	0	7	5	0
Through Vol	0	222	0	18	17	0	264
RT Vol	0	5	0	276	2	0	51
Lane Flow Rate	414	241	61	313	28	5	335
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.817	0.441	0.133	0.584	0.065	0.011	0.645
Departure Headway (Hd)	7.103	6.576	7.901	6.718	8.442	7.556	6.928
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	513	548	455	538	424	474	523
Service Time	4.827	4.3	5.619	4.436	6.503	5.298	4.669
HCM Lane V/C Ratio	0.807	0.44	0.134	0.582	0.066	0.011	0.641
HCM Control Delay	34.3	14.4	11.8	18.5	12.1	10.4	21.5
HCM Lane LOS	D	B	B	C	B	B	C
HCM 95th-tile Q	7.9	2.2	0.5	3.7	0.2	0	4.5

5: SHANKS & SB 99

Intersection	
Intersection Delay, s/veh	24.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱	↰	↑			✥			✥	
Traffic Vol, veh/h	0	366	53	197	247	0	0	0	0	144	2	325
Future Vol, veh/h	0	366	53	197	247	0	0	0	0	144	2	325
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	381	55	205	257	0	0	0	0	150	2	339
Number of Lanes	0	1	1	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	25.5	16.4	0	31.8
HCM LOS	D	C	-	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	0%	100%	0%	31%
Vol Thru, %	100%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	0%	69%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	366	53	197	247	471
LT Vol	0	0	0	197	0	144
Through Vol	0	366	0	0	247	2
RT Vol	0	0	53	0	0	325
Lane Flow Rate	0	381	55	205	257	491
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0	0.746	0.097	0.431	0.504	0.829
Departure Headway (Hd)	8.057	7.047	6.328	7.565	7.051	6.081
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	515	565	476	509	599
Service Time	6.135	4.797	4.077	5.319	4.804	4.081
HCM Lane V/C Ratio	0	0.74	0.097	0.431	0.505	0.82
HCM Control Delay	11.1	27.8	9.8	16	16.8	31.8
HCM Lane LOS	N	D	A	C	C	D
HCM 95th-tile Q	0	6.3	0.3	2.1	2.8	8.6

Intersection	
Intersection Delay, s/veh	20.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑			↱			✥			✥	
Traffic Vol, veh/h	232	309	0	0	356	105	86	2	239	0	0	0
Future Vol, veh/h	232	309	0	0	356	105	86	2	239	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	244	325	0	0	375	111	91	2	252	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	16.7	26.9	17.4	0
HCM LOS	C	D	C	-

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	26%	100%	0%	0%	0%
Vol Thru, %	1%	0%	100%	77%	100%
Vol Right, %	73%	0%	0%	23%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	327	232	309	461	0
LT Vol	86	232	0	0	0
Through Vol	2	0	309	356	0
RT Vol	239	0	0	105	0
Lane Flow Rate	344	244	325	485	0
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.582	0.466	0.575	0.784	0
Departure Headway (Hd)	6.086	6.874	6.364	5.819	7.786
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	589	520	563	616	0
Service Time	4.16	4.654	4.144	3.888	5.786
HCM Lane V/C Ratio	0.584	0.469	0.577	0.787	0
HCM Control Delay	17.4	15.6	17.5	26.9	10.8
HCM Lane LOS	C	C	C	D	N
HCM 95th-tile Q	3.7	2.4	3.6	7.5	0

Intersection	
Intersection Delay, s/veh	31
Intersection LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↰↑	↑	↱
Traffic Vol, veh/h	409	122	147	213	265	275
Future Vol, veh/h	409	122	147	213	265	275
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	431	128	155	224	279	289
Number of Lanes	1	1	0	1	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	44.5	30.2	18.2
HCM LOS	E	D	C

Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	41%	100%	0%	0%	0%
Vol Thru, %	59%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	360	409	122	265	275
LT Vol	147	409	0	0	0
Through Vol	213	0	0	265	0
RT Vol	0	0	122	0	275
Lane Flow Rate	379	431	128	279	289
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.764	0.932	0.234	0.572	0.536
Departure Headway (Hd)	7.262	7.797	6.569	7.382	6.663
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	500	469	550	488	541
Service Time	5.3	5.497	4.269	5.125	4.405
HCM Lane V/C Ratio	0.758	0.919	0.233	0.572	0.534
HCM Control Delay	30.2	54.4	11.3	19.6	16.9
HCM Lane LOS	D	F	B	C	C
HCM 95th-tile Q	6.7	10.9	0.9	3.5	3.1

Intersection: 1: BRADBURY RD & SB SR 99

Movement	EB	WB	WB	SB
Directions Served	TR	L	T	LTR
Maximum Queue (ft)	126	41	68	198
Average Queue (ft)	60	18	30	90
95th Queue (ft)	99	38	53	152
Link Distance (ft)	518		760	457
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		260		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: NORTH & VINCENT ROAD

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	TR
Maximum Queue (ft)	62	133	45	156	92	30	136
Average Queue (ft)	29	67	19	69	43	4	63
95th Queue (ft)	54	108	45	120	74	21	106
Link Distance (ft)		1057	1010		781		2564
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200			200		200	
Storage Blk Time (%)				0			0
Queuing Penalty (veh)				1			0

Intersection: 5: SHANKS & SB 99

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	174	104	65	73	255
Average Queue (ft)	84	39	37	36	113
95th Queue (ft)	138	89	59	61	211
Link Distance (ft)	493			546	496
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		80	110		
Storage Blk Time (%)	8	0			
Queuing Penalty (veh)	4	0			

Intersection: 6: NB SR 99 & SHANKS RD

Movement	EB	EB	WB	NB
Directions Served	L	T	TR	LTR
Maximum Queue (ft)	78	80	170	106
Average Queue (ft)	39	37	82	56
95th Queue (ft)	64	63	133	88
Link Distance (ft)		546	1905	940
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	110			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Intersection: 7: VINCENT RD & SHANKS RD

Movement	EB	EB	NB	SB	SB
Directions Served	L	R	LT	T	R
Maximum Queue (ft)	365	84	209	135	111
Average Queue (ft)	151	29	96	66	57
95th Queue (ft)	325	57	186	108	89
Link Distance (ft)	1905	1905	1628	781	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					200
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 5

Queues
3: VINCENT ROAD & BRADBURY ROAD

AM EX PL PROJ
SIGNAL IMPROVEMENT

	↗	→	↙	←	↖	↑	↘	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	148	412	27	105	312	243	2	400
v/c Ratio	0.68	0.79	0.28	0.34	0.78	0.25	0.02	0.81
Control Delay	63.6	34.0	59.2	39.6	53.1	15.3	53.0	47.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.6	34.0	59.2	39.6	53.1	15.3	53.0	47.5
Queue Length 50th (ft)	98	170	18	60	195	76	1	236
Queue Length 95th (ft)	119	132	33	72	206	108	7	226
Internal Link Dist (ft)		5532		3938		2547		797
Turn Bay Length (ft)	200		200		200		200	
Base Capacity (vph)	217	713	98	558	470	1068	98	624
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.58	0.28	0.19	0.66	0.23	0.02	0.64

Intersection Summary

HCM 6th Signalized Intersection Summary
3: VINCENT ROAD & BRADBURY ROAD

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Traffic Volume (veh/h)	89	54	193	16	59	4	187	132	14	1	160	80
Future Volume (veh/h)	89	54	193	16	59	4	187	132	14	1	160	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1870	1870	1826	1870	1870	1826	1870	1870	1826	1826
Adj Flow Rate, veh/h	148	90	322	27	98	7	312	220	23	2	267	133
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Percent Heavy Veh, %	5	5	2	2	5	2	2	5	2	2	5	5
Cap, veh/h	180	98	349	88	379	27	348	727	76	5	292	146
Arrive On Green	0.10	0.28	0.28	0.05	0.23	0.23	0.20	0.45	0.45	0.00	0.25	0.25
Sat Flow, veh/h	1739	350	1251	1781	1684	120	1781	1625	170	1781	1150	573
Grp Volume(v), veh/h	148	0	412	27	0	105	312	0	243	2	0	400
Grp Sat Flow(s),veh/h/ln	1739	0	1601	1781	0	1804	1781	0	1795	1781	0	1723
Q Serve(g_s), s	8.4	0.0	25.3	1.5	0.0	4.8	17.3	0.0	8.8	0.1	0.0	22.8
Cycle Q Clear(g_c), s	8.4	0.0	25.3	1.5	0.0	4.8	17.3	0.0	8.8	0.1	0.0	22.8
Prop In Lane	1.00		0.78	1.00		0.07	1.00		0.09	1.00		0.33
Lane Grp Cap(c), veh/h	180	0	447	88	0	406	348	0	803	5	0	438
V/C Ratio(X)	0.82	0.00	0.92	0.31	0.00	0.26	0.90	0.00	0.30	0.42	0.00	0.91
Avail Cap(c_a), veh/h	191	0	540	88	0	406	423	0	803	88	0	547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.4	0.0	35.4	46.4	0.0	32.2	39.7	0.0	17.9	50.3	0.0	36.6
Incr Delay (d2), s/veh	23.3	0.0	19.3	1.9	0.0	0.3	18.8	0.0	0.2	48.5	0.0	17.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	11.4	0.7	0.0	2.0	8.8	0.0	3.3	0.1	0.0	10.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.7	0.0	54.6	48.3	0.0	32.6	58.5	0.0	18.1	98.9	0.0	53.9
LnGrp LOS	E	A	D	D	A	C	E	A	B	F	A	D
Approach Vol, veh/h		560			132			555			402	
Approach Delay, s/veh		58.1			35.8			40.8			54.1	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	51.7	9.7	34.7	24.5	32.2	15.2	29.3
Change Period (Y+Rc), s	* 4.7	6.5	* 4.7	6.5	* 4.7	6.5	* 4.7	6.5
Max Green Setting (Gmax), s	* 5	26.0	* 5	34.1	* 24	32.1	* 11	10.4
Max Q Clear Time (g_c+I1), s	2.1	10.8	3.5	27.3	19.3	24.8	10.4	6.8
Green Ext Time (p_c), s	0.0	0.7	0.0	1.0	0.5	0.9	0.0	0.1

Intersection Summary			
HCM 6th Ctrl Delay			49.5
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
4: NORTH & VINCENT ROAD

	↗	→	←	↖	↑	↘	↓
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	235	28	141	323	5	517
v/c Ratio	0.39	0.53	0.17	0.47	0.33	0.03	0.79
Control Delay	30.4	9.9	31.1	31.3	12.0	32.5	34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	9.9	31.1	31.3	12.0	32.5	34.0
Queue Length 50th (ft)	33	2	8	43	43	2	147
Queue Length 95th (ft)	80	43	32	101	160	11	#388
Internal Link Dist (ft)		1012	964		770		2547
Turn Bay Length (ft)	200			200		200	
Base Capacity (vph)	440	566	162	440	1063	157	652
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.42	0.17	0.32	0.30	0.03	0.79

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			✥		↰	↱		↰	↱	
Traffic Volume (veh/h)	87	6	185	10	10	3	114	257	5	4	339	79
Future Volume (veh/h)	87	6	185	10	10	3	114	257	5	4	339	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	107	7	228	12	12	4	141	317	6	5	419	98
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	319	8	277	23	23	8	183	741	14	12	453	106
Arrive On Green	0.18	0.18	0.18	0.03	0.03	0.03	0.10	0.41	0.41	0.01	0.31	0.31
Sat Flow, veh/h	1781	47	1545	765	765	255	1781	1829	35	1781	1466	343
Grp Volume(v), veh/h	107	0	235	28	0	0	141	0	323	5	0	517
Grp Sat Flow(s),veh/h/ln	1781	0	1592	1786	0	0	1781	0	1864	1781	0	1809
Q Serve(g_s), s	3.4	0.0	9.1	1.0	0.0	0.0	4.9	0.0	8.0	0.2	0.0	17.7
Cycle Q Clear(g_c), s	3.4	0.0	9.1	1.0	0.0	0.0	4.9	0.0	8.0	0.2	0.0	17.7
Prop In Lane	1.00		0.97	0.43		0.14	1.00		0.02	1.00		0.19
Lane Grp Cap(c), veh/h	319	0	285	55	0	0	183	0	755	12	0	559
V/C Ratio(X)	0.34	0.00	0.82	0.51	0.00	0.00	0.77	0.00	0.43	0.42	0.00	0.92
Avail Cap(c_a), veh/h	390	0	349	140	0	0	390	0	755	139	0	566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.9	0.0	25.3	30.5	0.0	0.0	27.9	0.0	13.7	31.6	0.0	21.4
Incr Delay (d2), s/veh	0.6	0.0	12.5	7.2	0.0	0.0	6.7	0.0	0.4	22.1	0.0	21.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	3.9	0.5	0.0	0.0	2.2	0.0	2.6	0.1	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	0.0	37.8	37.7	0.0	0.0	34.7	0.0	14.1	53.8	0.0	42.4
LnGrp LOS	C	A	D	D	A	A	C	A	B	D	A	D
Approach Vol, veh/h		342			28			464			522	
Approach Delay, s/veh		33.3			37.7			20.3			42.5	
Approach LOS		C			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	32.4		17.9	11.3	26.3		8.5				
Change Period (Y+Rc), s	* 4.7	6.5		6.5	* 4.7	6.5		6.5				
Max Green Setting (Gmax), s	* 5	20.0		14.0	* 14	20.0		5.0				
Max Q Clear Time (g_c+I1), s	2.2	10.0		11.1	6.9	19.7		3.0				
Green Ext Time (p_c), s	0.0	0.8		0.4	0.2	0.1		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			32.5
HCM 6th LOS			C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

5: SHANKS & SB 99

	→	↘	↙	←	↓
Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	443	102	239	247	222
v/c Ratio	0.73	0.17	0.62	0.21	0.56
Control Delay	26.0	5.0	31.2	5.2	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	5.0	31.2	5.2	19.3
Queue Length 50th (ft)	132	1	74	28	36
Queue Length 95th (ft)	267	30	#184	70	110
Internal Link Dist (ft)	479			528	450
Turn Bay Length (ft)		80	110		
Base Capacity (vph)	955	859	500	1582	661
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.12	0.48	0.16	0.34

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
5: SHANKS & SB 99

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱	↰	↑						✥	
Traffic Volume (veh/h)	0	430	99	232	240	0	0	0	0	76	1	139
Future Volume (veh/h)	0	430	99	232	240	0	0	0	0	76	1	139
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	443	102	239	247	0				78	1	143
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	574	486	312	1115	0				102	1	187
Arrive On Green	0.00	0.31	0.31	0.18	0.60	0.00				0.18	0.18	0.18
Sat Flow, veh/h	0	1870	1585	1781	1870	0				580	7	1063
Grp Volume(v), veh/h	0	443	102	239	247	0				222	0	0
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1781	1870	0				1650	0	0
Q Serve(g_s), s	0.0	9.6	2.1	5.7	2.7	0.0				5.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	9.6	2.1	5.7	2.7	0.0				5.7	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.35		0.64
Lane Grp Cap(c), veh/h	0	574	486	312	1115	0				290	0	0
V/C Ratio(X)	0.00	0.77	0.21	0.77	0.22	0.00				0.76	0.00	0.00
Avail Cap(c_a), veh/h	0	1213	1028	637	1505	0				738	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	14.1	11.5	17.6	4.2	0.0				17.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.3	0.2	3.9	0.1	0.0				4.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.6	0.6	2.3	0.6	0.0				2.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	16.3	11.7	21.5	4.3	0.0				21.7	0.0	0.0
LnGrp LOS	A	B	B	C	A	A				C	A	A
Approach Vol, veh/h		545			486						222	
Approach Delay, s/veh		15.5			12.8						21.7	
Approach LOS		B			B						C	

Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			12.9	18.8		13.0		31.8				
Change Period (Y+Rc), s			5.1	5.1		5.1		5.1				
Max Green Setting (Gmax), s			16.0	29.0		20.0		36.0				
Max Q Clear Time (g_c+I1), s			7.7	11.6		7.7		4.7				
Green Ext Time (p_c), s			0.6	2.1		0.7		0.9				

Intersection Summary			
HCM 6th Ctrl Delay			15.5
HCM 6th LOS			B

6: NB SR 99 & SHANKS RD

	⤴	→	←	↑
Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	308	207	549	225
v/c Ratio	0.71	0.16	0.83	0.60
Control Delay	34.5	4.2	32.9	20.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	34.5	4.2	32.9	20.5
Queue Length 50th (ft)	118	23	192	37
Queue Length 95th (ft)	230	56	#424	109
Internal Link Dist (ft)		528	1899	912
Turn Bay Length (ft)	110			
Base Capacity (vph)	599	1571	845	508
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.51	0.13	0.65	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑			↱			✥				
Traffic Volume (veh/h)	302	203	0	0	413	125	62	2	157	0	0	0
Future Volume (veh/h)	302	203	0	0	413	125	62	2	157	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	308	207	0	0	421	128	63	2	160			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	381	1224	0	0	486	148	78	2	198			
Arrive On Green	0.21	0.65	0.00	0.00	0.35	0.35	0.17	0.17	0.17			
Sat Flow, veh/h	1781	1870	0	0	1377	419	459	15	1165			
Grp Volume(v), veh/h	308	207	0	0	0	549	225	0	0			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	0	1795	1638	0	0			
Q Serve(g_s), s	9.5	2.5	0.0	0.0	0.0	16.6	7.7	0.0	0.0			
Cycle Q Clear(g_c), s	9.5	2.5	0.0	0.0	0.0	16.6	7.7	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.23	0.28		0.71			
Lane Grp Cap(c), veh/h	381	1224	0	0	0	633	278	0	0			
V/C Ratio(X)	0.81	0.17	0.00	0.00	0.00	0.87	0.81	0.00	0.00			
Avail Cap(c_a), veh/h	675	1224	0	0	0	928	451	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	21.7	3.9	0.0	0.0	0.0	17.5	23.2	0.0	0.0			
Incr Delay (d2), s/veh	4.1	0.1	0.0	0.0	0.0	6.1	5.6	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.0	0.6	0.0	0.0	0.0	6.9	3.1	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.8	4.0	0.0	0.0	0.0	23.6	28.8	0.0	0.0			
LnGrp LOS	C	A	A	A	A	C	C	A	A			
Approach Vol, veh/h		515			549			225				
Approach Delay, s/veh		17.0			23.6			28.8				
Approach LOS		B			C			C				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		15.0		43.1			17.5	25.6				
Change Period (Y+Rc), s		5.1		5.1			5.1	5.1				
Max Green Setting (Gmax), s		16.0		22.0			22.0	30.0				
Max Q Clear Time (g_c+I1), s		9.7		4.5			11.5	18.6				
Green Ext Time (p_c), s		0.5		0.6			0.9	1.9				

Intersection Summary			
HCM 6th Ctrl Delay			21.9
HCM 6th LOS			C

7: VINCENT & SHANKS RD

	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	302	82	167	111	164	425
v/c Ratio	0.59	0.16	0.46	0.13	0.39	0.62
Control Delay	22.6	5.6	25.3	8.2	22.8	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	5.6	25.3	8.2	22.8	7.1
Queue Length 50th (ft)	77	0	44	16	43	0
Queue Length 95th (ft)	177	27	118	46	108	64
Internal Link Dist (ft)	1899			1610	770	
Turn Bay Length (ft)			200			200
Base Capacity (vph)	853	805	542	1355	694	856
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.10	0.31	0.08	0.24	0.50

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑	↑	↱
Traffic Volume (veh/h)	275	75	152	101	149	387
Future Volume (veh/h)	275	75	152	101	149	387
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	302	82	167	111	164	425
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	401	357	220	996	581	492
Arrive On Green	0.22	0.22	0.12	0.53	0.31	0.31
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	302	82	167	111	164	425
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	7.6	2.0	4.3	1.4	3.2	12.1
Cycle Q Clear(g_c), s	7.6	2.0	4.3	1.4	3.2	12.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	401	357	220	996	581	492
V/C Ratio(X)	0.75	0.23	0.76	0.11	0.28	0.86
Avail Cap(c_a), veh/h	820	730	522	1045	665	564
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	15.1	20.3	5.6	12.5	15.5
Incr Delay (d2), s/veh	2.9	0.3	5.3	0.0	0.3	11.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	2.0	1.7	0.3	1.0	4.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.2	15.5	25.6	5.6	12.7	27.4
LnGrp LOS	C	B	C	A	B	C
Approach Vol, veh/h	384			278	589	
Approach Delay, s/veh	19.2			17.6	23.3	
Approach LOS	B			B	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		31.9		15.8	10.6	21.3
Change Period (Y+Rc), s		6.5		5.1	* 4.7	6.5
Max Green Setting (Gmax), s		26.7		22.0	* 14	17.0
Max Q Clear Time (g_c+I1), s		3.4		9.6	6.3	14.1
Green Ext Time (p_c), s		0.3		1.3	0.3	0.8

Intersection Summary						
HCM 6th Ctrl Delay			20.8			
HCM 6th LOS			C			

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 3: VINCENT ROAD & BRADBURY ROAD

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	180	268	54	113	223	274	25	288
Average Queue (ft)	55	76	13	34	91	56	1	95
95th Queue (ft)	123	183	42	82	186	185	10	207
Link Distance (ft)		5548		3984		2558		842
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		200		200		200	
Storage Blk Time (%)		1			2	0		2
Queuing Penalty (veh)		2			6	0		0

Intersection: 4: NORTH & VINCENT ROAD

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	TR
Maximum Queue (ft)	106	110	46	134	147	30	256
Average Queue (ft)	43	50	14	57	57	3	124
95th Queue (ft)	82	85	38	101	115	18	221
Link Distance (ft)		1057	1010		781		2558
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200			200		200	
Storage Blk Time (%)				0	0		2
Queuing Penalty (veh)				0	0		0

Intersection: 5: SHANKS & SB 99

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	287	105	134	225	168
Average Queue (ft)	141	50	88	62	75
95th Queue (ft)	248	114	137	157	137
Link Distance (ft)	493			572	496
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		80	110		
Storage Blk Time (%)	19	0	5	1	
Queuing Penalty (veh)	19	1	12	1	

Intersection: 6: NB SR 99 & SHANKS RD

Movement	EB	EB	WB	NB
Directions Served	L	T	TR	LTR
Maximum Queue (ft)	134	299	335	182
Average Queue (ft)	107	89	182	77
95th Queue (ft)	155	253	298	148
Link Distance (ft)		572	1905	940
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	110			
Storage Blk Time (%)	14	0		
Queuing Penalty (veh)	28	1		

Intersection: 7: VINCENT & SHANKS RD

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	190	52	138	71	138	140
Average Queue (ft)	94	19	67	23	54	75
95th Queue (ft)	155	42	117	58	104	123
Link Distance (ft)	1905	1905		1628	781	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			200			200
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 68

Queues

3: VINCENT ROAD & BRADBURY ROAD

	↗	→	↙	←	↖	↑	↘	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	57	116	5	52	58	144	2	295
v/c Ratio	0.19	0.18	0.02	0.10	0.18	0.19	0.01	0.47
Control Delay	25.3	9.9	24.4	19.4	25.1	12.2	24.5	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	9.9	24.4	19.4	25.1	12.2	24.5	16.9
Queue Length 50th (ft)	18	10	2	14	18	26	1	75
Queue Length 95th (ft)	51	52	11	40	51	80	6	151
Internal Link Dist (ft)		5532		3938		2547		797
Turn Bay Length (ft)	200		200		200		200	
Base Capacity (vph)	306	989	316	1006	316	1119	316	984
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.12	0.02	0.05	0.18	0.13	0.01	0.30

Intersection Summary

HCM 6th Signalized Intersection Summary
3: VINCENT ROAD & BRADBURY ROAD

PM EX PL PROJ
SIG IMPROVEMENT

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Traffic Volume (veh/h)	52	42	64	5	44	4	53	126	6	2	194	77
Future Volume (veh/h)	52	42	64	5	44	4	53	126	6	2	194	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1870	1870	1826	1870	1870	1826	1870	1870	1826	1826
Adj Flow Rate, veh/h	57	46	70	5	48	4	58	137	7	2	211	84
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	2	2	5	2	2	5	2	2	5	5
Cap, veh/h	99	137	209	12	265	22	103	470	24	5	271	108
Arrive On Green	0.06	0.21	0.21	0.01	0.16	0.16	0.06	0.27	0.27	0.00	0.22	0.22
Sat Flow, veh/h	1739	653	994	1781	1662	139	1781	1722	88	1781	1242	495
Grp Volume(v), veh/h	57	0	116	5	0	52	58	0	144	2	0	295
Grp Sat Flow(s),veh/h/ln	1739	0	1647	1781	0	1801	1781	0	1810	1781	0	1737
Q Serve(g_s), s	1.4	0.0	2.6	0.1	0.0	1.1	1.4	0.0	2.8	0.0	0.0	7.1
Cycle Q Clear(g_c), s	1.4	0.0	2.6	0.1	0.0	1.1	1.4	0.0	2.8	0.0	0.0	7.1
Prop In Lane	1.00		0.60	1.00		0.08	1.00		0.05	1.00		0.28
Lane Grp Cap(c), veh/h	99	0	346	12	0	287	103	0	494	5	0	378
V/C Ratio(X)	0.58	0.00	0.34	0.42	0.00	0.18	0.56	0.00	0.29	0.41	0.00	0.78
Avail Cap(c_a), veh/h	197	0	598	202	0	653	202	0	657	202	0	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	14.8	21.8	0.0	16.0	20.2	0.0	12.7	22.0	0.0	16.3
Incr Delay (d2), s/veh	5.2	0.0	0.6	21.4	0.0	0.3	4.8	0.0	0.3	46.8	0.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.8	0.1	0.0	0.4	0.6	0.0	0.8	0.1	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	0.0	15.4	43.2	0.0	16.3	25.0	0.0	13.0	68.8	0.0	19.8
LnGrp LOS	C	A	B	D	A	B	C	A	B	E	A	B
Approach Vol, veh/h		173			57			202			297	
Approach Delay, s/veh		18.7			18.7			16.5			20.1	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.8	18.5	5.0	15.8	7.2	16.1	7.2	13.5
Change Period (Y+Rc), s	* 4.7	6.5	* 4.7	6.5	* 4.7	6.5	* 4.7	6.5
Max Green Setting (Gmax), s	* 5	16.0	* 5	16.0	* 5	16.0	* 5	16.0
Max Q Clear Time (g_c+I1), s	2.0	4.8	2.1	4.6	3.4	9.1	3.4	3.1
Green Ext Time (p_c), s	0.0	0.3	0.0	0.2	0.0	0.6	0.0	0.1

Intersection Summary			
HCM 6th Ctrl Delay			18.6
HCM 6th LOS			B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

	↗	→	←	↖	↑	↘	↓
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	61	313	27	414	241	5	335
v/c Ratio	0.28	0.69	0.21	0.75	0.21	0.04	0.69
Control Delay	36.0	14.3	41.4	33.7	9.2	41.0	36.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.0	14.3	41.4	33.7	9.2	41.0	36.8
Queue Length 50th (ft)	24	7	10	147	29	2	124
Queue Length 95th (ft)	69	88	43	330	136	15	#358
Internal Link Dist (ft)		1012	964		770		2547
Turn Bay Length (ft)	200			200		200	
Base Capacity (vph)	718	824	129	768	1220	123	489
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.38	0.21	0.54	0.20	0.04	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			✥		↰	↱		↰	↱	
Traffic Volume (veh/h)	57	18	276	7	17	2	389	222	5	5	264	51
Future Volume (veh/h)	57	18	276	7	17	2	389	222	5	5	264	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	19	294	7	18	2	414	236	5	5	281	54
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	402	22	339	13	34	4	466	839	18	12	313	60
Arrive On Green	0.23	0.23	0.23	0.03	0.03	0.03	0.26	0.46	0.46	0.01	0.21	0.21
Sat Flow, veh/h	1781	97	1503	472	1215	135	1781	1825	39	1781	1525	293
Grp Volume(v), veh/h	61	0	313	27	0	0	414	0	241	5	0	335
Grp Sat Flow(s),veh/h/ln	1781	0	1600	1822	0	0	1781	0	1863	1781	0	1818
Q Serve(g_s), s	2.4	0.0	16.3	1.3	0.0	0.0	19.3	0.0	6.9	0.2	0.0	15.5
Cycle Q Clear(g_c), s	2.4	0.0	16.3	1.3	0.0	0.0	19.3	0.0	6.9	0.2	0.0	15.5
Prop In Lane	1.00		0.94	0.26		0.07	1.00		0.02	1.00		0.16
Lane Grp Cap(c), veh/h	402	0	361	50	0	0	466	0	857	12	0	373
V/C Ratio(X)	0.15	0.00	0.87	0.54	0.00	0.00	0.89	0.00	0.28	0.43	0.00	0.90
Avail Cap(c_a), veh/h	598	0	537	105	0	0	639	0	857	103	0	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.8	0.0	32.2	41.5	0.0	0.0	30.7	0.0	14.5	42.8	0.0	33.5
Incr Delay (d2), s/veh	0.2	0.0	9.6	8.6	0.0	0.0	11.3	0.0	0.2	23.0	0.0	21.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	7.1	0.7	0.0	0.0	9.5	0.0	2.8	0.2	0.0	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.0	0.0	41.8	50.1	0.0	0.0	42.0	0.0	14.7	65.8	0.0	55.2
LnGrp LOS	C	A	D	D	A	A	D	A	B	E	A	E
Approach Vol, veh/h		374			27			655			340	
Approach Delay, s/veh		39.4			50.1			31.9			55.3	
Approach LOS		D			D			C			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	46.3		26.0	27.3	24.2		8.9
Change Period (Y+Rc), s	* 4.7	6.5		6.5	* 4.7	6.5		6.5
Max Green Setting (Gmax), s	* 5	36.3		29.0	* 31	19.0		5.0
Max Q Clear Time (g_c+I1), s	2.2	8.9		18.3	21.3	17.5		3.3
Green Ext Time (p_c), s	0.0	0.9		1.2	1.3	0.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	40.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

5: SHANKS & SB 99

	→	↘	↙	←	↓
Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	381	55	205	257	491
v/c Ratio	0.73	0.11	0.60	0.25	0.83
Control Delay	34.7	2.9	37.7	10.0	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.7	2.9	37.7	10.0	31.9
Queue Length 50th (ft)	159	0	88	59	154
Queue Length 95th (ft)	294	14	180	110	#371
Internal Link Dist (ft)	479			528	450
Turn Bay Length (ft)		80	110		
Base Capacity (vph)	788	718	516	1416	775
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.48	0.08	0.40	0.18	0.63

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱	↰	↑						✥	
Traffic Volume (veh/h)	0	366	53	197	247	0	0	0	0	144	2	325
Future Volume (veh/h)	0	366	53	197	247	0	0	0	0	144	2	325
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	381	55	205	257	0				150	2	339
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	470	398	264	908	0				172	2	389
Arrive On Green	0.00	0.25	0.25	0.15	0.49	0.00				0.34	0.34	0.34
Sat Flow, veh/h	0	1870	1585	1781	1870	0				501	7	1133
Grp Volume(v), veh/h	0	381	55	205	257	0				491	0	0
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1781	1870	0				1641	0	0
Q Serve(g_s), s	0.0	11.4	1.6	6.6	4.9	0.0				16.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	11.4	1.6	6.6	4.9	0.0				16.7	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.31		0.69
Lane Grp Cap(c), veh/h	0	470	398	264	908	0				563	0	0
V/C Ratio(X)	0.00	0.81	0.14	0.78	0.28	0.00				0.87	0.00	0.00
Avail Cap(c_a), veh/h	0	913	774	600	1133	0				801	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	20.9	17.3	24.3	9.1	0.0				18.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.4	0.2	4.9	0.2	0.0				7.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.9	0.5	2.9	1.6	0.0				6.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.3	17.4	29.2	9.3	0.0				25.9	0.0	0.0
LnGrp LOS	A	C	B	C	A	A				C	A	A
Approach Vol, veh/h		436			462						491	
Approach Delay, s/veh		23.5			18.1						25.9	
Approach LOS		C			B						C	

Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			13.9	20.0		25.5		33.9				
Change Period (Y+Rc), s			5.1	5.1		5.1		5.1				
Max Green Setting (Gmax), s			20.0	29.0		29.0		36.0				
Max Q Clear Time (g_c+I1), s			8.6	13.4		18.7		6.9				
Green Ext Time (p_c), s			0.5	1.5		1.7		1.0				

Intersection Summary			
HCM 6th Ctrl Delay			22.5
HCM 6th LOS			C

Queues
6: NB SR 99 & SHANKS RD

PM EX PL PROJ
SIG IMPROVEMENT

	↗	→	←	↑
Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	244	325	486	345
v/c Ratio	0.62	0.27	0.80	0.77
Control Delay	32.5	5.9	31.0	29.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	32.5	5.9	31.0	29.3
Queue Length 50th (ft)	94	54	175	75
Queue Length 95th (ft)	181	88	324	#235
Internal Link Dist (ft)		528	1899	912
Turn Bay Length (ft)	110			
Base Capacity (vph)	621	1582	874	531
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.39	0.21	0.56	0.65

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
6: NB SR 99 & SHANKS RD

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑			↱			✥				
Traffic Volume (veh/h)	232	309	0	0	356	105	86	2	239	0	0	0
Future Volume (veh/h)	232	309	0	0	356	105	86	2	239	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	244	325	0	0	375	111	91	2	252			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	316	1089	0	0	440	130	104	2	289			
Arrive On Green	0.18	0.58	0.00	0.00	0.32	0.32	0.24	0.24	0.24			
Sat Flow, veh/h	1781	1870	0	0	1386	410	431	9	1194			
Grp Volume(v), veh/h	244	325	0	0	0	486	345	0	0			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	0	1797	1634	0	0			
Q Serve(g_s), s	7.6	5.1	0.0	0.0	0.0	14.7	11.8	0.0	0.0			
Cycle Q Clear(g_c), s	7.6	5.1	0.0	0.0	0.0	14.7	11.8	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.23	0.26		0.73			
Lane Grp Cap(c), veh/h	316	1089	0	0	0	571	396	0	0			
V/C Ratio(X)	0.77	0.30	0.00	0.00	0.00	0.85	0.87	0.00	0.00			
Avail Cap(c_a), veh/h	674	1089	0	0	0	926	449	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	22.8	6.1	0.0	0.0	0.0	18.6	21.2	0.0	0.0			
Incr Delay (d2), s/veh	4.0	0.2	0.0	0.0	0.0	4.3	15.5	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.2	1.5	0.0	0.0	0.0	6.0	5.7	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.8	6.3	0.0	0.0	0.0	22.9	36.7	0.0	0.0			
LnGrp LOS	C	A	A	A	A	C	D	A	A			
Approach Vol, veh/h		569			486			345				
Approach Delay, s/veh		15.1			22.9			36.7				
Approach LOS		B			C			D				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		19.2		39.0			15.4	23.6				
Change Period (Y+Rc), s		5.1		5.1			5.1	5.1				
Max Green Setting (Gmax), s		16.0		22.0			22.0	30.0				
Max Q Clear Time (g_c+I1), s		13.8		7.1			9.6	16.7				
Green Ext Time (p_c), s		0.3		1.1			0.7	1.8				

Intersection Summary			
HCM 6th Ctrl Delay			23.1
HCM 6th LOS			C

Queues

7: VINCENT RD & SHANKS RD

	↗	↘	↖	↑	↓	↙
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	431	128	155	224	279	289
v/c Ratio	0.70	0.20	0.48	0.28	0.63	0.49
Control Delay	25.2	4.3	31.5	12.0	31.3	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	4.3	31.5	12.0	31.3	6.7
Queue Length 50th (ft)	143	0	54	47	96	0
Queue Length 95th (ft)	259	31	125	108	#211	59
Internal Link Dist (ft)	1899			1610	770	
Turn Bay Length (ft)			200			200
Base Capacity (vph)	987	939	460	1189	588	697
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.14	0.34	0.19	0.47	0.41

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑	↑	↱
Traffic Volume (veh/h)	409	122	147	213	265	275
Future Volume (veh/h)	409	122	147	213	265	275
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	431	128	155	224	279	289
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	549	489	205	843	446	378
Arrive On Green	0.31	0.31	0.11	0.45	0.24	0.24
Sat Flow, veh/h	1781	1585	1781	1870	1870	1585
Grp Volume(v), veh/h	431	128	155	224	279	289
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1585
Q Serve(g_s), s	10.6	2.9	4.1	3.6	6.4	8.2
Cycle Q Clear(g_c), s	10.6	2.9	4.1	3.6	6.4	8.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	549	489	205	843	446	378
V/C Ratio(X)	0.78	0.26	0.76	0.27	0.63	0.76
Avail Cap(c_a), veh/h	1109	987	518	1029	660	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	12.5	20.7	8.3	16.4	17.1
Incr Delay (d2), s/veh	2.5	0.3	5.6	0.2	1.4	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	2.9	1.6	0.9	2.2	2.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.7	12.8	26.3	8.4	17.9	20.7
LnGrp LOS	B	B	C	A	B	C
Approach Vol, veh/h	559			379	568	
Approach Delay, s/veh	16.6			15.7	19.3	
Approach LOS	B			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		28.2		20.0	10.2	18.0
Change Period (Y+Rc), s		6.5		5.1	* 4.7	6.5
Max Green Setting (Gmax), s		26.5		30.0	* 14	17.0
Max Q Clear Time (g_c+I1), s		5.6		12.6	6.1	10.2
Green Ext Time (p_c), s		0.7		2.2	0.3	1.3

Intersection Summary			
HCM 6th Ctrl Delay			17.4
HCM 6th LOS			B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 3: VINCENT ROAD & BRADBURY ROAD

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	74	77	27	67	70	87	22	136
Average Queue (ft)	28	31	3	23	30	33	1	63
95th Queue (ft)	62	63	18	53	61	73	12	115
Link Distance (ft)		5548		3984		2558		842
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		200		200		200	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 4: NORTH & VINCENT ROAD

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	TR
Maximum Queue (ft)	89	181	63	224	299	58	296
Average Queue (ft)	33	87	23	163	90	5	156
95th Queue (ft)	74	146	54	241	221	35	263
Link Distance (ft)		1057	1010		781		2558
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200			200		200	
Storage Blk Time (%)		0		5	0		6
Queuing Penalty (veh)		0		12	0		0

Intersection: 5: SHANKS & SB 99

Movement	EB	EB	WB	WB	SB
Directions Served	T	R	L	T	LTR
Maximum Queue (ft)	320	105	134	223	316
Average Queue (ft)	163	39	91	75	162
95th Queue (ft)	270	109	141	165	285
Link Distance (ft)	493			572	496
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		80	110		
Storage Blk Time (%)	29	0	7	2	
Queuing Penalty (veh)	16	0	16	3	

Intersection: 6: NB SR 99 & SHANKS RD

Movement	EB	EB	WB	NB
Directions Served	L	T	TR	LTR
Maximum Queue (ft)	134	273	271	239
Average Queue (ft)	94	88	143	103
95th Queue (ft)	147	207	232	188
Link Distance (ft)		572	1905	940
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	110			
Storage Blk Time (%)	7	1		
Queuing Penalty (veh)	23	3		

Intersection: 7: VINCENT RD & SHANKS RD

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	241	79	141	117	196	128
Average Queue (ft)	136	28	66	53	99	60
95th Queue (ft)	209	60	113	96	163	106
Link Distance (ft)	1905	1905		1628	781	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			200			200
Storage Blk Time (%)					0	
Queuing Penalty (veh)					0	

Zone Summary

Zone wide Queuing Penalty: 74